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A real estate development model for Turkey: real estate certificates and integrated project delivery

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Abstract

Purpose – Technological developments are having an impact on the construction sector and are creating a paradigm shift in project delivery methods. Traditional project delivery systems are inadequate in current project development processes. A more integrated project delivery system and the establishment of contractual and financial structures are needed. The purpose of this study is to incorporate integrated project delivery and real estate certificate concepts and propose a model for real estate development.

Design/methodology/approach – As a methodology, both integrated project delivery and real estate certificate concepts are reviewed individually, and a case to real estate certificate in Turkey is examined.

Findings – A real estate certificate is a new method for financing the development process. The system covers the financial dimension of the integrated project delivery system. When these two concepts are combined, they provide an alternative to the real estate development process.

Research limitations/implications – This study is a preliminary study and lays the foundation for future studies.

Practical implications – In theory, both concepts have many advantages, in practice, it is essential to create the necessary legal basis for these advantages to be valid. As this process requires significant planning and contract management, the proposed model must be properly designed at the start of the project.

Originality/value – This study proposes a new model for real estate development by combining integrated project delivery and real estate certificate concepts.

Keywords Integrated project delivery, Real estate development, Real estate financing, Real estate certificates

Paper type Research paper

Introduction

Financing has always been a significant problem in real estate development. While real estate projects can be tackled utilizing various financing approaches, there are usually three types of financing methods: construction loans, permanent loans and equity (Peiser and Hamilton, 2012). Real estate development and construction sectors are far from lean principles with a very low rate of return compared to the manufacturing sector (Alreshidi *et al.*, 2017). In recent years, ways of doing business in the world have started to changed substantially and become more collaborative, shared and nonhierarchical (Snow, 2015). Undoubtedly, this transformation affects the real estate development sector. Real estate development sector can be examined in two dimensions: physical and financial dimension (Sharkawy, 1994). On physical dimension construction professionals and on financial dimension real Estate developers are trying to make projects more collaborative, shared and lean. On physical dimension, to achieve this goal the integrated project delivery (IPD) has developed (AIA, 2007). With this delivery method, project participants can collaborate at early stages of the project with profit and loss sharing concept. However, establishing this profit and loss sharing concept is not very easy in the projects. IPD also passes through the owner, contractor, designer triangle. In fact, real estate development process is a multi-layered process including multiple stakeholders. The contracting strategy for IPD

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should allow a system to include these stakeholders like landowners, users and public institutions.

On financial dimension, developers try to find new financing methods. Therefore, various credits and funds are created both from banks and investors. Even the crowdfunding method for real estate development is started to be considered by developers (Montgomery *et al.*, 2018). In Turkey, a new financing method, real estate certificates are established for the development of a project (Gökgöz and Dizkırıcı, 2017). With a real estate certificate, the project can be divided into shares over the saleable areas, and these shares can be sold through the stock exchange. In this way, users who want to invest in a project can easily access the market, and investors and developers can easily resolve their financing problems.

This study reviews IPD on the physical dimension and reviews the real estate certificates in the financial dimension with a case from Turkey. After, it proposes a new model integrating two concepts.

IPD

IPD is a nontraditional project delivery model (Neufville *et al.*, 2011) that is based on a profit sharing partnership that leads project stakeholders work collaboratively and together. Although the IPD concept is mentioned in the literature over the years in 2000, it was first published by AIA in 2007 as a guide document. According to the definition of AIA "IPD is a project delivery approach that integrates people, systems, business structures and practices into a process that collaboratively harnesses the talents and insights of all participants to optimize project results, increase value to the owner, reduce waste, and maximize efficiency through all phases of design, fabrication, and construction (AIA, 2007)." With this methodology, stakeholders are not engaged in adversarial relationships with each other in construction projects, and processes are progressing more efficiently (AIACC and AIA, 2014).

IPD is a project delivery method that brings all stakeholders together for a common purpose and connects them with a contract. All stakeholders enter data on a shared platform. The main purpose is to ensure that all stakeholders could work collaboratively from the beginning to the end of the project. Designers, contractors and potential operators work to create a facility where they can easily build and maintain, and these technical experts, together with leading financial institutions, plan consistent staging and flexibility of the project (Neufville *et al.*, 2011). Although IPD methodology may appear to be a very efficient project delivery system, in theory, it can sometimes be difficult to implement in practice (Roy *et al.*, 2018). Fu and Liu (2018) examined the deficiencies and challenges of previous IPD projects. This review has revealed some key deficiencies. Accordingly, the deficiencies are (1) cmutual costs and liabilities are sometimes misinterpreted, (2) the need for facilitation and coaching of IPD principles that are not present in conventional contracts and (3) the participation of owners is weak.

There are generally four types of business models in implemented IPD projects. These are (1) fixed profit, (2) guaranteed variable costs without a cap, (3) profit based on project results and (4) limited change orders (Fischer *et al.*, 2017). AIA, on the other hand, has proposed three different business models in its contract forms. Of these, the A295 contract is a "Construction Manager at risk" contract, and the AIA has planned it as a transitional contract (AIA, 2008a). C191 contract form gives a fixed profit or incentive based on the cost of the project (AIA, 2009). This is not utterly compatible with the IPD. In this type of contract, the cost is guaranteed under certain limitations. C195 is a system in which three main stakeholders establish a new limited-liability company (AIA, 2008b). Although it appears to be more integrated than others, there is no revenue sharing through project sales.

When IPD was mentioned in the AIA IPD guidance documents, it was emphasized that stakeholders are engaged in a relationship based on a partnership of profit/loss sharing.

In AIA IPD contracts, the costs of the designer and the contractor are always guaranteed under certain conditions. In addition, profit sharing has always been calculated by the cost of the project. The owner obtains a profit from the sales of the project. In this case, the profit sharing of other stakeholders should be based on the project's income–expenditure cycle.

Real estate certificates

What real estate certificate is?

Real estate certificate is a capital market instrument with equal nominal values, representing certain independent units of the real estate project or certain area units of those independent units (Köroğlu, 2016). With a real estate certificate, real estate is divided into small shares and may be traded on the stock market. (Gayrimenkulde Sertifika, 2017; TOKİ, 2017). Real estate certificates provide financing options through the capital market to their issuers (Altınkeser and Yılmaz, 2018). Trading of these certificates is an alternative option for investors interested in investing their money in the capital market (Gayrimenkul Sertifikaları, 2017). It allows companies with a real estate project that is about to start or is in the process of selling independent units (residential and commercial units) by dividing them into smaller units, i.e. certificates (Köroğlu, 2016). It also allows those who purchase adequate certificates to become the owner of an independent unit by transferring certificates into title deed and those who do not have sufficient certificates to benefit from probable appreciation (Doğaner and Özdemir, 2017).

Real estate certificates are a new and alternative model when considered among the models used in real estate financing (Baran, 2020). It offers a new understanding when compared to other financing tools in terms of creating the opportunity to buy real estate directly by the investor or to become a partner in the value of the project. Investors can either receive real estate with the certificates they have received, or they can share a profit from the selling of a project's independent unit with their limited savings. It is an alternative model in terms of financing the project with its issuer perspective Project development companies may fund their real estate projects from capital markets by issuing certificates without the use of bank loans or equity (Nacar, 2019).

The first examples of certificates for real estate are made out as the purpose of the housing. Nevertheless, the communiqué provides no constraint on this. Therefore, the issuers can share ownership of all kinds of independent units such as offices, shopping centers, hotels, distribution centers, manufacturing facilities and hospitals with the investors who want to buy it (Nacar, 2019).

If we examine in a timeline of the real estate certificate, we can divide it up into different phases (Figure 1). The phases are respectively, start of the project, public offering, trading on the stock exchange and after the end of the project, the primary and secondary execution of the certificates.

In the first stage, the issuer, the Housing Development Administration of Turkey (TOKİ) selects the sections to be issued real estate certificates in the project and announces them to the public at the relevant places and determines the number of certificates for which flats will be collected. Certificates are submitted to the public within the specified period by collecting the demand, and the sum of funds from the market is completed. After the initial public offering, the certificates begin to be traded on the stock exchange under free-market

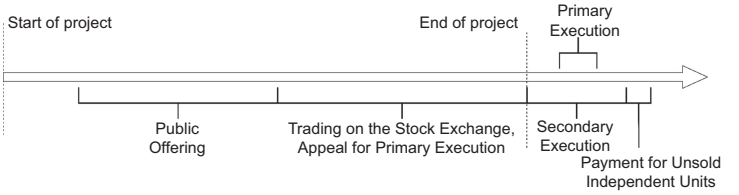


Figure 1.
Real estate certificate timeline (Borsa İstanbul, 2017b)

conditions, and the collected funds are transferred to the issuer in the form of pieces. On the other hand, within the scope of informing investors, the developments related to construction and the average sales prices of similar departments in the project are shared with the investors on the Public Disclosure Platform at certain time intervals.

There are three options for investors who buy real estate certificates from the stock exchange (Borsa İstanbul, 2017b). Investors can (1) trade on the stock exchange, (2) receive a title deed of the independent unit (primary execution) or (3) receive a cash in return for the certificate after project completion. Figure 1 shows which of these three options investors can make according to the processes of the project. Investors can take advantage of these three options for real estate certificates based on their risk appetite and investment decisions.

Sale of certificates at the exchange (trading). Investors who do not demand primary execution and wish to convert their certificates into cash before completion of the project may sell their certificates on the stock exchange to other investors. In this sense, the real estate certificate is a financial product that is predicted to have sufficient liquidity, such as stocks traded on the exchange, depending on the demand of investors who wish to benefit from changes in the real estate market.

Primary execution (receiving of the title deed in return for the certificate). Primary execution refers to the establishment of title deed ownership by the issuer on behalf of the real estate certificate holders and the delivery of the independent unit within the framework of the principles determined in the prospectus or issue document (Gayrimenkul sertifikaları tebliği, 2017). The number of certificates shall be included in the independent unit lists determined by the issuer. The specified number of certificates is collected, the request is made to the issuer and the amount equal to the number of certificates is deposited in the account of the issuer. On the other hand, the issuer must transfer the ownership of the requested independent units and complete the relevant legal procedures. If more than one request for an independent unit has been received, the prospectus shall be examined first, and action shall be taken in accordance with the procedure laid down for such a situation. If no definition has been made, the ownership transfer procedures of the independent units are carried out according to the application priority (Kaya, 2019).

Those who have purchased adequate certificates may purchase an independent unit of the real estate with primary execution. The Public Disclosure Platform lists independent units sold by the issuer because of the primary execution and those not sold yet.

Secondary execution (payment of cash in return for the certificate). When considered as a process, if the primary execution is the first stage, the secondary execution is the second stage. Consequently, with the completion of the primary execution period, the secondary execution process of investors who have not applied for primary execution or who have not fulfilled the conditions specified in the prospectus and issued the document, even if they have applied for it. Independent units for which no primary execution has been requested may be sold by the issuer within a period until the secondary execution period.

Investors, not demanding primary execution are deemed to demand secondary execution upon completion of the project. Independent units not subject to primary execution are sold by auction within a certain time frame, and their proceeds are allocated to holders of certificate holders who demand secondary execution. For those independent units not sold during secondary execution, certificate prices are paid to investors in proportion to their shares over the price rising on the exchange during the last quarter or, if such price is not valid, the price set out in the report on the valuation of the real estate.

The method for certificate number and price for a project that is subject of the real estate certificate

Real estate certificate is an asset-backed investment instrument; each certificate represents a certain area unit (m^2, dm^2, cm^2, etc.) or a monetary unit (1₺, 10₺, 100₺, etc.) (Borsa İstanbul,

2017a). Table 1 contains a sample independent unit list of a real estate project consisting of five independent units and a sales list created for different types of investors.

Accordingly, scenarios have been created for each investor profile and are shown in Table 2. Each certificate shall be calculated at a price of 0.01 square meter. An investor wishing to purchase an independent unit number 1, which is 100 square meters, must obtain 10,000 certificates. According to the third example in the table, the investor who buys in different amounts at different times makes a total profit of TL 46,665 according to the project completion price of TL 16,77 at the end of the project. Examples of investors who sell in secondary execution and trade in the stock market can also be examined from the table.

Real estate certificate practices in Turkey

Real estate certificates were implemented in Turkey as the name of "housing certificate" for the first time by the Housing Development Administration of Turkey (TOKİ) in Halkalı Housing in 1989. In this context, housing certificates are listed on the Istanbul Stock Exchange for a 5-years term, and each certificate represents 1 m^2 of a house. This practice was not successful for various reasons. Among the most important reasons, there are high issue prices, valuation problems on intangible rights of the housing units, waiting for 5 years to own a house, and returns below inflation rates are listed as reasons (Dolun, 2007). Subsequently, the housing certificates were transformed into real estate certificates in 1995 through an amendment adopted by the Capital Markets Board. Emlak Bank granted its first real estate certificate in 1996 to fund the Ataşehir housing project. These early practices were not so common due to reasons such as yield, size, maturity and goodwill, and the practice did not gain continuity. The system was unable to meet investors' expectations and was disrupted due to the lack of scope in the capital and real estate markets, the volatility of returns, the inability to own a house before five years and the demand for goodwill in the acquisition of property and the high price of real estate certificates (Hepşen, 2020).

In 2013, the Capital Markets Board in Turkey revised the real estate certificates with the communiqué on real estate certificates. With the new regulation, the issuers are required to own land, but real estate certificates may be issued by offering them to the public or by selling them to qualified investors. In both cases, real estate certificates must be traded on the stock exchange. The funds obtained from the issuance of real estate certificates will be transferred to the issuer according to the completion rate of the project specified in the construction progress reports. Following the new communiqué, real estate certificates were reintroduced to the market with the "Park Mavera 3" project made in partnership with TOKİ and Makro Construction. Accordingly, each of the certificates was offered for sale at a price of 42.50₺ (Park Mavera 3 – Makro İnşaat, 2017). Each certificate value corresponds to 1% of 1 m^2 of a housing unit. The performance of the stock market from the day the stock is offered to the public until the closure of the project can be seen in Figure 2. In the first month of the stock exchange, the real estate certificate traded on "Borsa Istanbul AŞ". with the code "PMVR3.G"

Table 1.
Independent units list (Borsa İstanbul, 2017b)

Independent unit no	Area of independent unit (sqm)	Total value of the independent unit	Price per sqm	Real estate certificate value	Number of real estate certificates
1	100	₺110.00000	₺1.10000	₺11,00	10,000
2	110	₺121.00000	₺1.10000	₺11,00	11,000
3	110	₺130.00000	₺1.18182	₺11,00	11,818
4	120	₺145.00000	₺1.20833	₺11,00	13,182
5	125	₺155.00000	₺1.24000	₺11,00	14,091
Total	565	₺661.00000			60,091

Stages	Date	Market price of the certificate	Investor type Certificate buyer for sale on the stock exchange	Certificate buyer for the purpose of secondary execution	Certificate buyer for the purpose of primary execution
Project starting date	January 2020				
Certificate issuance	February 2020	11.77	Purchase of 100 certificates	Purchase of 10 certificates	Purchase of 5.000 certificates
Start of trading at the exchange	March 2020	12.77	Purchase of 100 certificates	Purchase of 15 certificates	Purchase of 3.500 certificates
	March 2020	13.77	Purchase of 200 certificates	Purchase of 25 certificates	Purchase of 2.545 certificates
Project completion	January 2022	16.77			
Total revenue			$100 \times 11.77 = (1.177)$ $100 \times 12.77 = (1.277)$ $200 \times 13.77 = 2.754$ (profit) 300	$10 \times 11.77 = (117.70)$ $15 \times 12.77 = (191.55)$ $25 \times 13.77 = (344.25)$ $50 \times 16.77 = 838.50$ (profit) 185	$5.000 \times 11.77 = (58.850)$ $3.500 \times 12.77 = (44.695)$ $2.545 \times 13.77 = (35.04465)$ $11.045 \times 16.77 = 185.22465$ (profit) 46.665
Summary			An investor buying 100 certificates at issuance and 100 certificates on the stock exchange sells all of her/his certificates prior to completion of the project	50 certificates is paid in cash at secondary execution	The title deed of the independent unit numbered 3 is transferred to such investors since she/he is able to collect adequate certificates

Table 2.
Profit calculation according to three different scenarios (Borsa İstanbul, 2017b)

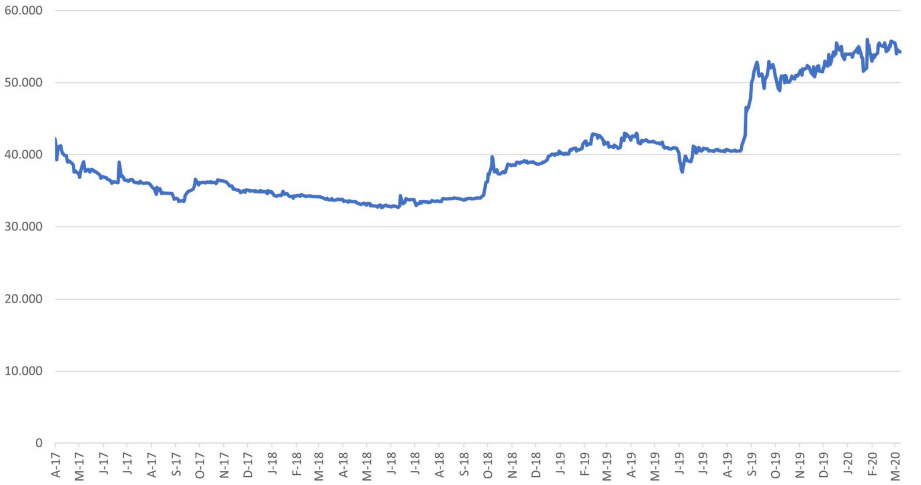


Figure 2.
PMVR3 stock performance

fell well below the initial public offering price and fell to 37.62 TL. Until the end of 2018, the downward trend continued from time to time and was traded between TL 32.50–40.10. Between April 2017 and December 2019, the lowest price was TL 32.56, the highest price was TL 54.00 and the average price of the certificate was TL 38.85. The stock has closed at a price of 54,250. Investors who remained in secondary execution sold their certificates or converted their shares into real estate at this price.

Real estate certificate practices in the world

There are many examples of real estate securitization, such as real estate lease certificates and real estate investment funds in the world. However, no example of securitization of the type to be used as project financing during the phase of real estate development has been found. The nearest project to this model is Solidere example at Lebanon.

The amendment to the Lebanon Development and restructuring law in 1991 allowed a private real estate company to undertake the reconstruction of war-damaged areas in Beirut (Krijnen, 2010). Officially founded in 1994, the Solidere company was to redevelop the city's historic center into a high-end city that would act as a regional financial center. This law and subsequent decrees emerged as public regulations facilitating real estate development by private actors (Makdisi,1997). With the law, Solidere company has the right to make a master plan on the area, sell the land, undertake the construction, sale, lease or facility management of the buildings to be built on it. In addition, the law ensured that all private properties in the region were transferred to the company in exchange for issuing shares.

Solidere is the embodiment of the example of Turkey into certificates of shares of different landowners. Also, in the example of Solidere, share certificates do not specifically refer to real estates. The amendment to the Lebanon Development and restructuring law in 1991 allowed a private real estate company to undertake the reconstruction of war-damaged areas in Beirut (Krijnen, 2010). Officially founded in 1994, the Solidere company was to redevelop the city's historic center into a high-end city that would act as a regional financial center. This law and subsequent decrees emerged as public regulations facilitating real estate development by private actors (see also Makdisi, 1997). With the law, the Solidere company has the right to make a master plan on the site, sell the land, undertake the construction, sale, lease or facility management of the buildings to be built on it. In addition, the law ensured that all private properties in the region were transferred to the company in exchange for issuing shares.

Solidere is the embodiment of the example of Turkey into certificates of shares of different landowners. Also, in the example of Solidere, share certificates do not specifically refer to real estates. Rather, it depends on a partnership structure, in which the profit and loss of the development company is shared.

A model for real estate development

Real estate development process is a multi-stakeholder process that is complex and needs to be reviewed through a project management methodology (Türgen, 2017). This process involves stakeholders from both the physical and financial dimensions (Leelarasamee, 2005; Sharkawy, 1994). How development processes are carried out on a physical dimension should be directly linked to the financial dimension. IPD on the physical dimension and real estate certificates on the financial dimension are new concepts that can bring benefits to the sector.

IPD is a project delivery method, which is mainly based on the common profit/loss sharing in which the project stakeholders are involved from the beginning to the end of the process. In the literature, this process is described as the relationship of the developer, (the project owner), builder/contractor and designer. However, the real estate development process includes many stakeholders such as public institutions, land/rights holders, users and investors. The real estate certificate is a concept that will unite all these stakeholders in the context of IPD and creates the financial infrastructure for this system. Figure 3 shows the contract times and stakeholder entry times for the development process according to the IPD phases in the proposed model. The detailed flow chart can be seen in Appendix.

The real estate project starts with an idea. Developer with background knowledge and a lot of current market data looks for needs to be met, has ideas and does quick feasibility tests (Miles *et al.*, 2015). After the initial feasibility studies, the developer refines the idea. If the idea is not feasible, the process starts from the beginning. If the project is evaluated as suitable after the first feasibility stage, the developer, public institutions and landowners will come together at the planning stage of the process. With the real estate appraisal report prepared by independent audit companies related to the project to be built, the share rates of landowners are calculated among themselves. The share of landowners in the project is then determined by the method of negotiation. It is the responsibility of the public institutions to lay down the requisite laws and regulations, to unite the parties and to make a compromise and act as the guarantor.

After the developer enters into the necessary agreement with the landowners, stage two of the process begins. At this stage, which we call "Criteria Design", the main design decisions are taken. The approximate cost and square meter of the project shall be determined. The developer finances consultants and designers at this stage and can get the job done through direct procurement, tendering or competition. At the end of this phase, the developer shall renew the feasibility calculations and determine the shares of both the designer group and the main contractor for the project and sign the contract. According to the IPD, both the designer and the contractor stakeholders should be certain at the end of this stage and should be partners in a certain part of the project. The developer agrees at a certain rate with the designer. However, since the construction costs and the quantity of the project are not yet clear, the main contractor should agree on a unit price indexed cost + incentive. The important point here is that some of the contractual limitations should be established when determining the costs. The criteria for determining costs should be calculated based on certain standards, such as unit price, as determined by the Ministry of Environment and Urbanization. After this stage is completed, agreements are reached to conclusion with all key project stakeholders with an IPD system, and a partnership structure is established.

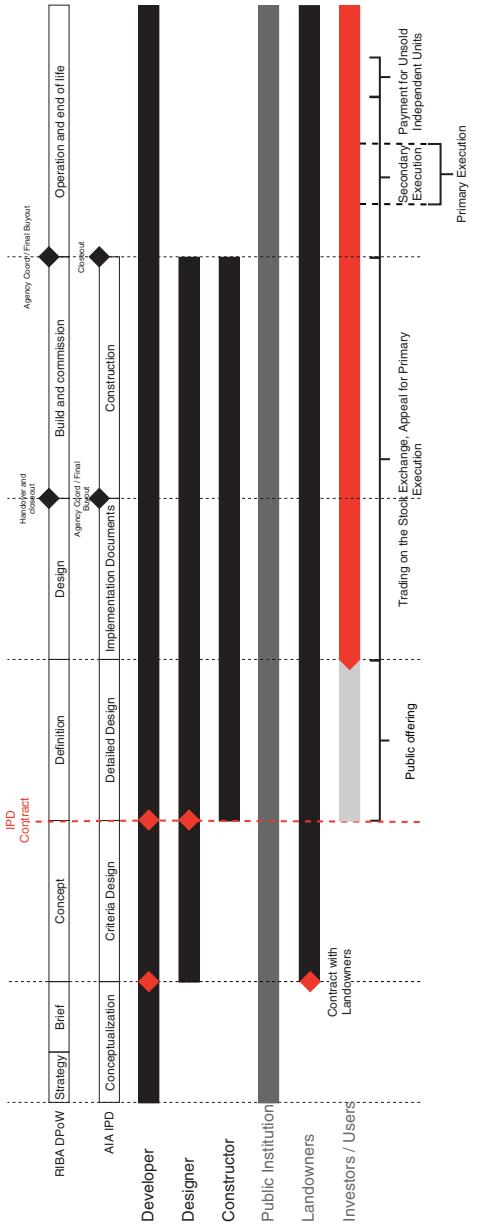


Figure 3.
Proposed real estate development process

At "Detailed Design" stage, the designer produces the finalized projects, and the contractor advises on construction and optimization. Once the design is completed and the necessary project approval works are completed, the shares of the project should be divided into real estate certificates by the independent real estate appraisal company. Once this process has been completed, landowners should receive their certificates, and the project will be listed on the stock exchange. The demand will then be collected from users and investors, and the certificates will begin to be sold on the stock exchange.

During the "Implementation Documents" stage, the designer shall produce the implementation documents of the projects in consultation with the main contractor. In the meantime, the developer pays progress payments to the contractor and the designer using the certificate method. The developer can also continue to offer certificates on the stock market. Here, the developer should be free to adjust the timing of the real estate certificate for sale to ensure price stability. Again, at this stage, investors are continuing to buy and sell on the stock exchange. Users who have completed the number of certificates may convert their certificates to housing.

The sale of the certificates and the conversion to real estate will be completed after the completion of the construction. For a period, the share of certificate holders who do not wish to obtain an independent unit with a real estate certificate shall be put up for sale by auction to the developer. If the independent units are not sold as a result of the auction, the developer shall purchase those sections from the holders of the certificate not less than the amount determined by the real estate appraisal firm. The profit of the project is determined at the end of the construction, and the profit share of the contractor is delivered.

The role and advantages of the project stakeholders in the model

The stakeholders have specific roles in the projects carried out by the IPD and the real estate certificate. This system aims to reach a win-win agreement between stakeholders and to ensure that all stakeholders have certain advantages if they fulfill these roles.

Public institutions. Public institutions have duties in real estate development processes such as making legal arrangements to provide the necessary development environment, establishing the audit mechanism and ensuring the protection of interstakeholder rights. Public institutions should not take on the roles of developer, constructor or designer. However, there are no inconveniences in terms of the IPD for public institutions to undertake these roles in some cases stemming from the land ownership position.

Landowners. Real estate certificates provide a transparent and reliable share rate for landowners. Besides, this financial system allows landowners to easily expand their existing rights by buying or selling them as needed. Since the system is transparent and under the supervision and control of public institutions, there is no mention of any unfair and unequal profit sharing. Furthermore, in situations where property rights are extremely complicated, the real estate certificate helps to solve this problem.

Developer. In traditional project delivery methods, risk is usually taken over by the developer and not shared with other stakeholders. Within the IPD method, all stakeholders are part of a system where risk and profit are shared. IPD enhances the ability of the developer to get the correct results from the project and thus improves the ability to control costs and manage the budget. All of this helps to achieve the objectives of the project, such as timing, life-cycle costs, quality and sustainability (AIA, 2007).

IPD on the physical dimension and real estate certificate on financial dimension constitute a system that regulates the developer's relationship with stakeholders, increases project efficiency and prevents potential conflicts. The real estate certificate is an alternative method for the financing of projects. Developers can easily reach individual and institutional

investors in this system. The fact that these certificates are traded on the stock exchange helps to promote advertising and to gain branding and as well as institutionalization. It can also be used as a new marketing strategy because it brings flexibility and convenience to real estate sales.

Constructor. In traditional project delivery methods, after the designer draws the tender project, the developer goes to the tender and the winning contractor takes the job. The contractor is not involved in the project during the design phase in this method. The lack of involvement of the contractor during the design phase reduces the level of common understanding of the project among stakeholders and leads to more errors, misunderstandings and accusations. (CMAA, 2010). IPD process allows constructors to add their expertise in construction techniques to the start of the design process and improve project quality and financial performance during the construction phase (AIA California Council, 2010)

IPD method enables the contractor to be involved as a project partner during the project design phase. This partnership system is based on cost + profit sharing. The risk of the contractor is low unless the project crashes. The lower the cost, the higher the share of profits. In this case, the contractor shall be motivated to keep costs low.

Designer. The designer enters into a common profit/loss sharing contract with the developer in the IPD method. The contract based on this profit/loss provides the designer with the motivation to deal with potential damage to the project when designing the project and performing various engineering tasks.

Users (investors). Users are individuals or legal entities who buy/sell real estate certificates or convert and use the certificates as a real estate unit at the end of the project. Real estate certificate provides many advantages to this group, both for investment purposes and for buying/selling (Ersoy and Gümrükçüoğlu, 2017). The real estate certificate, which enables participation in projects on a square meter basis, is an alternative investment tool for savings holders. It makes it possible to own housing. It provides an opportunity to benefit from the increase in the value of real estate projects. It is traded on the stock exchange and can easily be converted to cash. Transactions are conducted in a reliable, transparent and free-market environment. It is an interest-free capital market instrument. It has state security and tax advantage. Individual and institutional investors can benefit from this.

Discussion and conclusion

Real estate certificate and the IPD are two concepts that explain how the real estate development process should be structured on the physical and financial dimensions of the development process. When these two concepts are combined, they provide an alternative way to the real estate development process. Real estate certificate makes IPD's partnership and profit-loss based contract structure more possible. In addition, it makes the whole IPD process participatory and involving stakeholders such as user, investors and public institutions. It accelerates the development process by combining the stakeholders in one platform where land ownership status is mixed in the region such as Turkey. In theory, although both concepts have many advantages for the process and stakeholders, in practice, it is necessary to lay legal basis for these advantages to be valid and to develop a collaborative understanding of the stakeholders. In addition, as this process requires significant planning and contract management, project relations with stakeholders and contract provisions must be properly designed at the start of the project.

In this study, it is emphasized how the real estate certificate and IPD methodology complement each other in real estate development processes. The aim of this study is to give a new perspective to development processes and to re-examine existing development

processes. This study forms the basis for future studies. To explain how the real estate certificate should be constructed with the IPD method, academic studies and professional studies and projects that this method is tried are needed. There is a limitation that this study shows the real estate development process in Turkey. The proposed model has been proposed in the context of Turkey. Another limitation of this study is that not enough research has been done on real estate certificates. There is no conflict of interest to be declared in this study.

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Appendix

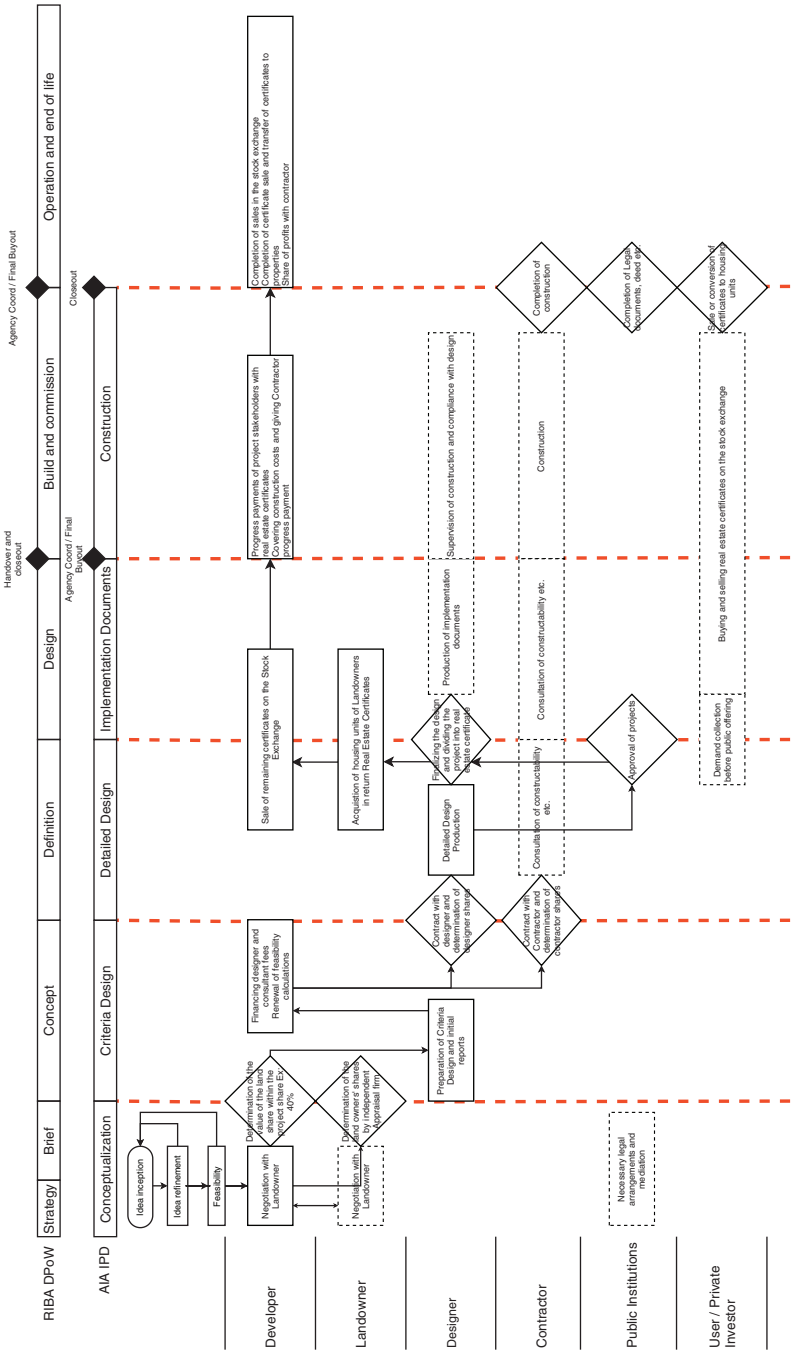


Figure A1.
Proposed real estate development process