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Evaluations – an engineer's task?

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ABSTRACT

Today lawyers, architects, building engineers, mapping engineers and business managers perform property valuations. The basic training programme in these professions is not sufficient to achieve the necessary and broad knowledge needed for the valuation of property. So property valuers ask which profession has obtained the best basic training for these tasks.

This question has been dealt with using actual valuation orders. Two hundred ten evaluations were empirically analysed to find out the knowledge required of the evaluator for his/her tasks. Also, the issue of which mistakes are mostly made in carrying out valuations methods has also been examined.

Hints for future developments are given in the conclusion. The analysis was carried out in Germany, but it is of more than national importance.

KEY WORDS

- Property valuation
- Training requirements for property valuation
- Mistakes in property valuation practice
- Practical requirements for property valuation

INTRODUCTION

Historical research was carried out first to find out which professional groups have dealt with the valuation of landed and personal property. This is important in order to be able to prove where such an activity resides. By doing so it can be seen that in former times, mapping engineers in particular valued unbuilt properties and building specialists valued built properties.

In the era of industrialisation and the indebtedness of property, the task of property evaluation grew. Over long periods of the 20th century, legal evaluation rules have existed. Exceptions were made at the beginning of the 20th century and for a short period of time after World War I, so that in West Germany, only after 1960 and only in the former GDR since 1990, have free market economic evaluations been carried out. The importance of property valuations within Europe has grown since the development of portfolio management with an international orientation at the end of the 20th century.

Upon analysing the German experts' lists, it became clear that most of the property valuing experts are from the building field, but the

largest share of articles in the usual specialists' journals had not been written by building experts.

This fact caused the author to determine if the original basic knowledge for this kind of work is more available to graduates of building faculties than to those from other study disciplines.

Valuation is only the apex of an integral way of viewing things. The running costs, the cost of necessary repairs, the cost of neglected repairs, the state of the building, the market situation and the legal conditions have to be checked. By using 210 arbitrarily chosen evaluations dating from 1999 to 2002, the question asked at the beginning has been answered by present-day practical examples.

1. MATERIALS AND METHODS

Worked out evaluations as well as the most common mistakes in the use of property valuation methods have been analysed.

In the period from 1999 to 2002 1,200 evaluations were carried out in experts' offices in Germany, where the author is professionally active, by various experts. These evaluations have been archived.

Using Other Methods

When applying other methods like the residual method, the comparable valuation method, liquidation proceedings and international methods, one can see that the basic reason for mistakes in these special methods are the same mistakes as those that can be seen in property valuation by summation or property valuation by capitalization. Apart from this, especially when the comparable method of valuation is employed, basic structural knowledge and specific knowledge of the market are necessary. The requirements of special methods also call for good knowledge of the real estate business and comprehension of economic relationships.

3. CONCLUSIONS

An analysis as to which professional group is the most suitable one to evaluate property results in the fact that no professional group has got all the prerequisites for this task.

The education of a civil engineer contains the best prerequisites, since structural relationships, basic knowledge of structures and comprehension of three-dimensional structures are taught in an elementary way. As buildings are three-dimensional, these

preconditions are absolutely necessary and are one key qualification. This education is nonetheless not sufficient for property valuation. Additionally, if one considers the demands of portfolio management one can see that additional knowledge of property valuation is as important as knowledge of the real estate business and management.

Such complex training is not being taught either in Germany or in Slovakia at the universities with civil engineering faculties. What is principally called for here is a specialist, an engineer for the real estate field, who can develop, run and value property projects.

In the future these tasks will not only be regional, but also will be demanded nationally as a result of the portfolio management demands. European-wide property valuation does not yet exist. Still, there are rules as to the duty to perform property valuation within recognized international accounting rules, like the International Financial Reports Standards (IFRS). So observation of international developments will be especially important.

The author principally considers all of this as the development of a new university branch.

Based on original basic structural knowledge, which can be taught as part of a bachelor degree, a property management study course based on evaluation can be developed.

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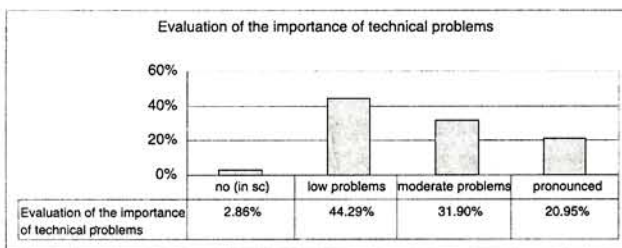
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|-----------------------------------|--------|
| 3) for financial reasons | 63.33% |
| 4) for sale-related reasons | 0.48% |
| 5) for compulsory auction reasons | 19.52% |

Analysis of the evaluations (Picture 12)

We have stated that in most cases, the valuation method was traditional. Considering the valuation problems at issue, it was significant that in 46.19% (see Picture 8) of all the cases, measurement was necessary which called for a three-dimensional imagination and knowledge about depicting geometrics, and that in 38.09% (36.19% + 1.90%), (see Picture 5), of all the structures with constructive damage, detailed knowledge of physics and chemistry for construction and the construction itself were prerequisite for the assessment. Only 9.52% of all the cases were solvable without any technical knowledge. This clearly expresses that a basic training in construction is necessary in every case.

If the problems had to be solved with just a basic legal or commercial education, only 40% of the evaluation orders could have been solved. This also makes it clear that a mere technical education is not sufficient, since in 62.86% (14.76% + 8.57% or 43.81% + 19.05%), (see Picture 9 and 10), of all the cases detailed commercial and legal knowledge was necessary, and where mere basic construction training – even if knowledge of the market was available for the evaluator – was not sufficient any more.



Picture 12

THE MOST COMMON MISTAKES MADE IN THE APPLICATION OF ORDINARY PROPERTY VALUATION METHODS

In this article, among other problems discussed, which problems occur when construction experts evaluate property, will also be presented. Furthermore, it is made clear that the mere knowledge of valuation calculations is not sufficient to fulfil this task.

Evidence of defects partially shown in the historical research are expanded upon in the present analysis. The following mistakes could be found in the application of a property evaluation:

At the Property Valuation by Summation

A common mistake is an incorrect starting point on the surfaces and building masses. This happens when the geometric imagination and the mapping knowledge are insufficient, which leads to mistakes that directly and decisively affect the results.

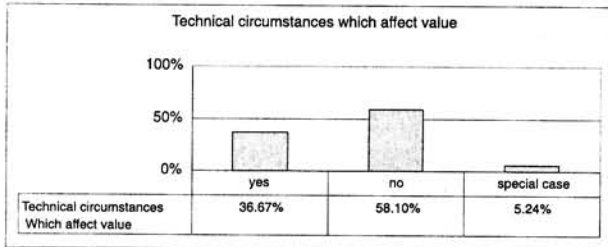
A difficulty arises as well when estimating the remaining economic useful life as it corresponds to the market. On the one hand, technical assessments are very often given which are not adequate to the market situation; while on the other hand, assessments orientated towards the market are given which lack knowledge of a building's substance and the resulting possibility of a subsequent renovation and redevelopment. Also, an incorrect starting point concerning the value of a business property, an incorrect estimation of the market situation, especially by the intersection of technical and economic effects like the remaining useful economic life, an incorrect total assessment, and an incorrect estimation of market reductions affect the actual value/intrinsic value.

Property Valuation by Capitalization

Common mistakes made in the use of property valuation by capitalization include the valuator lacking knowledge of the real estate business, which results in a wrong calculation of the interest yield of properties and a wrong multiplier. The total service costs are not taken into account at the correct level, and the rent is estimated wrongly – not at the correct lasting level, which is caused by lacking knowledge of the market. The avoidance of mistakes in property evaluations is only possible through using market analyses and having thorough understanding of the market. Sufficient experience concerning the calculation of previous purchase prices is necessary, and the actual purchase prices have to be examined. This is as important as knowledge of the present market situation. So it can happen that, based on the present economic situation on the date of the evaluation, the rent actually paid is used for the calculation and not the possible future rent, which is necessary for property valuation by capitalization. Also, mistakes concerning the masses can arise when, e.g., the surfaces are not checked or the wrong surfaces have been taken into account. The lack of structural knowledge linked with insufficient knowledge of the real estate business leads to a misjudgment of any neglected maintenance.

At Site Inspection

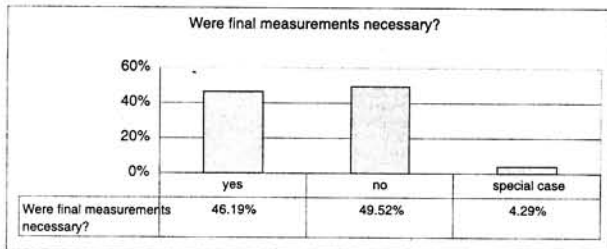
A detailed site inspection is necessary for the property valuation by summation as well as for property valuation by capitalization. The lack of mapping or geometric knowledge and the ability to draw directly affect the quality of the local data recording and can lead to a wrong result. The lack of knowledge of the fields of construction physics, construction design, building costs and technical equipment of a building lead to a misjudgement of any neglected repairs with the further result that a wrong evaluation is estimated.



Picture 7

8. Measurements (Picture 8)

The files were searched for the necessity of measurements. In 46.19% of the cases, measurements were necessary, but no measurements had been taken in 49.52% of all the cases.



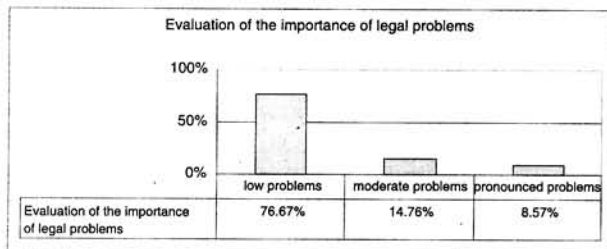
Picture 8

9. Legal Problems (Picture 9)

It was examined as to which extent legal problems affected the valuation.

For this purpose the evaluations were divided into the following groups:

- 1) No or minor legal problems, e.g., when the sites had been built as planned in the zoning 76.67%
- 2) moderate legal problems 14.76%



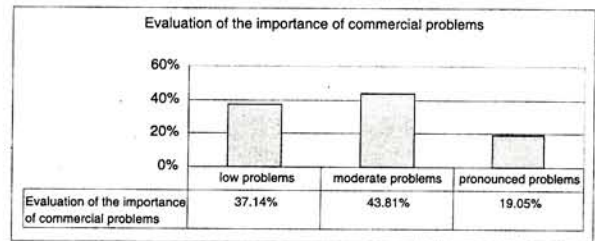
Picture 9

- 3) severe legal problems, which required legal advice, e.g., in the case of a change in use and if the zoning had not been completed 8.57%

10. Economic Problems (Picture 10)

Another analysis took place in order to find out how far specific economic or property problems exerted an effect on the valuation. Here, the 24 objects of the valuation were put in the following groups:

- 1) economic problems which were nearly negligible, in an analysis called: "slight economic problems": 37.14%
- 2) economic problems which needed consideration by the market, but which were solvable by empirical knowledge, e.g., in the case of a surplus of comparable property or a lack of demand, in an analysis called: "moderate economic problems": 14.76%
- 3) economic problems which needed an intensive and individual market analysis, e.g., in the case of a change in use, when a property was not being used any more, in an analysis called: "severe economic problems" 8.57%

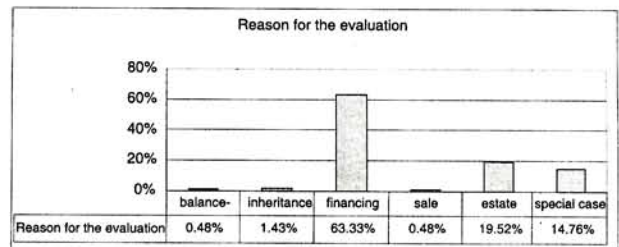


Picture 10

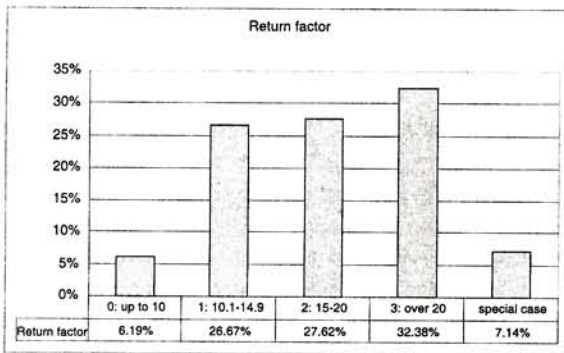
11. Reason for the Valuations (Picture 11)

As a conclusion, it was determined for which reason the valuation had taken place, e.g.:

- 1) for accounting reasons 0.48%
- 2) for inheritance reasons 1.43%



Picture 11



Picture 3

The cases examined resulted in the following distribution:

return factor 0 to 10	6.19%
return factor 10.1 to 14.9	26.67%
return factor 15 to 20	27.62%
return factor more than 20	32.38%

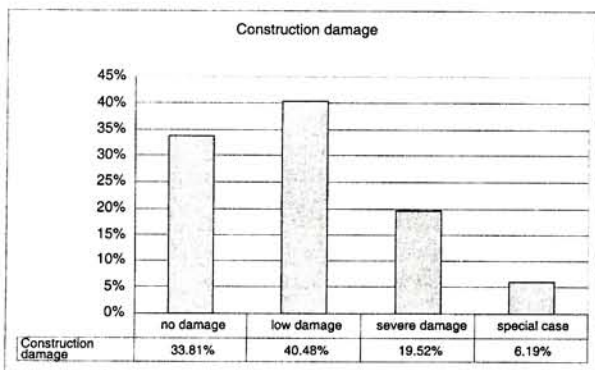
4. Constructive Damage (Picture 4)

An analysis was performed if the valuated objects had constructive damages. The following levels of valuation were distinguished:

no damage, e.g., new buildings minor damage, e.g., the necessity of a renovation of the floor coverings and wall surfaces severe damage, e.g., old and faulty installations or constructive damage like insufficient seals or structural defects

The total distribution of the constructive damage of the analysed evaluations is:

no constructive damage	33.81%
minor constructive damage	40.48%
severe constructive damage	19.52%



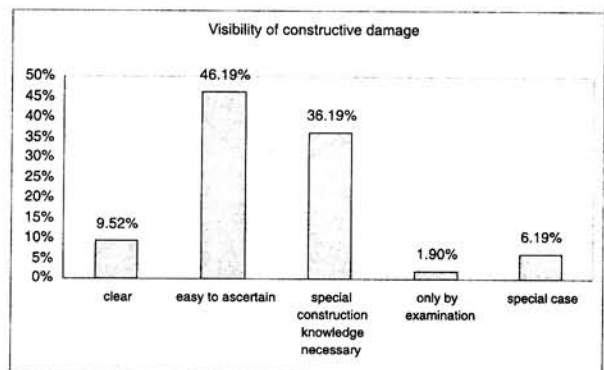
Picture 4

5. The Visibility of Any Damage (Picture 5)

It was examined as to whether the constructive damage was easily visible, which means without the examiner having a special technical education, or if a special technical knowledge of construction for the recognition of constructive damage was necessary, or if the constructive damage was only ascertainable by a special examination, or if a suspected site for such a necessary investigation with the corresponding technical experience was recognizable.

The distribution is presented as follows:

obvious constructive damage	9.52%
easily ascertainable constructive damage	46.19%
special constructive experience necessary	36.19%
constructive damage only noticeable by further investigation	1.90%



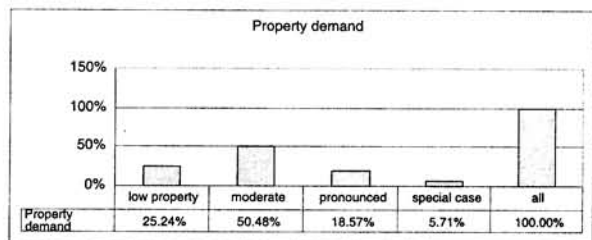
Picture 5

6. Property Demand (Picture 6)

A distinct property demand was given only in 18.57% of the cases. In the most cases (50.48%), only a moderate demand was available.

7. Technical Conditions Which Affect the Value (Picture 7)

It was analysed as to whether the constructive conditions determined the value, which was the case in 36.67% of the cases.



Picture 6

With the help of an untrained extra staff, arbitrary choices out of the chronological list of evaluations were drawn (using dice). The number of evaluations drawn was weighted in accordance with the basic occurrence of evaluation orders in distinct years. Hence, for the year 1999, 30 evaluations, and for the years 2000 to 2002, 60 evaluations each, a total of 210, were drawn and analysed.

The time period was deliberately chosen for the transition at the end of the 20th and the beginning of the 21st century, as at this point in time, the exceptional conditions of the German reunification were not as important as they had been, construction activity had receded to a normal extent in the years 1999 to 2002, and no recession as in 2003 had yet taken place.

Thus, there were neither exceptionally good periods nor very recession-prone periods in the period considered with respect to the property business and the statistical representation. The particularly booming economic situation with the exceptions that occurred at the beginning of the nineties was no longer present.

Nearly all the evaluations investigated could fit in the afore mentioned criteria. Some special cases existed insofar as only an evaluation of the land had taken place.

The sum of the percentages is not 100% in every case, as in cases of exceptions, such as incomplete evaluation orders, the valuation of unbuilt property, and the valuation of fallow and property scheduled for demolition, no complete traditional valuation took place. They amount to 14.76% of the cases analysed.

These exceptions were not excluded from the analysis as they also represent the traditional demand as a total, but they were not analysed in detail because of their small extent.

2. RESULTS

The selected evaluations were examined according to the following points of view:

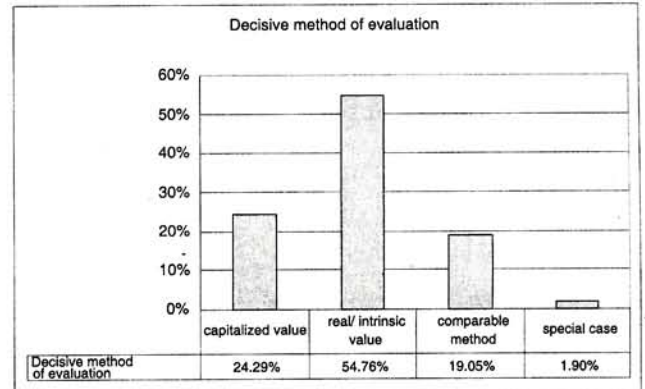
1. Method Applied (Picture 1)

The evaluations were checked as to whether a property valuation by capitalization, a property valuation by summation or a comparable method of property valuation had determined the value and which further supporting methods had been used.

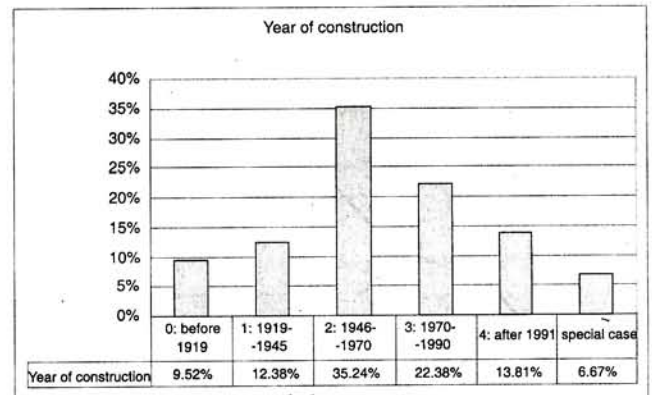
The concluding analysis found that the property valuation by capitalization had been applied in 24.29% of the cases, the property valuation by summation in 54.76% and a comparable method of valuation in 19.05%.

2. Construction Year (Picture 2)

The year in which the buildings were built and when they had been renovated was registered.



Picture 1



Picture 2

The distribution of the year of construction in the evaluations examined is as follows:

Year of construction before 1919	9.52%
Year of construction 1919 to 1945	12.38%
Year of construction 1946 to 1970	35.24%
Year of construction 1970 to 1990	22.38%
Year of construction after 1991	13.81%

3. Capitalization Factor (Return Factor) (Picture 3)

The capitalization factor (return factor), which is independent of the property valuation using capitalization, summation of comparison, was determined.

The return factor is determined as follows:

$$\frac{\text{Market value}}{\text{Annual gross yield}}$$