

Knowledge Management and Practices of Real Estate Valuation in Turkey

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Abstract: The purpose of this research is to examine knowledge management (KM) and changes in the real estate (RE) valuation (V) profession in the case of Turkey, which is among the countries that are not fully transparent in RE investments, and to compare them with good practise examples. The increase in RE prices around the world, which started with the conditions of the COVID-19 period, while financial institution REV process and also creates dissatisfaction for buyers and sellers. While the world is experiencing an inflationary process, the rapid change in RE values has made information management even more important in V in countries where there is no transparency in RE transactions. In this study, market players, KM in V accessible databases in V, software and web portals for valuers and companies, V workflows, number of RE sales with known transaction price information by year, number of RE sales with unknown transaction price information by year, value objection data by year, KM systems, public data sharing platforms, and legislation are looked at in the context of how they are used in the sample country. Literature research has been conducted in the field of information management since 2001 in the RE sector in the sample country and compared with world examples. In REV, the KM deficiencies needed to make more accurate value estimations for the benefit of credit institutions, collateral financing institutions, buyers, sellers, housing loan institutions, REV companies, and valuers have been researched. With its recommendations, good practise examples in the field of RE and REV in the world in KM are included. This study aims to be a reference source for future studies and discussions in this field by compiling knowledge on how KM is applied and used in the field of REV.

Keywords: knowledge management, real estate, valuation, appraisal, Turkey

1. Introduction

A study in Turkey looked at how KM is used in the field of REV and what benefits it might bring. Within the scope of the research, it has been tested whether a performance increase can be achieved by using the KM of the REV company for the performance system used by financial institutions in measuring REV companies in the field of REV. When 28 RE valuers and nine auditors worked together over the course of nine months, three areas of their work were looked at, and seven areas were looked at for valuers and auditors.

2. Literature review

KM applications are typically used by businesses to increase profit, performance, and functionality. The studies were conducted in IT companies (Reich, Gemino and Sauer, 2014), sales and marketing companies (Bennett and Gabriel, 1999), small-scale businesses (Hankinson, 1997), and even NASA (Sabherwal and Becerra-Fernandez, 2003) KM applications were examined in the literature review. Positive changes have been observed in enterprises that use KM practises and set goals.

The variety of knowledge and information available to a team can increase the number of potential solutions to a problem, resulting in a higher-quality response. Since the employees themselves developed the solution, they will be more receptive to the decision and more likely to comply with it if they were involved in its creation (Gustafson and Kleiner, 1994). The community perspective (Swan et al., 1999) recognises that knowledge is always being negotiated through social networking processes that are interactive.

Companies that used KM extensively were, on average, more innovative, more adaptable to change, and better able to access knowledge than other companies (Chourides, Longbottom and Murphy, 2003). There is a lot of evidence that quality has direct and indirect effects on individual impact, and that KM use has the biggest effect on individual impact of all the constructs (Wang and Yang's, 2016). The genuine differentiating factor for any organisation that is conducive to cross-functionality is how knowledge can be leveraged to enhance the process in question and convert it into tangible value (Mohamed, Stankosky and Murray, 2004). KM in an organisational context does not involve the management of all known information (Quintas, Lefrere and Jones, 1997).

3. REV Market in Turkey

Pagourtzi et al. (2003) identified RE market players as agents, valuers, assessors, mortgage lenders, brokers, developers, investors and fund managers, lenders, market researchers and analysts, shopping centre owners and operators, and other specialists and consultants.

REV is the measurement and reporting of a RE asset as well as the rights and benefits associated with it. IVS (2017) says that a "valuer" is a person, group of people, or company that has the skills, knowledge, and experience to do a V in a fair and professional way.

IVS (2017) defined the following basis of value: market value, market rent, fair value, investment value, synergy value, and liquidation value. Market value is the estimated amount required to exchange an asset or liability as of the V date in a bogus transaction between a willing seller and a willing buyer, as a result of appropriate marketing in which the parties acted knowledgeably, prudently, and without coercion. The three approaches described and described below are the basic approaches used in V. The main V approaches are the market approach, the income approach, and the cost approach.

RE valuers and V companies in Turkey first became official in 2001 (Official Gazette, 2001). As of 2022, there are 8,689 valuers (total of REvaluers and residential valuers) and 145 REV companies. RE valuers who belong to an organisation called the Association of Valuers of Turkey (TDUB, 2022).

According to the JLL Global RE Transparency Index, 2020 data, Turkey ranks 43rd among 99 countries. In the list, countries are evaluated under five categories: highly transparent; transparent; semi-transparent; low transparency; and opaque. Turkey is included in the third category, semi-transparent (JLL, 2020). Farzanegan and Fereidouni (2014) found that the increase in RE transparency did not lead to an increase in foreign RE investors. Instead, foreign RE investors were more interested in the size of the market, the high interest of foreign investors in other areas, and high RE prices. On the other hand, Eichholtz, Gugler, and Kok (2011) observed a decrease in performance in the first years of the research period (1996–2007).

Housing prices in Turkey started to decline in real terms as of July 2017 and this process continued until January 2020 (THPI, 2021). As of March 15, COVID-19 measures started to be implemented in Turkey. In March, housing prices in Turkey increased by 2.85% in real terms. As a result of the government's housing loan interest rate cut through public banks for housing loans, housing prices increased by 10.59% in real terms in June. Real increases reached a peak of 24.14% in November 2021.



Figure 1: Turkey Year to Year Real Housing Prices Changes, January 2011 - October 2021 (Source: THPI, 2021)

The Turkish property market was in a bubble from 2013 to 2017, and evidence suggests that it burst in 2018. Market data, such as sharp drops in gross mortgage lending, yearly mortgage credit use, and real property prices, support this evidence (Coskun and Pitros, 2022). Many homeowners think they can now afford a home that would normally be too expensive for them during a housing price bubble because they will realise significant additional price gains. Since they anticipate that the rising value of their home will protect them, they won't need to save as much as they would otherwise (Case and Shiller, 2003).

Comparables for sale provide a good observation opportunity for those who are closely interested in RE markets (buyers, sellers, real estate agents, valuers, and institutional investors) about how much similar RE has been sold recently. Smith and Smith (2006) state that in many RE markets, housing prices have risen rapidly in recent years, and some homebuyers have unrealistic expectations about future prices.

Sudden increases in housing prices place buyers, sellers, and valuers in a difficult position. In the face of rising prices, buyers want to complete the RE purchase process as soon as possible; and banks do not want to lose customers as a result of rising customer demand. Because of all of these factors, buyers and banks dislike valuations.

Shulte, Rottke, and Pitschke (2005) state that in terms of the RE market, access to data on average rent, peak rent, rents, supply and demand in the rental market, rents and rates of return on RE in the investment market, purchase and sale prices, costs in the RE and construction market, and credit conditions in the capital markets is required.

Kallio, Falkenbach, and Viitanen (2013) state that REV has become an important service supporting transactions throughout the period of internationalization, and the use of V is thus a matter of relevance for the valuer. International players have made a big difference in the professionalism and development of the valuation service.

In Turkey, 3,020,225 RE transactions were completed in 2021 (TKGM, 2021). There are only 71 transactions with sales price information among all RE sales. These notifications are also made public as they are mandatory. It is not possible to access any other information apart from the requested price information or the estimated sales price information on portals where market information about REV transactions can be obtained. For the requested price information, listing sites such as sahibinden.com, hepsiemlak.com, zingat.com, and emlakjet.com are the portals with the highest number of ads. The "estimated value" can be seen as the values valued by the valuers for the RE put up for compulsory sale on the ilan.gov.tr website, where the sales submitted to the judiciary are announced. It is possible for individuals to bid on RE that is put up for sale on the website <https://esatis.uyap.gov.tr/main/esatis/>. Individuals can only see the sales value of the RE they follow as a result of the completed tender, but this data is not publicly available.

Comparable sales data is included in the valuer's task environment. This information is frequently incomplete or inaccurate, adding to the environment's complexity. Multiple Listing Services (MLS) data is available to appraisers in the United States. There are no comparable databases for valuers in England. The English valuers were significantly influenced by their knowledge of sale prices. In both comparable sale selection and final value estimation, statistical differences were found between the control (no prior sale price knowledge) and treatment groups (prior sale price knowledge). These findings were similar to those of appraisers in the United States. But valuers' sale selection bias was less than appraisers', and valuers' final value estimate bias was more than appraisers' (Diaz and Hansz, 2002).

Tax legislation deficiencies in the RE sector, as well as the determination of the RE tax value below the market value, result in tax losses and evasion. However, international REV standards say that the market method should be used to figure out the value of recently sold assets, which means that the method should be used and given more weight (IVS, 2017).

4. Knowledge Management and REV Market in Turkey

The purpose of his company's KM and sharing system is to "facilitate communication across all of the organization's boundaries, so that the entire company works together to help everyone be the best they can be." (Buckman, 1998, p.11). Understanding knowledge is the first step toward properly managing it. Concerns about knowledge sharing emphasise communication flow and documentation. A focus on knowledge skills leads to the search for more efficient ways to make, adapt, and use knowledge (Allee, 1997, p.71).

The fundamental characteristic of assisting employees in sharing their knowledge is that it occurs at the most organizational level possible (DeTienne and Jackson, 2001). According to McDermott (1999), the most difficult aspect of most KM initiatives is changing organisational culture and people's work habits.

According to CoreLogic data, V values are 13% lower than actual sales prices, and this disparity increased to 19.7% in May 2020 during the COVID-19 period. As a result of this disparity, buyers must make a 5–10% larger down payment than expected. There is a time lag between when RE valuers get their sales data and when they do their Vs because house prices change quickly (Friedman, 2021).

Market players (financial institutions, guarantee companies, institutions, and individuals) object to REV reports for a variety of reasons when examined separately from RE prices. According to data from Istanbul REV (IGD, 2022), 23.94% of residential V reports were revised between 2017 and 2021.

RE valuers in Turkey prepared 1,288,862 V reports in 2020. The banking sector is the biggest buyer of RE V services in Turkey, making up 92.74% of the market (TDUB, 2020). Banks, participation banks, and savings finance companies will make up Turkey's banking sector by 2022. As of 2022, Turkey has 51 banks, six participation banks, and seven savings finance companies (BDDK, 2022).

Financial institutions (banks and participation banks) use software to monitor REV processes. In Turkey, 40.5% of banks use Invex (Invex, 2022), 37.8% do not have software or it is not known whether they have software, 16.2% use their own software, and 5.4% use Etcbase Gys (Etcbase Gys, 2022).

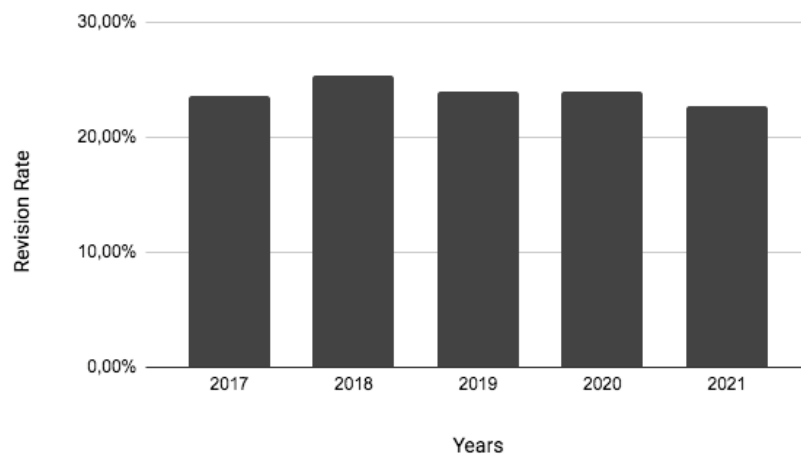


Figure 2: Revision Rate of V Reports by Years of IGD (Source: IGD, 2022)

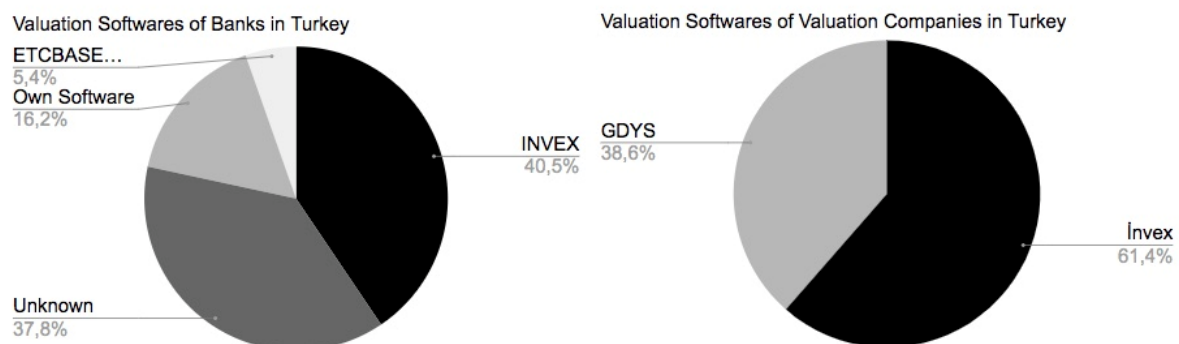


Figure 3: V Software of Banks and V Companies in Turkey (Source: Authors)

Table 1: RE Valuers Use Different Platforms and Software for Each V (Source: Authors)

Name of Process	Definition of Process	Link, Web or Name of Application
GIS	Location, parcel information	https://parselsorgu.tkgm.gov.tr/
CEI	Compulsory earthquake insurance	https://www.dask.gov.tr/e-services/portal/calculatePremium
NARS	Address system inquiry	https://adres.nvi.gov.tr/Home
e-Development Plan	Zoning plan controls	Municipal websites
Valuation Process Software	Appraisal company CRM	Invex, Gdys
Bank Valuation Process Software	Bank valuation process CRM	Invex, Etcbase Gys, Own software or unknown
WebDeed	Encumbrance and deed review	https://webtapu.tkgm.gov.tr/
Listing Sites	Research	Sahibinden.com, Hepsiemlak.com, Hepsijet.com ,Zingat.com
Satellite image	Structure measurement and location	Google Earth, Google Maps, Yandex Maps etc.
Environmental Plan	1/100,000 scale plan review	https://mpgm.csb.gov.tr/1-100.000-olcekli-i-82132
Construction Cost	Construction cost calculation	https://www.resmigazete.gov.tr/eskiler/2022/02/20220218-11.htm
Bank Specification	Bank's practice regulations	Various documents
Photo Editor	Editing photos	Various softwares

When the REV software used by 145 REV companies (TDUB, 2022) registered with TDUB is examined, 61.4% of the companies use Invex (Invex, 2022) and 38.6% use Gdys (Gdys, 2022) software.

For security reasons, the software of the company that supplies software to financial institutions and REV companies is not integrated with the software of V companies. The absence of these integrations contributes to the V process in bank systems in the V process; it causes operation officials, valuers, auditors (V report control officer) and responsible valuers to repeat the same transactions both in the V company software and in the bank V software. These repetitive processes can cause errors and loss of time.

RE valuers and auditors have to use a lot of software in the REV process. They have to examine more than one web page, and they have to follow more than one regulation and list. The 13 items in the table 1 are the basic programs, software, and web pages that valuers use for each V.

5. Methods

The study analysis methodology was structured as follows: first of all, the performance scorecards of financial institutions were examined and performance criteria were created based on the scorecards. The data available in the REV software was examined. In addition to the existing data, the necessary data for performance measurement was also entered into the system. At the end of each month, the one-month performances of RE valuers and auditors were taken from the REV management system and compared with the performance scorecards from financial institutions. The results obtained were shared through one-on-one interviews with both RE valuers and auditors. Actions to be taken for the next month were determined, and common targets were set for the next month.

Financial institutions monitor the performance of REV companies they work with and RE valuers, auditors, and operating units working in REV companies. It shares these follow-up results with V companies within its own sharing programs. The underlying reason for financial institutions' sharing their scorecards is that service providers provide better service. The importance of performance scorecards for REV companies is that they can get more jobs if they improve their performance criteria.

When the performance tables on which financial institutions evaluate REV companies are examined, common features can be seen in the expectations of financial institutions. Time follow-up, revision follow-up, and technical follow-up are all common features. Time tracking includes sub-criteria such as time spent on company operations, time spent with valuers, time spent in audit, and time spent in revision. Revision tracking consists of the sub-criteria of time spent on the revision, whether there is a revision, the reason for the revision, and the revision rate. Technical follow-up consists of the sub-criteria of whether there is a problem in the V and the reason for the problem.

Table 2: Sample List of Performance Criteria for V Companies (Source: Authors)

A Bank	B Bank	C Bank
Passed in Process Officer Avg. Duration	Gross Time in Valuation Days	Job Count Score
Value Passed Av. Duration	Net Duration of Valuation Days	Time Points
Inspector Avg. Duration	Total Elapsed Time Net Day	Problem Report Score
Valuer Passed Av. Duration (Revision)	Total Elapsed Time Gross Days	Actual Attribute Score
Inspector Avg. Duration (Revision)	Has the Revision Process Happened?	Return Score
Average Total Time in the Firm	Is there an appeal process?	Region Coefficient Score
Time Points	Time Given to the Valuer for Report Submission (Days)	Deed Number Score
Valuer - Auditor Score	Time in Valuer (Days)	Report Performance Score
Operation and Branch Score	Time taken for Valuation Company Approval (Days)	Return Rates by Reason for Return
Technical Score	Were There Any Problems With Valuation?	Problem Reports Number of Reasons
Period Score		Delivery Score of Jobs

IGD is one of the V companies using Gdys software. In the Gdys system, there is a lot of information kept for each REV request. From the moment the REV request is entered until the transaction is completed, the information from the time when the valuers accept the transaction until the time when the valuers deliver the transaction is kept in the Gdys system. The errors seen in the REV report uploaded to the system by the valuer, the auditor's points given to these errors, and how long the process was held by the auditors are kept in the Gdys system. Revision requests by the customer to the report controlled by the auditors, and which of these revision requests are accepted, are kept in the Gdys system.

As described by Demarest (1997), for knowledge to result in some form of beneficial commercial performance, it must be distributed to other parts of an organisation. IGD wants to make improvements as a result of their performance scorecards, primarily to identify the problems in order to make improvements. Complaints from customers and performance scorecards of financial institutions were used in identifying the problems. In order to create solution suggestions, performance scorecards were evaluated with the participation of the employees. Areas for improvement were determined, and it was decided to follow up the process with mutual negotiations. Two main areas were selected for improvement; valuers and auditors. It has been decided to follow the following criteria for valuers: revision rates, on-the-job errors, on-the-job V number of normal transactions, number of faultless transactions, average valuer score, and average valuer time. It was decided to follow the following criteria for the inspectors: daily report check average, report check time average, revision rate, and number of reports checked per working hour.

6. Analysis, results and discussion

Analyses were carried out for nine months with 28 people working as valuers and nine people working as auditors, and the first analysis results were shared with the two teams a month later. At least two supervisors and analysts attended the meetings with each valuer and auditor, which were held on the same day each month.

Socialisation plays an important role in KM at the group level, and socialisation should be supplemented by more formal techniques (Sabherwal and Becerra-Fernandez, 2003). The results were communicated to everyone who would attend the meeting the day before the meeting. At the meeting, first the performance of the individuals for the previous month was evaluated, and then the performance data that diverged from the general average was evaluated one by one. In the evaluation phase, mistakes made in the previous month's transactions, customer objections, revisions, late works, and appreciated works were examined.

Skyrme and Amidon (1997) stated that companies can improve their overall performance by sharing effective methods and the knowledge of their best people and departments. Meetings organised with the target groups for the next month were determined by taking opinions and suggestions into consideration. The performance results for the previous month and the targets for the next month were written down and delivered to the employees at the end of the meeting. Also, the opinions and ideas that were shared at the meeting were written down and sent to the management.

Interviews were held (August of 2015-April of 2016) regularly every month for nine months. Performance reports received from financial institutions and in-house performance reports were compared and calibration between reports was made. It was observed that there were time differences in these examinations. It was decided that the best way to measure time would be to use internal time measurements as a guide.

At the end of the nine-month improvement period, the results for the auditors compared to the previous six-month period are as follows: The auditors' performance (Table 3) was improved; the average number of daily controlled reports increased from 5.30 to 7.25, and a 36.79% performance increase was observed. The average report control time duration of the auditors decreased from 5.72 hours to 5.38 hours, and a performance increase of 5.94% was observed. The rate of changes to the reports dropped from 27.5% to 18.1%, and performance went up by 34.18%.

Table 3: Performance Changes by Auditors and Valuers (Source: IGD, 2022)

Period	The Criteria for Performance Changes by Valuers							The Criteria for Performance Changes by Auditors		
	On the job Appreciation	The Rate of Normal Operation	The Rate of Error Free Process	Average Valuer's Score	Average Valuer's Time	The Revision Rate of Reports	Work Error	Amount of Controlled Reports Daily	Report Controlling Time on Average	The Revision Rate of Reports
Previous	0,07	31,1%	36,8%	-8,92	20,23	28,1%	1,69	5,30	572,2%	27,5%
Later	0,04	68,2%	72,4%	-3,73	21,53	18,6%	0,54	7,25	537,8%	18,1%

At the end of the nine-month improvement period, the results for the valuers are as follows, when compared to the previous six-month period. Revision rates decreased from 26.0% to 18.6%, and a performance increase of 28.46% was observed. On-the-job errors decreased from 1.85 to 0.54, and a performance increase of 71.2% was observed. On-the-job appreciation decreased from 0.06 to 0.04, with a performance decrease of 33.33%. A normal transaction rate increased from 30.5% to 68.2%, and a performance increase of 123.61% was observed. An error-free transaction rate increased from 35.3% to 72.4%, and a performance increase of 105.10% was observed. An average valuer's score increased from -9.14 to -3.73, a performance increase of 59.52% was observed. The average valuer's time went up from 20.7 to 21.5%, and their performance went down by 3.86%.

As a result of the study, improvement was achieved both for RE valuers and auditors in all ten performance criteria. An increase in the number of reports checked daily by the auditors and a decrease in the number of revised V reports were achieved, resulting in a performance increase of more than 30%. However, there was a lower performance increase compared to the other performance increases in the work times of the auditors. RE valuers have achieved performance increases in many areas, and over a 100% performance increase has been observed in some criteria. In addition, it was found that the report preparation time of the valuers was 3.86% longer than it was before.

References

- Allee, V. (1997). *The knowledge evolution: expanding organizational intelligence*. Boston, Mass: Butterworth-Heinemann.
- BDDK, (2022). *List of Financial Institutions* Available at: <https://www.bddk.org.tr/Kurulus/> [Accessed 28 March 2022]
- Bennett, R. and Gabriel, H. (1999), "Organisational factors and knowledge management within large marketing departments: an empirical study", *Journal of Knowledge Management*, Vol. 3 No. 3, pp. 212-225. <https://doi.org/10.1108/13673279910288707>
- Buckman, R.H. (1998). "Knowledge sharing at Buckman Labs.", *Journal of business strategy*, 19(1), pp. 10–15. <https://doi.org/10.1108/eb039903>
- Cannon, S.E. (no date). "How Accurate Are Commercial-Real-Estate Appraisals? Evidence from 25 Years of NCREIF Sales Data" p. 46. <https://doi.org/10.3905/jpm.2011.37.5.068>
- Case, K. E. and Shiller, R. J. (2003). *Is there a bubble in the housing market? Brookings papers on economic activity*, 2003 2nd ed., p. 299-362. [doi:10.1353/eca.2004.0004](https://doi.org/10.1353/eca.2004.0004)
- Chourides, P., Longbottom, D. and Murphy, W. (2003), "Excellence in knowledge management: an empirical study to identify critical factors and performance measures", *Measuring Business Excellence*, Vol. 7 No. 2, pp. 29-45. <https://doi.org/10.1108/13683040310477977>
- Coskun, Y. and Pitros, C. (2022). "Is there a bubbly euphoria in the Turkish housing market?", *Journal of Housing and the Built Environment* [Preprint]. doi:[10.1007/s10901-022-09931-7](https://doi.org/10.1007/s10901-022-09931-7).
- Demarest, M. (1997) 'Understanding knowledge management', *Long Range Planning*, 30(3), pp. 374–384. doi:[10.1016/S0024-6301\(97\)90250-8](https://doi.org/10.1016/S0024-6301(97)90250-8).
- DeTienne, K.B. and Jackson, L.A. (2001). "Knowledge Management: Understanding Theory and Developing Strategy", *Competitiveness Review: An International Business Journal*, 11(1), pp. 1–11. doi:[10.1108/eb046415](https://doi.org/10.1108/eb046415).

- Diaz, J. and Hansz, J. A. (2002). "Behavioral research into the real estate valuation process: progress toward a descriptive model", In: *Real Estate Valuation Theory*. Springer, Boston, MA, 2002. p. 3-29. https://doi.org/10.1007/978-1-4615-0909-7_1
- Eichholtz, P.M.A., Gugler, N. and Kok, N. (2011). "Transparency, Integration, and the Cost of International Real Estate Investments", *The Journal of Real Estate Finance and Economics*, 43(1-2), pp. 152-173. doi:[10.1007/s11146-010-9244-5](https://doi.org/10.1007/s11146-010-9244-5).
- Etcbase Gys (2022). *Real Estate Management System, etcBASE Software and IT Technologies Inc.* Available at: <https://www.etcbase.com/gys-gayrimenkul-yonetim-sistemi> [Accessed 28 March 2022]
- Farzanegan, M.R. and Fereidouni, H.G. (2014). "Does Real Estate Transparency Matter for Foreign Real Estate Investments?", *International Journal of Strategic Property Management*, 18(4), pp. 317-331. doi:[10.3846/1648715X.2014.969793](https://doi.org/10.3846/1648715X.2014.969793).
- Friedman N. (2021). "Soaring Home Prices are Roiling Appraisals and Upending Sales", *Wall Street Journal* 10 October. Available at: <https://www.wsj.com/articles/soaring-home-prices-are-roiling-appraisals-and-upending-sales-11633858381> [Accessed 26 March 2022]
- GDYS (2022). *Real Estate Valuation Management System, GDTYS Real Estate Software Technologies Inc.* Available at: <http://www.gdys7.com/> [Accessed 28 March 2022]
- Gustafson, K. and Kleiner, B.H. (1994), "New Developments in Team Building", *Industrial and Commercial Training*, Vol. 26 No. 9, pp. 17-22. <https://doi.org/10.1108/00197859410065861>
- Hankinson, A. (1997) 'Output sub-optimization in the small firm', *Management Decision*, 35(10), pp. 739-745. doi:[10.1108/00251749710192057](https://doi.org/10.1108/00251749710192057).
- IGD (2022). *Istanbul Real Estate Valuation, Istanbul Real Estate Valuation and Consultancy Inc.* Available at: <https://www.igd.com.tr> [Accessed 28 March 2022]
- Invex (2022). *Investment Expert, Key Software Solutions Inc.* Available at: <https://www.invex.com.tr/> [Accessed 28 March 2022]
- IVS (2017). *International Valuation Standards, IVSC.* Available at: <https://www.tspb.org.tr/wp-content/uploads/2015/06/Ek-UDS.pdf> [Accessed 26 March 2022]
- JLL (2020). *Global Real Estate Transparency Index 2020.* Available at: <https://www.jll.co.uk/content/dam/jll-com/documents/pdf/research/jll-and-lasalle-global-real-estate-transparency-index-2020.pdf> [Accessed 26 March 2022]
- Kallio, K., Falkenbach, H. and Viitanen, K. (2013). "Development of Commercial Real Estate Valuation in Finland", *Nordic Journal of Surveying and Real Estate Research*, 9(1). Available at: <https://journal.fi/njs/article/view/2778> [Accessed: 31 March 2022]
- McDermott, R. (1999). "Why Information Technology Inspired but Cannot Deliver Knowledge Management", *California Management Review*, 41(4), pp. 103-117. doi: [10.2307/41166012](https://doi.org/10.2307/41166012).
- Mohamed, M., Stankosky, M. and Murray, A. (2004), "Applying knowledge management principles to enhance cross-functional team performance", *Journal of Knowledge Management*, Vol. 8 No. 3, pp. 127-142. <https://doi.org/10.1108/13673270410541097>
- Official Gazette, (2001). *Official Gazette of the Republic of Turkey*, 12 August. Available at: <https://www.resmigazete.gov.tr/eskiler/2001/08/20010812.htm#5> [Accessed 26 March 2022]
- Official Gazette, (2007) *Official Gazette of the Republic of Turkey*, 2 Augusts. Available at: <https://www.resmigazete.gov.tr/eskiler/2007/08/20070802-12.htm> [Accessed 26 March 2022]
- Pagourtzi, E., Assimakopoulos, V., Hatzichristos, T. and French, N. (2003), "Real estate appraisal: a review of valuation methods", *Journal of Property Investment & Finance*, Vol. 21 No. 4, pp. 383-401. <https://doi.org/10.1108/14635780310483656>
- Reich, B.H., Gemino, A. and Sauer, C. (2014) 'How knowledge management impacts performance in projects: An empirical study', *International Journal of Project Management*, 32(4), pp. 590-602. doi:[10.1016/j.ijproman.2013.09.004](https://doi.org/10.1016/j.ijproman.2013.09.004).
- Sabherwal, R. and Becerra-Fernandez, I. (2003), An Empirical Study of the Effect of Knowledge Management Processes at Individual, Group, and Organizational Levels. *Decision Sciences*, 34: 225-260. <https://doi.org/10.1111/1540-5915.02329>
- Schulte, K., Rottke, N. and Pitschke, C. (2005) "Transparency in the German real estate market", *Journal of Property Investment & Finance*. Edited by E. D'Arcy, 23(1), pp. 90-108. doi:[10.1108/14635780510575111](https://doi.org/10.1108/14635780510575111).
- Skyrme, D. and Amidon, D. (1997), "The Knowledge Agenda", *Journal of Knowledge Management*, Vol. 1 No. 1, pp. 27-37. <https://doi.org/10.1108/13673279710800709>
- Smith, M.H., and Smith, G. (2006). "Bubble, Bubble, Where's the Housing Bubble?", *Brookings Papers on Economic Activity* 2006(1), 1-67. doi:[10.1353/eca.2006.0019](https://doi.org/10.1353/eca.2006.0019).
- Swan, J., Newell, S., Scarbrough, H. and Hislop, D. (1999), "Knowledge management and innovation: networks and networking", *Journal of Knowledge Management*, Vol. 3 No. 4, pp. 262-275. <https://doi.org/10.1108/13673279910304014>
- TDUB, (2020). "Valuation Industry Summary Data 2020 4th Quarter", *Association of Valuers of Turkey*. Available at: <https://www.tdub.org.tr/Web/MyContents.aspx?MyContentID=2383&LangID=1&UID=5d1bfab2-40a4-44ee-a952-e6263568adcf> [Accessed 28 March 2022]
- TDUB, (2022). *About Page of Association of Valuers of Turkey*. Available at: <https://tdub.org.tr/Web/MyContents.aspx?MyContentID=185&LangID=1&UID=805623f8-5481-4e0b-b583-50f5005f87f3> [Accessed 28 March 2022]

- THPI, (2021) "Turkey House Price Indices of 2021", *Central Bank of the Republic of Turkey*
Available at: <https://evds2.tcmb.gov.tr/index.php?evds/portlet/6mn8obnaQQ0%3D/tr> [Accessed 26 March 2022]
- TKGM, (2021) *Deed Transaction Statistics of 2021*, Land Registry and Cadastre of Turkey. Available at:
<https://www.tkgm.gov.tr/tkgm/istatistik> [Accessed 28 March 2022]
- Quintas, P., Lefrere, P. and Jones, G. (1997) 'Knowledge management: A strategic agenda', *Long Range Planning*, 30(3), pp. 385–391. doi:[10.1016/S0024-6301\(97\)90252-1](https://doi.org/10.1016/S0024-6301(97)90252-1).
- Wang, M.-H. and Yang, T.-Y. (2016) 'Investigating the success of knowledge management: An empirical study of small- and medium-sized enterprises', *Asia Pacific Management Review*, 21(2), pp. 79–91. doi:[10.1016/j.apmr.2015.12.003](https://doi.org/10.1016/j.apmr.2015.12.003).