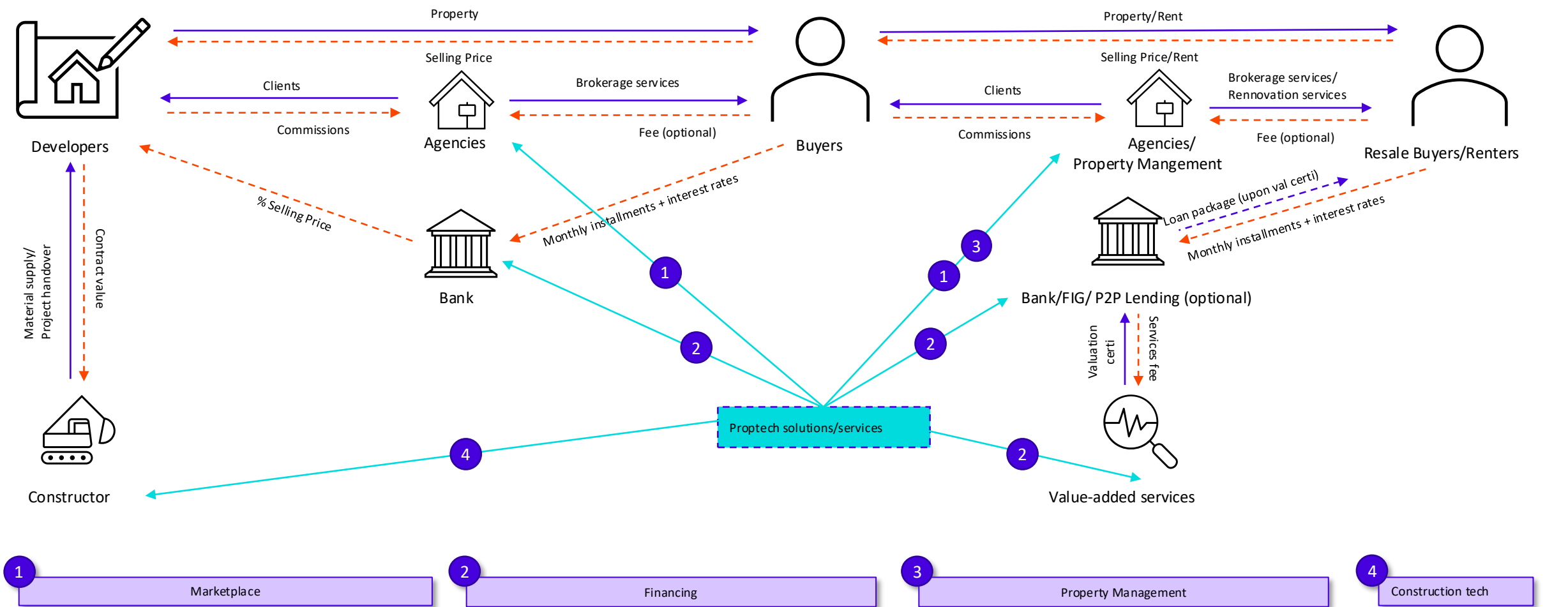
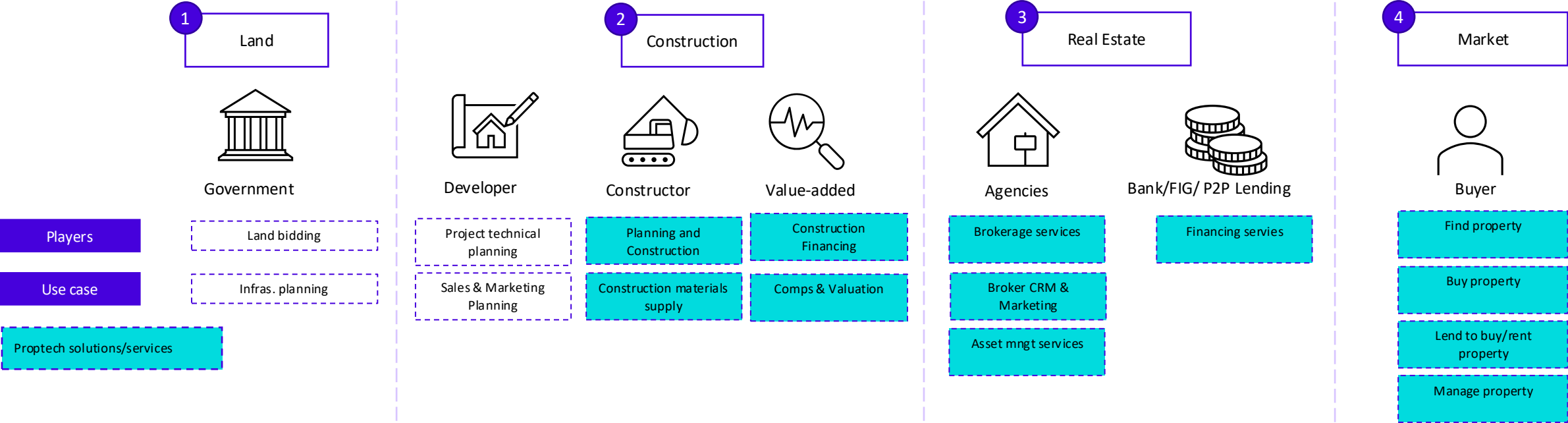

Proptech Sprint

Research Report




































Real Estate value chain & Proptech value proposition



Real Estate stakeholder map – Technology applications are revolutionizing services



Global Market Map of PropTech

	Listing & Marketplace	Property Financing	Property Management	Other Construction
Definition				
US	           	        	     	  
China	     	  	     	
Other countries	        		  	

4 key verticals where unicorn status can be reached by the datafication of the real estate processes through involvement in more than 1 vertical

Vertical	Marketplace	Property Financing	Property Management	Other construction tech
Value chain part	• Real estate/Market	• Construction/Real estate/Market	• Real estate	• Construction
Description	<ul style="list-style-type: none"> Online platform/mobile app that connect sellers (brokers) with buyers/renters. Core function sells lead/traffic to sellers/brokers – marketplace players usually integrate listings with broker CRM tool, affiliate mortgage as a comprehensive sales management solutions. Platforms can be served diverse sheltering purposes: buy, sell, rent, lease. 	<ul style="list-style-type: none"> Online mortgage lender that aims to offer lower-than-standard fees to (1) consumers looking for credit to help them buy or renovate a house (2) constructors looking for working capital rotation to help them handover the project on time. Business models can be: direct lending, indirect lending, and P2P lending 	<ul style="list-style-type: none"> Online platform help users to retrieve information on manage, maintain or make secondary use of that property 	<ul style="list-style-type: none"> Developer of software, promoting visibility across the construction management of inventory & asset tracking or reduce the inefficiencies across the project timeline. Customers are usually developers
Sub business models	<ul style="list-style-type: none"> Listings & Marketplace Agent tool/ Broker CRM & Marketing Online/ Tech-enabled broker 	<ul style="list-style-type: none"> Digital mortgage lender Comps & Evaluation Transaction management Crowdfunding 	<ul style="list-style-type: none"> Co-living/Home sharing Home improvement Interior design Smart home & IoT 	<ul style="list-style-type: none"> ERP, construction planning Automation/Robotics Building management (Energy, parking)
Revenue models	<ul style="list-style-type: none"> Subscription fee Sharing commissions (in-house agents) Platform services fee (ads fee) 	<ul style="list-style-type: none"> NIM Sharing commissions (referral) 	<ul style="list-style-type: none"> Services fee 	<ul style="list-style-type: none"> SaaS Or Fixed charge per service line
Unicorns example	<ul style="list-style-type: none"> US: Costar Group, Zillow, Opendoor, Side, Homelight, Pacaso, Place, VTS, Flow, Qualia, Orchard, Redfin China: Ke Holdings, Zillow, Mofang Living, FangDD, Anjuke India: Nobroker Korea: ZigBang SG: PropertyGuru 	<ul style="list-style-type: none"> US: Zillow, Redfin, Better.com, Snapdocs, Lendingtree, Opendoor China: Ke Holdings, Danke 	<ul style="list-style-type: none"> US: Lessen, Airbnb, Zillow China: Ke Holdings, Shenzhen Bin Technology, Tujia, Xiaozhu, Kujale, Zillow,, Danke SG: Livspace 	<ul style="list-style-type: none"> China: Mingyuan Cloud, Yitu Technology

Global precedents –biggest unicorns in the US, China & India

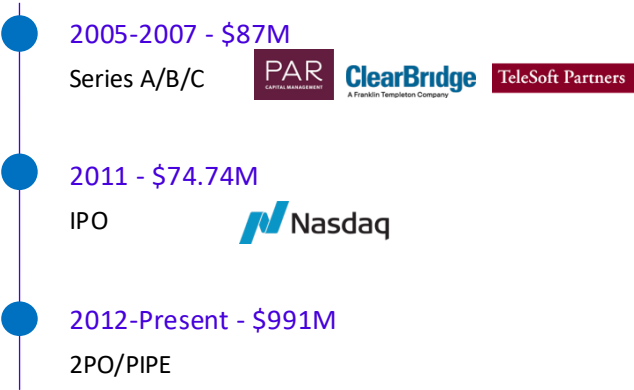
Precedents	Zillow	Costar Group	Redfin	Opendoor	Ke Holdings	Ziroom	Tujia	Nobroker
Founded	2004	1987	2002	2014	2018	2011	2015	2014
Location HQ	US	US	US	US	China	China	China	India
Most recent deal	PIPE 2023 - \$270K IPO 2011 - \$74M debut	Debt 2024 - \$1.1B	Debt 2023 - \$250M Series G - \$70M	2PO 2021 - \$770M Series E2 2019 - \$300M	Series D1 2019 - \$2.4B IPO 2020 - \$2.12B	Series B 2019 \$500M	Series E 2021 - \$198M	Series E 2023 - \$198M
Total funding raised	\$926M	\$5.1B	\$764M	\$1.35B	\$9.1B	\$2.1B	\$1.32B	\$430M
Market cap/ Valuation	\$13B (Market cap Oct'24)	\$30B (Market cap Oct'24)	\$1.26B (Market cap Oct'24)	\$1.29B (Market cap Oct'24)	\$25B (Market cap Oct'24)	\$4.5B (2019)	\$1.5B	\$1.0B
Key investors	Benchmark Capital Holdings, ClearBridge investment, Telesoft Partners	Resolving Credit (debt)	Glynn Capital, Annox Capital, Wellington Management	Deutsche Bank Ventures, Fifthwall, Norwest Venture Partners	Sumitomo, CITIC Capital, Source Code, Sequoia Capital China	Sequoia Capital, Tencent, Warburg Pincus, General Atlantic, SoftBank	Ctrip, Trip.com, Lightspeed China Partners, Homeaway	General Atlantic, Moore Strategic Ventures, Alphabet
Business model	<ul style="list-style-type: none"> Product: Online listing and marketplace platform also offers brokerage services: recommend house, virtual property tour, home loans Revenue: subscription fee origination and closing costs, home sales (iBuying) 	<ul style="list-style-type: none"> Product: proptech ecosystem offers (i) marketplace for both commercial and residential RE, (ii) data analytics, (iii) broker CRM, mkt Revenue: commissions, ads fee, subscriptions 	<ul style="list-style-type: none"> Product: Online listing and marketplace platform also offers brokerage services: recommend house, virtual property tour, home loans (mortgages) Revenue: commissions, ads fee 	<ul style="list-style-type: none"> Product: Online listing and marketplace platform also offers brokerage services: recommend house, virtual property tour, home loans (mortgages) Revenue: commissions, NIM from mortgage, title, home sales (iBuying) 	<ul style="list-style-type: none"> Product: O2O RE services platform offers marketplace, brokerage, home renovation, and recently financial solutions (home loans) Revenue: commissions, subscription, services fee 	<ul style="list-style-type: none"> Product: Online rental listing platforms also offer value-added services (cleaning, moving) Revenue: commissions, platform services fee 	<ul style="list-style-type: none"> Product: Short-term rental/ Apartment booking platform also offer property management services (cleaning & maintenance) (Like Airbnb) Revenue: rents, services fee 	<ul style="list-style-type: none"> Product: Online listing and marketplace platform, no charge brokerage fee, and has value-added services (painting, moving, interior setup) Revenue: subscriptions, ads fee, value-added fee
Key highlights	<ul style="list-style-type: none"> Revenue: \$2B (2023) RE services: 75% Rentals: 18 Mortgages: 5% GPM: 78% EBITDA %: 20% MAU: +194M Market cover: Residential RE Operating country: US 	<ul style="list-style-type: none"> Revenue: \$2.5B (2023) Market cover: Commercial & Residential RE Operating country: US, Spain, Germany 	<ul style="list-style-type: none"> Revenue: \$976M (2023) RE services: 63% Rentals: 18% Mortgage: 14% GPM: 33.77% Market cover: Residential RE Operating country: US 	<ul style="list-style-type: none"> Revenue: \$6.9B (2023) GPM: 75 Market cover: Residential RE Operating country: US 	<ul style="list-style-type: none"> GTV: \$301B 500K agents 42K stores across 103 cities 39M+ MAU (mobile) Revenue: \$6.4B (2019) 	<ul style="list-style-type: none"> Revenue: \$120M – 2023 Market cover: Residential RE (long-term rental) Operating country: China 	<ul style="list-style-type: none"> 1M+ listings Revenue: \$16M Market cover: Residential RE (short stay) Operating country: China 	<ul style="list-style-type: none"> Revenue: 122M MAU: 2.5M Acquired Society Connect to integrate financial module Market cover: Commercial and Residential RE Operating country: India

Zillow Group – US leading real estate services platform that serve seamless home transactions



Founded: 2004
Based: US

Funding history

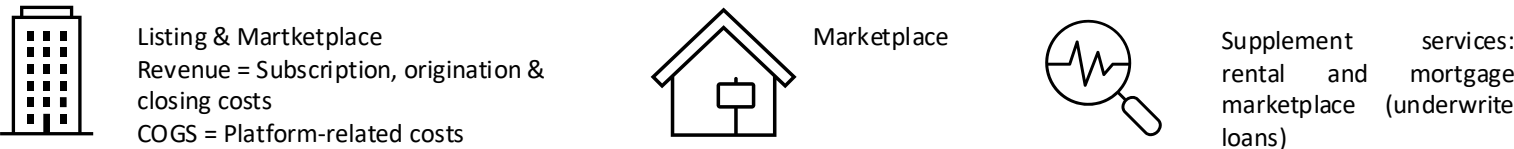


Current investors

- State Street Corp
- Sumitomo Mitsui Trust
- Schweizerische Nationalbank
- Nomura Holdings
- Swedbank AB
- SEI Investments
- Other institutionals

Description: Zillow pioneers the traditional US residential real estate market with online website serving real estate search and provide advertising platform for sellers, brokers and developers. Its datafication of 110 million US homes regarding valuation and satellite imagery was its core strength to win the market. The group now layers rental and mortgage marketplace to streamline the home transaction processes.

Revenue model



Operational and financial highlights

\$2T	2023 full year transaction value	194M	Q4 2023 active users Increase 1% yoy
\$2B	2023 Revenue	17	Markets (US states/terriroties) coverage
\$1.5B	2023 Gross Profit	20%	EBITDA margin



Zillow: Timeline

Feb 2006

- Zillow was founded by Llyod Frink and Rich Barton
- The company first launched website featuring online listing marketplace, automatic valuation of 40 million homes in the U.S. (1M+ visits in 3 days)

2008 - 2009

- Launched marketplace for Mortgage and Rentals
- Mobile app was launched delivering 88 million home data and majority of visits come from app since then

2011

- Zillow made first debut on Nasdaq Stock Exchange (\$20/share) when having 100M homes listed on their platform
- Revenue is recorded at US\$100M and valued at \$539M
- Acquired Postlets with \$1M to gain market share regarding rentals listing & marketplace (adding 500K users, 350K listings (rent, buy) to Zillowportfolio)

2012 - 2015

- Zillow aggressively expanded vertically by acquiring RentJuice (\$40M), Agentfolio, Mortech (\$17M), Hotpads (\$16M), StreetEasy (\$50M), Restly, Trulia (\$2.5B), Dotloop (\$108M). Acquisition strengthen Zillow footprint in rental listings, mortgage and geographical coverage
- Launched new business lines for 1) home improvement, 2) premier agent platform (broker CRM and more qualified lead biz)

2016 - 2021

- Maintained acquisition strategy to streamline user experience – Bridge Interactive, Naked Apartments (\$13M), New Home Feed, Mortgage Lenders or America (\$65M), Our East, Showing Time (\$500M), VRX Media.
- Revenue was growing at CAGR 16% with core businesses are marketplace (ads fee revenue + subscription + origination fee).
- Launched Zillow Home Loans to gain revenue from originating loans

2022 - Present

- Became U.S housing super app with acquisitions aiming to improve tech stack (i.e., Ai integration, CRM tools improvement, integrate real-time mortgage lending)
- Total transaction value: \$2T



Key Success Factors: Zillow Group

<p>Product: Zillow's rapid growth can be attributed to its innovative "closed loop" business model, which integrates marketplace, financing and property management</p>	<ul style="list-style-type: none"> • Offers 3 main products: listing & marketplace, rentals and mortgage • With impressive leads and traffic on the platform, Zillow covers and simplifies property transactions by having strong tech integration with supply-side partners (developers, brokers, homesellers, lenders) to articulate all available offerings with visibility and transparency <p>Net Effect: Serving a platform that can provide entire customer visibility over one transaction</p>
<p>GTM Strategy: Used data as the main hook to bootstrap user demand as they can browse as much info they need</p>	<ul style="list-style-type: none"> • Attract users with at-time well-built property data via a free online marketplace platform, US homebuyers could search for address, related transaction history, estimated valuation that can bootstrap demand (by Zillow algorithm) → Attract developers and brokers want to expand customer exposure paying for presence on website → Advertising revenue • Intensive company acquisition to leverage # listings, visits, improve data infrastructure and value-added services to streamline "home-shopping" experience <p>Net Effect: 1) Freemium model is a market hook that drives massive platform visits, 2) Holistic and transparent data provides online users sense of trust that keep them spending time on platform,</p>
<p>Roadmap: Zillow has a clear product development to gain attraction from both sellers and buyers</p>	<ul style="list-style-type: none"> • Start as a marketplace platform to aggregate customers via adequate real estate data and algorithm-based valuation • After capturing homebuyer browsing for historical transaction data, intensively acquire other listings companies to expand supply • Streamline the transaction process from browsing, selecting, financing to after-sale management (rental listings) <p>Net Effect: Becoming integrated real estate platform without sacrificing too much financial and carry inventory</p>

Ke Holdings – China leading O2O property services



Founded: 2001
Based: China

Funding history

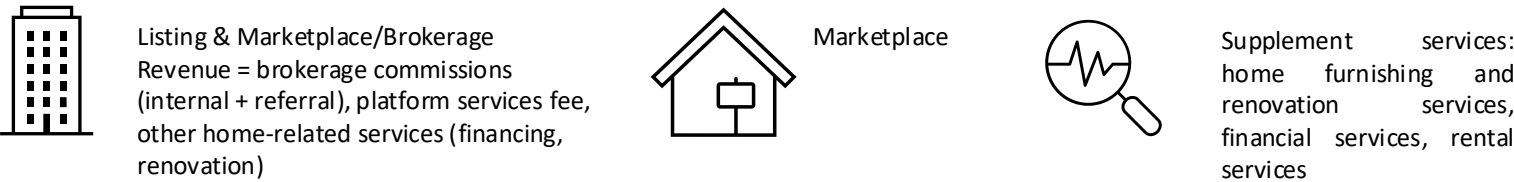


Current investors

- Tencent Holdings
- Softbank
- Sequoia Capital
- Hillhouse Capital
- Gaw Capital
- CPPIB

Description: Ke Holdings owns and operates Lianjia, the leading real estate brokerage brand with integrated online and offline operations. Ke Holdings IPO in August 2020 with major business offerings are: real estate marketplace (buy/sell and long-term rent), O2O brokerage services, and value-added services (financing – home loans; home renovation services - interior design referrals).

Revenue model



Operational and financial highlights

\$301B	2023 full year transaction value (+20.4% yoy)	43M	Q4 2023 active users Increase 18% yoy
\$10B	2023 Revenue (+28.2% yoy)	42K	Lianjia offline stores at 103 cities with 500K agents
\$3B	2023 Gross Profit	12%	EBITDA margin



Ke Holdings: Timeline

2001 - 2017

- Lianjia was founded by Zuo Hui as Beijing Chain Home Real Estate Brokerage with the first offline office, later known as Homelink
- Lianjia launched “Real estate dictionary” website that stores property information, especially up-to-date selling price
- By 2017, Lianjia had expanded by 8,000 offline outlets in 28 cities under traditional offline brokerage model (\$140T annual GTV at that time)
- Complete series A – 2014 (\$14M), series B – 2016 (\$840M) and series C – 2017 (\$784M) with key investors like Tencent Holdings, Softbank, Sequoia, China Renaissance, CDH Investments.

2018-2019

- Acquired Pacific Century Place of Gaw Capital to improve authentic supply sources, at \$1.53B price
- Lianjia became one of the largest brokerage houses in China with well-built data infrastructure ready for Beike transformation
- Launched online platform named Beike providing housing information, transaction support, and other home-related services (also brokerage)
- After the launch, revenue grew 60.6% and GTV from Beike accounted 50% of total value.
- Complete series D funding in 2019 with \$336M-round to eye for Beike US-exchange listed.

2020

- Ke Holdings raised \$2.12 to go public on NYSE in 2020 at \$85B valuation
- Total monthly active users on app peaked 39M+ with 500K agents working at 42K offline Lianjia stores across 103 cities

2022 – Present

- Complete acquisition of Shengdu Home Renovation Co., Ltd. (approx. \$1.2B) to expand new business line and market coverage (East China living & support services market)
- By 2023 year end, Ke Holdings entered an agreement to acquire Kongjian Zhihui Decoration at approx. \$220M to leverage its home renovation and furnishing services footprint in other 14 cities



Key Success Factors: Ke Holdings

<p>Product: Ke Holdings giant first-hand database allows it to gain trust from app users hereby paving way to involve in transactions more deeply</p>	<ul style="list-style-type: none"> • Offer 3 main products: listing & marketplace, broker CRM SaaS, and other supporting services (financing, home renovation and furnishing. • Beike's core successful product factor as an online platform is its domination in data stock, strong tech integration to either partner with authentic developers, brokers providing authentic listings or expand to other business lines like AR/VR, thus gaining revenue diversification. <p>Net Effect: Full visibility over services providing process and customer buying process allows with tech integration can help platform interrupts in transaction without annoying other traditional brokers</p>
<p>GTM Strategy: Leverage transaction data and offline brand reputation to interrupt the transactions without annoying brokers</p>	<ul style="list-style-type: none"> • Leverage Lianjia brokerage brand and consistent performance regarding brokerage services, Beike integrates tech to (1) generate Agent Network to earn commissions from each step of the services, (2) attract users via its well-built data infrastructure which has been collecting since 2014 through Lianjia housing dictionary. • Intensive buyout other value-added services provider to serve after-sale demand, in Beike case is <p>Net Effect: 1) Reputation from offline services together with holistic and transparent data provides online users sense of trust allow them to spend big purchase online, 2) diverse and real-time virtual experience triggers users to keep playing around and spend extra money on household appliances</p>
<p>Roadmap: Ke Holdings has a clear product development to gain attraction and earn higher margin as a platform</p>	<ul style="list-style-type: none"> • Start as a online real estate platform and CRM SaaS to aggregate customers via brand name and property data • Securing the proposition from critical mass of offline consumers and reputation with prior developers, intensively expand collaboration with other brokerage houses/freelance agents to expand supply and listings (majorly existing homes transaction) • Streamline the transaction process from browsing, experiencing 3D, virtual reality, selecting, buying to after-sale management (home renovation & furnishing; home loans) <p>Net Effect: Becoming integrated real estate platform for both sell-side and buy-side to earn both commissions and ads fee</p>

Vietnam Proptech Landscape

Research Report

Side by side VN proptech startups – Listings & Marketplace model has most players yet proven a successful model

Company	Batdongsan.com	Reti Proptech	One Housing	Mogi	NhaTot	Homedy	YouHomes	Rever
Founded	2008	2020	2023	2017	2022	2015	2019	2016
Latest Round	Acquired by PropertyGuru	Seed	-	-	-	Early Stage VC	Accelerator	PE Growth
Last funding amount	-	-	-	-	-	-	-	\$10.2M
Post money valuation	-	-	-	-	-	-	-	-
Key investor	CyberAgent	CyberAgent, VIC Partners	Backed by One Mount Real Estate Group	-	A member of ChoTot	Access Ventures, Genesis, Mynavi	-	Mekong Capital, Golden Equator Ventures
Business model	Online listings platform for home transaction: existing and new home; home rent and office lease	(1) O2O realty distribution channel for developers → product: new homes (2) Broker mobile-app CRM (Retizy)	Online listing & marketplace platform backed by giant VN-developers	Online listings platform for home transaction: existing and new home; and home rent	Online listings platform for home transaction: existing and new home; and home rent	Online listings platform for home transaction: existing and new home; home rent and commercial lease	(1) Online listings platform for home transaction: existing and new home; and home rent; (2) Value-added services (legal, insurance, mortgage referral)	(1) Online listings platform for home transaction: existing and new home; (2) O2O brokerage services; (3) value-added services (3D home tour for seller and buyer)
Traction	Revenue: \$2.5M EBITDA: -\$690K 80% market listings across VN	GTV: \$130M (2020)	2500 agents 90% primary sales listing of HCM, HN	-	1M listings 10M visits	1M users (2015)	1K retail users	Revenue: \$4.5M

Side by side VN proptech startups – Listings & Marketplace model has most players yet any successful model

Company	Sumica	Beto.vn	Meey Group	Poma Home	Dithuenha.com	Muaban.net	Alonhadat.com.vn
Founded	2017	2018	2019	2019	-	1998	2013
Latest Round	-	-	-	Accelerator	-	Secondary transaction	-
Last funding amount	-	-	-	\$25K	-	-	-
Post money valuation	-	-	-	-	-	-	-
Key investor	-	Backed by Rong Bay Brokerage	-	Microsoft Accelerator program	-	IDG Ventures Vietnam	-
Business model	Rent-specialized and job marketplace at Tier 1 cities: Danang, HCM, Hanoi only	(1) Online listings & marketplace for apartment-specialized transactions (2) Mortgage marketplace	One stop real estate services platform offering: 1) listing & marketplace; 2) home loans; 3) broker CRM & mkt; 4) value-added services (valuation, planning check, community review)	1) Online listings & marketplace for home transactions: exsiting and new homes, and home rent 2) Broker CRM, 3) Building Management Software (BMS)	Online listings and marketplace platform for 1) affordable rent targeting students, blue-collar workers, 2) shop rent	Online marketplace offering many products: real estate, car, household appliances, office	1) Online listings & marketplace for existing home transactions and home rent across Vietnam regardless cities; 2) Brokerage marketplace
Traction	50K+ downloads	1200 listings	Revenue: \$5M (2023) GPM: 37% NPBT: \$40k	50 commercial building under management	5K listings	-	-

Side by side VN proptech startups

Company	Homebase	Unlockdreamhome	Aplushome	Mvillage	Citics.vn	eValpro	Remaps
Founded	2019	2022	2021	2021	2018	-	2020
Latest Round	Early Stage VC	-	Accelerator	Series B		-	-
Last funding amount	\$30M	-	\$20K	\$10M	\$4M	-	-
Post money valuation	\$1.78M	-	\$12M	-		-	-
Key investor	Y Combinator, Vincap ventures, Antler, other ventures and corps	Backed by OCB (local bank)	Backed by Beta Group; Ikarus VC, Netport Cap, Asia Business Builders	Access Ventures, Genesia, Simple Tech Investment, Trip.com	Vulpes, Nexttrans, TheVentures, VIG	-	-
Business model	Real estate lending platform, alternative to traditional mortgage platform	1) Online marketplace for home transactions: new and existing homes, 2) Home loans underwriter (backed by OCB)	1) Online marketplace that offer investment on different property that ready to rent after disbursement 2) Rental services provider based on AUM (70%)	1) Co-living space that offers built-in community focusing on wellness of tenants	1) SaaS valuation services provider for banks, AMC, 2) Mortgage marketplace and tools that support transaction parties to close deal faster with financing options ready	SaaS valuation software	1) Online marketplace for property transactions, checking scheme that has been certificated; 2) API for scheme check
Traction	-	200K visits	40 outlets 2023 revenue: \$280K	Est. occupancy: 90% 28 outlets 2 branded hotels	65K+ valuation certi 30M+ real estate data 26 bank partnership Revenue: \$1.7M	-	Revenue: \$6.8K 110K registered users

Side by side VN proptech startups – Listings & Marketplace model has most players yet any successful model

Company	Cenhomes.vn	Housemap	Hoozing	Cyhome	Finhome	Mystay	Halo Apartment	HiFriendz	Houze Group
Founded	2019	2020	2015	2016	2014	-	2012	2021	2020
Latest Round	-	-	Later Stage VC	Accelerator	Accelerator	-	-	-	Corporate
Last funding amount	-	-	-	-	\$7K	-	-	-	\$2M
Post money valuation	-	-	-	\$150K	\$70K	-	-	-	-
Key investor	Backed by Cen Land	-	Nextrans, JAFCO Asia, Smilegate investment	FPT Ventures, Vietnam Payment Solutions	VSV Capital	-	-	-	DKRA Group
Business model	1) Online listings platform for home transaction: existing and new home; home rent and commercial lease; 2) O2O brokerage services	Online brokerage services	1) Online listings & marketplace for home transactions: new and existing homes; and long-term rent; 2) Broker marketplace	Apartment Management SaaS/BMS	P2P lending specializing real estate financing	Online listings platform for apartment rental specializing in Tier 1 city	Co-living apartment platform that offers services apartment rent under operation of Halo Apartment. Focus on tier 1 city and dense-populated districts	Online listing marketplace for service apartment rent, they offer brokerage services and marketplace only	1) Online marketplace and Digital brokerage services; 2) Property management SaaS, 3) Fintech (like REITs)
Traction	2M homes data, 500 projects data Revenue: \$1.4M NPAT: -7K 60K MAU (Dec' 19)	-	Revenue: \$2M (2021) 7K agents 50K apartment listings	Revenue: \$500K 550K users 425 customers	-	7K+ listings	200+ units for rent 5+ buildings	-	2021-2022: \$1.8M from brokerage services

Side by side VN proptech startups

Company	Biggee	Kientruc.com	Happynest	SpaceT
Founded	2017	2016	2020	2019
Latest Round	-	-	Seed	-
Last funding amount	-	-	\$720K	Early stage VC
Post money valuation	-	-	-	-
Key investor	-	-	Touchstone Partners	-
Business model	1) SaaS-driven valuation and check scheme/planning of property. Revenue model: subscriptions 2) Planning API (2B)	Online marketplace that connects buyers with architects	Online marketplace for furniture, connecting homeowners with design and construction professionals.	Online marketplace for furniture + bulk selling, connecting homeowners with furniture and renovation professionals
Traction	100K monthly visits 5K users	9K members 1K+ architects 4K+ projects		300K monthly visits

Disclaimer

This research report was developed under the close guidance of senior professionals during my tenure as an Investment Analyst Intern at a Singapore-based venture capital firm. All information and figures require updating and verification. The report is intended solely for reference, carries no commercial purpose, and is not directed toward any specific organization.