



Distribution of PropTech Benefits to Stakeholders of Real Estate Market

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1 INTRODUCTION

The mortality levels are declining, and life expectancy levels are increasing in the world. The latest predictions by the United Nations indicate that the world's population might increase to around 8.5 billion in 2030 and 9.7 billion in 2050.¹ The distribution of population in various continents has also changed over the last few decades. This accelerated increase in population puts unprecedented challenges to all the countries especially environmental, societal, and economic challenges. These challenges occurring due to the increasing population can be responded to by looking at future demographic trends and making strategic plans based on that information. Countries should prepare to meet the growing number of population and they need to invest in human capital by providing adequate housing, healthcare, and education facilities to all ages.

¹ https://www.un.org/development/desa/pd/sites/www.un.org.development.desa.pd/files/wpp2022_summary_of_results.pdf.

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Real estate purchases are expensive, not an easy decision to buy/sell and not traded as frequently as financial assets in the financial markets. Because of these unique features, most individuals feel the need for some advice from a professional and it ultimately increases the transaction costs. Information is the key input into the due diligence phase of any real estate transaction. If the value added by the professionals (intermediaries) is simply a source of information, their intermediary position is at risk and there is a possibility that buyers and sellers foster new ways to contact each other. Information and communication technology (ICT) may provide a means to make this possible. Developments in information and communications technology (ICT) have revolutionized almost every aspect of modern humanity including the real estate industry. Baum (2017) highlighted that this change has been facilitated in no small way by three activities: information provision, transaction, and effective control. The real estate industry also enjoyed the presence of ICT and the accelerated growth of digitization in real estate operations has led to the development of a real estate domain denoted as PropTech. The term “PropTech” can be defined as the use of modern technologies in the field of real estate industry. The increasing importance of digital transformations in the financial industry is now becoming also popular in the real estate industry which has a potential to transform the way the traditional real estate transactions take place. Bittini et al. (2022) argued that the real estate industry can no longer shut itself off from fundamental technological innovations although it is somehow slow to adopt this change. Due to the COVID-19, various players of the real estate industry were forced to experience new services and products by use of technology called PropTech. Investors’ requirements have grown during the pandemic, which indicates the vital impact that technology has made in the real estate industry over the last 2–3 years.

Economic sociologists consider various markets more as socially constructed phenomena instead of only fragile, technical, and natural free-floating entities. The more a stakeholder in a real estate industry able to broaden and obscure the network of entities the greater asymmetry it can create between itself and other agencies (Callon, 1998). In his theory of social construction of markets, Callon (1998) argued that an organized market cannot be reduced to a simple system of trade and transaction. As per author it is a process in which agents design and produce goods and enter competition to attain a demand. Weidenfeld, Williams, and Butler

(2010) discussed the importance of explicit-to-explicit knowledge transfers, and integrated ideas that could be copied. This transfer of knowledge resulted in new products or process innovations by the receivers. Considering the work of Callon (1998) and Weidenfeld et al. (2010) the inclusion of technology into the real estate market is easily understood. The real estate market has seven specific characteristics impacting the economic or physical nature and is prone to change or, not known as an industry that promptly accepts change. Bittini et al. (2022) insisted that the real estate industry can no longer close itself off from technological innovations despite its characteristics of being slow to embrace change.

Crowston and Wigand (1999) discussed the features of real estate industry and described it as an information-intensive and information-driven industry having high value, presence of intermediaries and also witnessing changes in information technology (IT).

PropTech is a part of digital transformation in the real estate industry, and it focuses on two aspects including the technology and mentality changes of the people. Berman, Schallmo, and Williams (2022) discussed that the Israeli real estate industry has been slow in implementing contemporary digital technologies. The authors argued that digital start-ups can shape the real estate industry and solve its challenges while fundamentally transforming its traditional business models.

PropTech proved to be the leading catalyst to the business culture transformation and processes in the real estate industry. For instance, solutions like internal mapping, property transaction management, facilitation in leasing process, valuation analytics, data analytics, and smart buildings can ease the digital transformation of the sector, etc. PropTech has saved time and money for millions of developers and property managers worldwide.

2 ADVANTAGES OF PROPTECH TO VARIOUS STAKEHOLDERS

There are several PropTech benefits to various stakeholders in the real estate industry. Various stakeholders are using PropTech for different purposes and the benefits also vary from stakeholder to stakeholder. An important advantage of PropTech is the increase in liquidity and the reduction of transaction costs. This benefit of PropTech is more advantageous to the buyer side in the real estate industry and they can go through

more number of buying options which were not there before the introduction of technology in the real estate industry. Fu (2022) discussed that the introduction of PropTech improved the liquidity by increasing supply, lowering transaction costs, and making more accessibility in the property transaction process of the Swedish real estate industry.

The rental sector of the real estate market also got several benefits from the introduction of PropTech. The interaction between the landlords and the prospective tenants has increased due to PropTech and both parties of the rental sector can use various channels of communication, and this facilitated their relation which ultimately increases the transparency in the rental transactions. The landlord and tenant relation was in favor of landlords before the introduction of PropTech, but this relation has equally balanced after the introduction of PropTech. Wood, Phelps, Economy, and Space (2018) argued that rental propTech platforms (RPPs) are going to change the landlords and tenants relationship and the role of RPPs will be similar to mediators of these relationships, claiming transparency, and efficiency. Gillespie and society (2010) discussed that digital platforms transmit social bias, and these platforms are more than utilities which facilitate the landlord and prospective tenant interaction while showing themselves as neutral. The authors mentioned that various features in these digital platforms are responsible for this inequality of data. Wainwright, Economy, and Space (2023) discussed the landlord and tenant power relations in the UK private rental sector are changing whereas historically, the power balance has favored landlords. The argument of historical power balance toward landlords is also argued by Fields, Rogers, and society (2021); Porter et al. (2019). The PropTech can also help designate individual rooms much faster and in a more flexible way for the landlords. This allows the more efficient use of space capacities in the rental market. We also see contemporary trends in the real estate market. Companies are moving away from traditional office space and into a more disintegrated common space which is facilitated using PropTech.

Another important benefit of PropTech is the effective use of data in the real estate market. Data collected through PropTech can be applied to many aspects of the real estate market, from property valuations to transaction processing. In fact, it is already transforming many aspects of the real estate industry. The data can be used to assess various demographic factors, preferences of various market participants, their risk levels, their bias toward a particular sub-sector, any specific trend in the market,

etc. Various stakeholders of the real estate industry can use the effective use of this data to generate more profit and to best organize it and apply it to improve their business. This use of PropTech is more beneficial for the seller side to make business and marketing strategies accordingly. The use of data is also beneficial to the landlords in the rental sector for targeted promotion of their projects to perspective tenants. Fourcade and Healy (2017) described that modern forms of information processing are “*the most recent installment in the continuing development of the control revolution*”. The author argued that information dragnets produce data which is huge and is analyzed to sort and slot people into categories of preference, riskiness, or similar features to define new strategies of profit-making. The digital platforms can be described as a new shape of these information dragnets. Another benefit of PropTech is the use of real estate data for risk mitigation and predictive analysis. This benefit will help all the stakeholders including the buyers, sellers, and agents to forecast the future direction of real estate market with comparatively higher level of certainty which was not possible before PropTech. Putatunda (2019) used advanced machine learning and artificial intelligence techniques and predicted the housing prices by considering input features of the Indian real estate industry which will help the buying side of any real estate transaction.

But other is one downside of this real estate data use. PropTech platforms are powerful, and these platforms save and make use of private data, like information about leaseholders of an apartment building. It’s important for such tools to be safe against incursions by bad players. The data collected through PropTech can also be influenced to reshape the preferences of the market participants. The participants using these platforms have to ensure that data is collected responsibly, and customers’ privacy is maintained. Many legal issues will be specific to the technology and the use of data.

The introduction of PropTech in the real estate industry is also helping the economy as a number of start-up projects and companies are entering into the market which will add value to the economy. Start-up projects and start-up companies are the most important in this PropTech concept and their numbers have grown significantly in many countries over the last few years. Big data and data analytics allow more innovation in the real estate market. This is also the primary reason there have been increased investments in the PropTech companies for the past few years in several countries.

PropTech communities are being created in many countries which are described as a collection of real estate professionals, technology experts, entrepreneurs, and community representatives which are united in a network. In these communities' real estate professionals, technologists, entrepreneurs, and city builders have come together to learn from one another. Being a part of these communities various stakeholders can easily keep up to date with what's happening within the PropTech industry, and within the PropTech Collective. Siniak, Kauko, Shavrov, and Marina (2020) discussed that almost 50 countries have created PropTech national communities, which are united in a single network and these communities arrange international symposiums, seminars, and workshops that influence the generation of new projects.

Another big advantage of PropTech is the facilitation of property acquisition and management process for the investors of the real estate industry. This benefit is more important for the international investors in any real estate market. The use of PropTech facilitates the property acquisition process and the legalities involved in the process and also creates transparency in the process. Mills and Gotsill (2020) concluded that in the Japanese real estate industry there is a need of PropTech that could facilitate the property acquisition process and management for these non-Japanese investors. System dynamics of real estate industry could be improved by the addition of PropTech which makes the real estate market transparent. This is one of the major benefits of PropTech and will eventually increase the focus of international real estate investors. International investors have major concerns about the transparency of real estate and PropTech can solve this problem. This will lead to higher growth of the real estate market in terms of volume of transactions and market capitalization.

PropTech can increase the competition in the real estate market which will affect the buyer side in the real estate transactions. Another benefit is the increase in market competition because of PropTech. Before the introduction of PropTech, the buyers had limited options of buying and the market makers took advantage of it to control the prices in the absence of pure market competition. Through PropTech the buyers can achieve more returns from the real estate market as buying and selling is done based on touch market competition. Fu (2022) mentioned that more and more competitors are entering the Swedish PropTech market, which will bring more competition and more cooperation at the same time.

The ultimate benefit of PropTech is the increase in the overall value of properties. All the above-mentioned benefits can improve the overall value of real estate properties for the sellers, and in turn, this will lead to higher rental returns for the landlords. Buildings with PropTech are associated with quality and are deemed more valuable than buildings that don't use PropTech. For the buyers, the value of the properties may be seen as a drawback but they also get a number of benefits like transparency, increased market competition, facilitation in the acquisition process, reduction in transaction costs, etc.

There are a number of benefits to developers along with some drawbacks of PropTech. Acemoglu and Restrepo (2018) discussed the negative impact of PropTech on wages in the sectors where technological penetration is increasing. The authors also discussed the other side of the issue that new technologies create innovative products and new tasks that could increase the demand for labor.

Another big advantage of using PropTech lies in achieving a sustainable environment. By adopting propTech solutions such as smart building sensors, stakeholders can achieve their ESG environment, social and governance goals and benefit from higher-quality buildings and low energy consumption which can be viewed as an added value.

Property marketing companies are taking advantage of PropTech in several ways. 3-D tour or digital floor plan are gaining importance in the buyers before taking a buying decision. Property marketing companies are taking advantage of edgy web design that excites the customers, on-brand content creation that engages them, and B2B digital marketing campaigns that cut through the noise.

The construction industry is considered an integral part of the real estate industry. Numerous technologies have been developed to make things easier and more streamlined in the construction industry. PropTech has shown its ability time and time again to help people from all walks of the real estate industry to optimize all aspects of property management. With the use of technology, developers, architects, engineers, contractors, and other stakeholders in a construction project can lead to better coordination. Another benefit is the all-encompassing cost efficiency. PropTech also benefits the developers in the real estate industry. Developers are designing and constructing buildings that are operated by tech platforms and enable the operation and management of these real estate assets much easier. These tech platforms examine various building characteristics, analyze the building characteristic data, and generate insights to

optimize the building's environment and operations. PropTech is also reshaping architectural companies. It is a difficult decision for any architectural firm to decide whether they should demolish or renovate old structures or which material they should use for a particular project or the reduction of carbon emissions. The use of PropTech has changed the traditional thinking toward these and many other traditional queries of this industry. With the use of virtual reality (VR) and augmented reality (AR), project teams can collaborate more effectively, identify potential problems rarely, and ensure that everyone involved in the construction process has a shared understanding of what the final product will look like. With AR, we can see property as it would look in real life, with all the furniture and fittings in place. And with VR, we can walk through a property and get a feel for the space before you make any decisions.

In the real estate market, for years, paper checks and clunky online processes have been utilized to collect earnest money deposits, pay commissions and referrals, and collect deposit checks. Digital payments, alternative investment platforms, and access to market data form key elements of FinTech innovations and are relevant for real estate. By moving onto these digital platforms, companies are focusing on improving and systemizing the way money changes hands within a real estate company's transaction lifecycle and operations. This effectively removes the disparate and cumbersome systems utilized to transmit money. They also help to reduce transaction costs. Also, more transparency and enhanced promotion brings more benefits to the players of the market.

One potential drawback of using PropTech is the loss of some level of clientele relationship. Depending on technology alone for all compliance issues can lead to loss of personal relationships with the clients. To ensure full compliance, regular checking of the processes and protocols for efficient working is needed. Cybersecurity is also a rapidly increasing risk center for PropTech platforms. Cybersecurity has become vital for all companies that manage large amounts of customer data, and the risks of a breach can impact both the customers and the business, with possible consequences from the regulators for not protecting personal data.

We have discussed a number of pros and cons of PropTech, and we can say that the advantages of PropTech far outweigh its disadvantages.

3 FINAL DISCUSSION

Due to the COVID-19, various players of the real estate industry were forced to experience new services and products by use of technology called PropTech. Using technology and digital transformation, both sides in real estate transactions are witnessing boosting confidence in adapting to new technology. All those factors formed a strong footing for the PropTech industry to continue advancing in the post-pandemic stage. It is also expected to have more and more competitors entering the digitalized real estate market which will ultimately bring higher competition and more collaboration at the same time.

In this paper we have discussed several benefits of PropTech to various stakeholders of the real estate industry and have shown that every stakeholder is benefiting from the use of PropTech but the level of benefit also varies among the stakeholders. We have also shown that the pros of PropTech are far greater than the cons and that is the real driving force for this growth. Real estate players are integrating technology deep into their activities from the beginning. Soon it will become a mindset—a given that no real estate project can be planned, leased, managed, purchased, or sold without the involvement of tech. PropTech has a promising future and has already started to shape the real estate for tomorrow. PropTech has great potential in the real estate industry, but at the same time it needs a clear regulatory framework that replaces unethical practices with practical and innovative technology-powered solutions.

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