Digitalization of the Real Estate and Construction Sectors and the Impact of Property Technologies on Real Estate Professional Enterprises: The Case of the Turkish Real Estate Markets

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SUMMARY

PropTech is an interdisciplinary field that has emerged from the widespread adoption of digital technologies within the real estate and construction sectors. It encompasses the integration of technological innovations into real estate operations and is effecting transformation across residential, commercial, and other property markets. This research endeavors to address the intricacies and fragmentation of processes involved in real estate development, construction, appraisal, marketing, leasing, and management within residential and commercial real estate, which are often managed by disparate stakeholders and are susceptible to errors. The application of technologies such as artificial intelligence (AI), Internet of Things (IoT), blockchain, big data analytics, augmented and virtual reality (AR/VR), and mobile platforms is extensive across various processes, aiming to address these complexities in development, sales, leasing, management, valuation, and investment. In scholarly discourse, PropTech is characterised as an ecosystem that intersects with Construction Technologies (contech), real estate FinTech, smart-city innovations, and digital twin applications. Sub-ecosystems within PropTech include components such as blockchain payment systems, 3D virtual modelling, data analytics, and sensor networks.

Consequently, a comprehensive and succinct survey was conducted to identify PropTech firms, most of which are newly established and in the early stages of development. Since over 50.49% of PropTech companies were founded after 2015, this underscores the sector's novelty. Additionally, a significant factor is geographic concentration: 160 of the 205 firms are headquartered in Istanbul, capitalising on a vibrant business environment that encourages technological investment. These companies mainly operate in information technology, software and services, mobility, Construction Technology (ConTech), data analytics, logistics, and sensor technologies. This provides evidence that PropTech firms in Türkiye are emerging and expanding substantially, predominantly driven by market demand. Numerous startups are located within university technoparks and incubation

centres. The PropTech market is anticipated to grow rapidly in the near future, with a diversification of services and activities.

This study also identifies gaps between industry practitioners and academic scholars. Accordingly, the PropTech hub established within Ankara University's Department of Real Estate Development and Management is one of the pioneering educational centres for PropTech in Türkiye. This initiative is perceived as a strategic advancement aimed at promoting not only academic research but also sector transformation; by fostering sustainable collaborations with industry stakeholders, it can significantly contribute to Türkiye's aspiration to become a regional PropTech hub. Furthermore, the study indicates that certain construction and real estate professions will gradually diminish in importance as technological advancements progress, whereas cybersecurity is anticipated to assume greater prominence. These changes will profoundly influence both industries and the corresponding labour markets.