Software database creature for investment property measurement according to international standards

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Abstract. The article deals with investment property measurement and accounting problems at the international, national and enterprise levels. The need to create the software for investment property measurement according to International Accounting Standards was substantiated. The necessary software functions and the processes were described.

1. Introduction
In 2000, International Accounting Standards Committee adopted IAS 40 “Investment property” for more effective investment property accounting. In 2011, the government of the Russian Federation adopted the Regulation "On the Recognition of the International Financial Reporting Standards and Interpretations of the International Financial Reporting Standards for Use in the Territory of the Russian Federation" to improve the efficiency of international activities.

There are some problems associated with investment property measurement in the internal and external environment:

1. There are no international accounting standards about investment property adopted by the International Accounting Standards Board.
2. There is no unified system of investment property value measurement.
3. There is no software for accounting investment property. The creation of the software will simplify investment property accounting and will make it more accurate. This will increase the companies’ profits.

This subject of research is topical because the creation of the software will make measurement and accounting of investment property more comfortable for the owners and public authorities. The object of study is companies that use investment property. The subject of study is management decisions arising in the process of using investment property.

2. Materials and methods
According to International Accounting Standard 40 “Investment property”: Investment property is property (land or a building - or part of a building - or both) held (by the owner or by the lessee under a finance lease) to earn rentals or for capital appreciation or both [1]. Measurement and accounting of investment property were widely studied in the works of the following scientists: Beaudoin C A, Hughes S B [2], Bengtsson B [3], Bratten B, Choudhary P, Schipper K [4], Bresnahan T, Yin P-L [5], Chen W, Kamal F [6], Choudhary P [7], Dam L, Scholtens B [8], De Souza F É A, Botinha R A, Silva P R, Lemes S [9], De Vicente Lama M, Molina Sánchez H, Ramírez Sobrino J N, Torres Jiménez M [10], De Lama M V, Sanchez H M, Sobrino J N R [11], Gao F, Dong Y, Ni C, Fu R [12], Givoly D,
Hayn C K, Katz S P [13], Haaker A, Schiffer T. [14], Hope O-K, Thomas W B, Vyas D [15], Israeli D [16], Kvaal E, Nobes C [17], Liang L, Riedl E J [18], Müller M A, Riedl E J, Sellhorn T [19], Nurunnabi M [20], Quagli A, Avallone F [21], Thomaz J L P, Kronbauer C A, Alberton J R, Schneider L C [22]. Some aspects of measurement investment property were explored before [23], [24]. Research methods used in the article are as follows: induction, deduction, modeling. The software database was created on the basis of investment property measurement and accounting problems for their solution.

3. The creation of the software database for investment property measurement according to International Accounting Standards

The creation of the software for creating accounting software can solve some problems:

1. The object fair value measurement.
2. The calculation of indicators for investment property accounting.
3. The forecasting of profitability through financial investments in property.
4. The consolidated statements shaping according to International Accounting Standards.

This software can be used for investment property measurement and accounting in any country that uses International Accounting Standards, because they function in the same way everywhere. Therefore the creation of the software is necessary for all the countries that use International Accounting Standards.

The use of the software includes several stages. The first stage is to choose a country for investment property measurement.

The second stage is to choose investment property measurement or accounting stage (Figure 1):

- measurement during recognition;
- measurement after recognition: a fair value model, a cost model;
- transfers: to investment property, from investment property;
- disposals;
- disclosure: a fair value model, a cost model;
- transitional provisions: a fair value model, a cost model.

![Figure 1. The software fragment describing the choice of investment property measurement or an accounting stage.](image)

The software determines an object fair value, profit and other indicators according to the certain
paragraph of International Accounting Standard 40 “Investment property”.

The cost object calculation for recognition can be made according to the following formula:

\[ C = P + DAE, \]  

(1)

where \( C \) - cost of an investment property;
\( P \) - purchase price;
\( DAE \) - directly attributable expenditure.

\[ DAE = LS + T + C_t, \]  

(2)

where \( DAE \) - directly attributable expenditure;
\( LS \) - professional fees for legal services;
\( T \) - property transfer taxes;
\( TC \) - other transaction costs.

The investment property lost and profit according to the fair value model can be calculated using the following formula:

1. For the buildings:

\[ (FV_2 - FV_1) - C = P (L), \]  

(3)

where \( FV_2 \) – fair value at the end of the period;
\( FV_1 \) – fair value at the beginning of the period;
\( FV_2 - FV_1 \) – profit from the increase in value;
\( C \) – costs;
\( P \) – profit;
\( L \) – loss.

2. For the buildings at the stage of a construction and reconstruction period:

\[ (FV_2 - FV_1) - C_c - C_l = P (L), \]  

(4)

where \( FV_2 \) – fair value at the end of the period;
\( FV_1 \) – fair value at the beginning of the period;
\( FV_2 - FV_1 \) – profit from the increase in value;
\( C_c \) – construction costs;
\( C_b \) – borrowing costs;
\( P \) – profit;
\( L \) – loss.

Figure 2 shows the software fragment describing the fair value measurement of investment property. To determine an fair value object, it is necessary to set the following indicators: material, a year of construction, a location, a number of storeys, a storey, an area, a property type.
The software of the cost of the investment property object based on these criterions in accordance with the similar market price of the object according to the source Bloomberg [25].

The third stage is to predict the profitability of investment property using different methods and ways to maximize the efficient deals search.

The software using the fourth stage is to form the consolidated financial statements for the tax authority.

4. Conclusion

The software for investment property measurement was offered and substantiated in the investment property measurement analysis process. Its functions and functioning features were described: object fair value measurement, indicators calculation for investment property accounting, forecasting of profitability by financial investments to property, consolidated financial statements formed according to International Accounting Standards.

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