Real Estate Insights: The current state and the new future of tokenization in real estate

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Abstract

Purpose – This real estate insight provides a comprehensive analysis of the current state and future potential of tokenization in the real estate industry mentioning several challenges to overcome to take advantage of this technology. We highlight potential benefits, including enhanced liquidity, increased security and improved accessibility. Additionally, the real estate insight critically discusses potential drawbacks, such as regulatory challenges and technological risks, and explores the impact of tokenization on real estate prices.

Design/methodology/approach – This real estate insight employs a comprehensive literature review alongside a qualitative analysis of various case studies to explore current implementations of tokenization within the real estate industry. Multiple applications of tokenization in the real estate industry are examined, including fractional ownership, property management and transaction processes. The study investigates the optimization potential of tokenization for asset liquidity in the real estate area, transaction transparency and security. It also critically discusses potential challenges, such as regulatory compliance, security vulnerabilities and market adoption.

Findings – The future of real estate tokenization, driven by blockchain technology and smart contracts, offers significant potential for growth, enhancing liquidity and accessibility through fractional ownership. Smart contracts automate and secure transactions, while evolving standards and regulatory frameworks in regions like North America, Europe and Asia support market expansion. Since its initial implementation with the St. Regis Aspen Resort STO, a stream of successful projects has highlighted the viability of tokenization. However, challenges remain, including the need for regulatory clarity, industry and customer education, displacements of market participants and jobs and environmental impacts. Integrating advanced technologies like AI and IoT can further streamline property management and investment decisions.

Practical implications – The real estate insight's practical implications extend to industry professionals, policymakers and technology developers. Professionals gain insights into how tokenization can enhance liquidity and security in the real estate sector, guiding strategic decision-making. For policymakers, understanding potential challenges like regulatory compliance and technological risks informs the development of supportive regulations. Technology developers can also benefit from understanding the sector-specific applications and concerns raised. Highlighting the need for robust security measures and regulatory compliance in tokenization systems may foster better design practices. Therefore, the real estate insight's findings could significantly shape the future development of tokenization integration in the real estate industry.

Originality/value – This real estate insight offers original value through a comprehensive analysis of the current and future impacts of tokenization in the real estate industry. It examines various applications of tokenization and critically discusses the potential challenges. The focus on informing strategic decisions for professionals and policymakers enhances its utility as a resource. Additionally, by addressing both the benefits and drawbacks, this study contributes to the broader discourse on the societal implications of tokenization. In

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the context of rapid technological advancement, such thorough studies are rare, further underscoring the real estate insight's originality.

Keywords Tokenization, Real estate, Fractional ownership, Blockchain technology, Regulatory challenges, Market adoption

Paper type Real estate insights

Tokenization: from concept to reality

The process of converting asset rights (e.g. ownership) into digital form (i.e. security token) is called digitalisation (Figure 1). Blockchain technology is utilised for storing and processing data in the digitisation process. Contrary to cryptocurrencies, the tokenization of real estate is a promising application since it represents a process for real-world assets (RWAs) bringing on-chain as security tokens to take advantage of blockchain technology. The origins of tokenization can be traced back to the early development of blockchain technology (Wealthward Capital, 2024).

Specifically, tokenizing real estate began in 2018, with the St. Regis Aspen Resort in Colorado being one of the earliest properties to be placed on the blockchain and allowing investors to benefit from rental income and potential appreciation in value. This was achieved through a Security Token Offering (STO) – the IPO for security tokens – launched by Elevated Returns, an asset management company based in New York (Baum, 2021; Buckton, 2023).

Smart contracts and regulatory advances: shaping the future of tokenized assets

There are several considerable milestones in the tokenization of RWAs (real estate, arts, wine, etc.) such as smart contracts programmability, improvements in standardisation and interoperability and regulation and compliance. Smart contracts, powered by blockchain technology, play a crucial role in tokenization. These contracts are self-executing, automating and enforcing the terms of an agreement between parties without the need for intermediaries. In real estate tokenization, smart contracts are used to digitise property assets, create tokens that represent ownership and facilitate transactions on a decentralised platform. These contracts were first proposed in 1994 by Nick Szabo, an American computer scientist who also conceptualised a virtual currency called "Bit Gold" in 1998, ten years before Bitcoin was introduced, and became widely accessible with Ethereum's launch in 2015. Smart contracts are self-executing agreements that allow the ownership of assets to be verified and managed without intermediaries. They enable faster and easier buying, selling and trading (Buckton, 2023). In addition, there exists a fundamental and universal framework established by Ethereum's ERC-20 token standard. Following this, other standards emerged, such as ERC-721 and ERC-1155 for non-fungible tokens (NFTs) and ERC-1400 for tokenized securities. All of these standards have a positive influence on the interoperability of tokens, ultimately providing easier trading and transferring across various platforms (Bhat and Gupta, 2022; Steininger, 2023; Kreppmeier *et al.*, 2023).

Source(s): Created by the author

Figure 1.
Tokenization process

In the digitalised world, having a more accurate and clear regulatory framework with stringent requirements is important to enhance transparency, reliability and protection for investors. In the United States, the existing Securities and Exchange Commission (SEC) framework has been used for the first tokenization projects whereas in Europe, the new Markets in Financial Instruments Directive II (MiFID II) and the Markets in Crypto-Assets Regulation (MiCA) will play pivotal roles in this regard.

Regarding the transformations caused by digitalisation in finance, the EU adopted a comprehensive legislative framework to regulate the issuance of crypto assets and the services provided concerning them, in accordance with the 2020 digital finance strategy. This framework, dedicated to markets in crypto-assets (MiCA), will support innovation, provide proportionate treatment for issuers of crypto-assets (EU's terminology for security tokens) and crypto-asset service providers to scale their businesses across borders, and offer significant benefits in terms of cheaper, faster and safer financial services and asset management. MiCA requires virtual asset service providers to be responsible for the transactions occurring on their platforms. MiCA can be compared to a pan-European regulation for a driver's license, designed to ensure that crypto-asset service providers meet common standards. Finalised in May 2023, MiCA is set to be enforced from December 30, 2024 (European Commission, 2024).

Successful implementations of real estate tokenization projects

The notable implementations of real estate tokens across various markets, which already exist, provide valuable insights into the potential and practicality of tokenizing real estate assets.

Successful real estate tokenization projects, such as "Commercial Real Estate Ventures", "Residential Property Tokenization" and "Tokenization of Unique Properties" show the viability of this new technology. On the one hand, tokenizing high-value commercial properties in financial markets like New York City and London enables retail investors to purchase tokens representing a share of the property in these major financial markets, which states the viability of tokenization in managing large-scale investments and distributing returns efficiently. On the other hand, tokenization has facilitated homeowners in selling fractional interests in their properties, thereby increasing the liquidity and accessibility of home equity within the residential sector. This approach has also opened up new financing avenues for homeowners. Also, tokenization of unique properties allows for shared ownership and investment in properties that typically have high entry barriers, like historical buildings. As we mentioned before, a specific example highlighting the success of this approach is the STO for the St. Regis Aspen Resort, called "Aspen Coins". Tokenization allowed investors to buy and sell digital fractional ownership of this luxury property. Raising a considerable sum of money in this project demonstrated how digitalisation can create new opportunities for investors interested in real estate to profit (Zoniqx, 2024).

Due to enhancing the awareness of blockchain technology, the appeal of fractional ownership, and the desire for liquidity in real estate investments, the adoption of tokenization in the real estate sector is continuously growing. This increasing trend also shows the growing interest from both institutional and individual investors, with an emphasis on diversification and risk management. So far, due to support from evolving regulatory environments of the larger economies in North America, Europe and Japan, this increasing trend in interest has been more found in these regions. Moreover, in Asia and the Middle East, countries like Singapore, the UAE and Hong Kong are emerging as hotspots due to their progressive regulatory frameworks and high technology adoption rates.

Tokenization constructions in the different countries: USA, Europe, Japan

Towards digitalisation, different countries have developed various infrastructures. For example, in the United States, real estate tokens often trade as securities and have to be registered in an exemption like Regulation D or Regulation A+. Tokenization platforms like RealT must comply with SEC regulations, including the Securities Act of 1933 and the Securities Exchange Act of 1934. In Europe, also real estate tokens are considered as securities. Each EU member state has its own regulation; for instance, Germany's Electronic Securities Act (eWpG) allows for the issuance of digital securities, including tokenized real estate, under a regulated framework that ensures compliance with MiFID II and AML regulations (Heise, 2021). Switzerland's federal government and the Swiss Financial Market Supervisory Authority (FINMA) supervise the regulation of Security Token Offerings (STOs) and Initial Coin Offerings (ICOs). They classify tokens into three categories and maintain a positive and flexible stance towards them. Asset-backed tokens are considered securities and are regulated under Swiss financial market laws. STOs must comply with FINMA's guidelines and adhere to key Swiss regulations, including the Stock Exchange Regulation Act, Anti-Money Laundering (AML) Regulations, Banking Regulations, Financial Market Infrastructure Regulations and Collective Investment Scheme Regulations (Ebrahimiyan *et al*., 2021). In Asia, Japan's Financial Services Agency (FSA) regulates tokenized real estate. The Payment Services Act (PSA) and the Financial Instruments and Exchange Act (FIEA) provide the legal foundation. STOs were legally recognised by the revision of FIEA in 2020. Tokens representing real estate ownership are treated as securities, requiring compliance with FIEA, which includes disclosure requirements, registration and AML measures (Global Legal Insights, 2024). It is highly significant that STOs have been positioned under the FIEA in Japan. This clarifies the position of STs as financial instruments and creates an environment in which many investors can invest with confidence.

In Japan, real estate security tokens are a typical example of the STOs. In fact, several companies including Kenedix already issued real estate security tokens, and Osaka Digital Exchange Co., Ltd. operates the first Proprietary Trading System (PTS) for security tokens in Japan (Kenedix, 2024).

The future of real estate: tokenization and technological integration, challenges and opportunities

There is considerable potential for growth in real estate tokenization in the future, driven by technological advancements, evolving regulatory landscapes and increasing market acceptance. Moreover, when blockchain technology develops, the real estate transaction process will become more effective and time-efficient. This new technology has enabled real estate property buyers and sellers to experience a more seamless property transfer process eliminating the traditional market obstacles like intermediaries and paperwork. A rising understanding and trust in blockchain technology can lead to wider adoption and market expansion across various types of assets, including real estate, in different parts of the world.

Taking advantage of revolutionary technologies like Artificial Intelligence (AI), the Internet of Things (IoT) and Big Data and integrating real estate tokenization with these technologies can provide more efficient property management, more enhanced market analysis and better investment decision-making. These integrations have the potential to result in more efficient property management, improved market analysis and more informed investment decision-making. Additionally, the market is expected to witness the emergence of new investment products and services centred on tokenized assets. This could include diversified real estate token funds, derivative products and automated investment platforms utilising AI algorithms. As the secondary market for tokenized real estate assets develops, an increase in liquidity is anticipated, which will attract more investors, further deepen the

market and enhance the overall stability and appeal of real estate as an investment class (Zoniqx, 2024).

Advancements in blockchain technology will greatly influence the scalability, speed and security of real estate tokenization. Enhanced blockchain infrastructure, including better consensus mechanisms and increased interoperability between different blockchain platforms, will enable more efficient and secure transactions.

Tokenization has the potential to revolutionise the ownership, trading and management of real estate. By making real estate investments more accessible and divisible, it will enable more fluid trading and ownership models. Blockchain's transparency and the reduction in the need for intermediaries can lower transaction costs and time, enhancing efficiency and reducing expenses. Additionally, tokenization could disrupt traditional roles in the real estate industry, such as brokers, agents and legal services, by automating and digitising many of their traditional functions (Anniina *et al.*, 2022).

However, there are several challenges that the real estate tokenization market must overcome to realise its full potential. Achieving regulatory clarity and harmonisation across jurisdictions is vital for fostering cross-border investments and market stability. Building trust and educating traditional investors and real estate professionals will drive wider adoption. Additionally, establishing industry standards for tokenization processes and blockchain interoperability is essential for seamless transactions and integration with existing real estate systems.

Furthermore, evidence suggests that digitalisation in the real estate sector can pose challenges related to jobs and employment opportunities. For instance, research investigating the effects of digitisation on jobs in Germany's real estate sector, the largest economy in the EU, indicates that with the advent of digitalisation, one out of every two real estate jobs will need to be redefined. This potential job displacement is an important aspect to consider as a challenge in the digitalised world (Piazolo and Dogan, 2021).

As another concern in the technology field, we can mention its environmental impact. The carbon footprint continues to grow due to the expansion of data centres, cloud computing and the widespread use of electronic devices. Many blockchain networks, like Bitcoin and Ethereum (until 2022), rely on time- and energy-intensive proof-of-work (PoW) protocols to validate transactions and secure the network. These processes require massive computational power and, consequently, large amounts of electricity, contributing to significant carbon emissions. Also, the more efficient proof-of-stake (PoS) protocols as used by Ethereum since 2022 must be further developed to meet the requirements of the industry.

Moreover, tokenization and the possibility of fractional ownership of real estate can fundamentally impact real estate prices and the dynamics of investments. By lowering the threshold for investment, tokenization can increase demand and gradually enhance property prices. This bears the risk of excluding traditional residents who cannot compete financially.

Conclusion

In conclusion, real estate tokenization, propelled by blockchain technology and smart contracts, signifies a transformative shift for the real estate industry, enhancing liquidity, accessibility and transaction security through fractional ownership. Noteworthy implementations of hundreds of properties validate the potential and advantages of this innovative method. Despite these promising developments, challenges such as regulatory clarity, market education, displacement, technology and environmental concerns persist. The integration of advanced technologies, including AI and IoT, is set to further streamline property management and investment decisions. As regulatory frameworks continue to evolve and market acceptance grows, real estate tokenization is on the cusp of reshaping the industry. This will make investments more accessible and efficient while potentially

disrupting traditional roles and practices. The expansion of tokenization into various asset classes, accessibility, clearer regulations and enhanced interoperability are key trends that will drive its future growth. The field of real estate tokenization is thus poised for significant advancements, promising a more inclusive, efficient and transparent financial landscape.

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