

How to Improve Valuing Heritage Buildings and Buildings in City Centre

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Abstract: The existing building (EB) as a system and part of the whole system is causing expansion knowledge, which we need if valuate heritage building (HB) or building in the city center (CCB). In many reasons, HB should not be the subject of capital, and therefore not dependent on supply and demand. Valuation of HB or CCB needs attention to the understanding of the difference between buildings even if they stand in the same street or part of the city. This involves so many things, for example, intangible heritage, position on the street, sun expose, traffic, metro, bus station, school, park, etc. We need enough knowledge and mechanism for support to get it. How to get enough knowledge for valuation HB or CCB? Background of real estate value of cultural HB or CCB arises from the system, which needs many elements. Firstly, understanding the building as a system with materials, installations, details, and intangible cultural heritage has an impact on details in buildings. Secondly, HB or CCB is important to understand our history, and they are like books that content history knowledge of engineering and arts. Thirdly, property value does not always arise from buildings. Value involves traffic, sun-exposed, the distance from social buildings (hospital, bus station, railway station) or parks, noise, air pollution, etc. HB or CCB is part of the higher/bigger system. This type of real estate presents many reasons for introducing interdisciplinarity and is part of a complete global system. Interdisciplinarity requires knowledge and new approaches to help in the acquisition of knowledge. The goal of these approaches is how in a simpler and faster way to gain knowledge about the object, HB and CCB, and the wider system. Information technology allows collecting a wider range of information faster and better than in the past. At the same time, the same information changes into the necessary knowledge, but the question is if we have enough mass of data and what kind of data we need. The paper shows the theoretical background for the valuation of HB and CCB system.

Key words: Real estate value, HB, CCB, system, ontology, knowledge management.

1. Introduction

Backgrounds of real estate value and heritage buildings (HB) or buildings in the city center (CCB) value arise from the system, which includes so many elements.

The existing building (EB) as a system and part of the whole system is causing expansion knowledge, which we need for valuation HB or CCB. In many reasons, HB should not be the subject of capital, and therefore not dependent on supply and demand. Valuation of HB or CCB needs attention to understanding the difference between buildings even if they stand in the same street or part of the city.

For this reason, we wish to get answers to some questions. How to get enough knowledge to help valuation HB or CCB? What is the point of valuation? Is it only interest for sellers and buyers? What are interests in a wider system for example municipally, neighborhoods, the nearest owners? Is it only capital that determines the value of facilities?

At the most basic level, the value is created and maintained by the interaction of four factors that are related to each product, service, or commodity. These are usefulness, rarity, desire, and purchasing power. The value theory is essentially a theory of allocating rare goods and not a lever for determining the (market) price [1]. The value of building land (indirectly) is reflected in the city rent, as it was perceived by von Thünnen (in German: Lagerente) [2]. Based on this theory, the higher urban annuity is supposed to be due

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to the higher value of building land. This means that the location—the position of the land—determines its purpose and its potential value. The position is not an independent category, but something that is expressed in terms of availability or proximity. It is also important to distinguish between the position of elements of a system (e.g. housing within a residential neighborhood) or another system (the position of housing objects in relation to green areas). Below concepts of position and accessibility is the notion of distance—distance, which is the expression of the spatial category. However, this is not the only category that affects the value of the land. There are also the quality of space, the geographical location of space, accessibility, utility equipment, social structure, the location of activities, that is, the overall structure of the city [3].

The discovery of the dynamics of urban renewal and revitalization is not a new phenomenon [4-6], but in this case, the theoretical question of defining the value of buildings according to this process was ignored. In the last twenty-five years, geographical economics has discovered two seemingly paradoxical paradigms that analyze the decline and value growth of buildings, especially in the light of rapid changes in the advanced environment [7]. The first is the “rent gap”, which reflects the difference between the actual and the possible yield of a site, a building according to its utilization, and quality in free market conditions [8, 9]. This possible use should largely reflect the value of a building, whether residential or commercial. The second is the “value gap”, which reflects the difference between the value of the building at the defined function of its purpose and the same building, if this function would not exist, thus empty [9]. The first concept developed in the United States, the second one in Europe.

Both terms accurately disclose the gap in the value of the reasons for the use of the building in relation to changes in the market environment. This analysis reveals new possibilities for defining the relationship

between the market and planning, the general and economic interests of the environment and its users. Physical interventions in the environment and the construction of the urban environment are a long-term process that marks the living conditions for several generations [3, 10].

The three principal valuation approaches described in the IVS Framework can all be applied to the valuation of a historic property; market, income, and the cost approach. The market approach is based on comparable properties, which is especially important to find comparable properties with historic features similar to those of the subject historic property. Criteria for the selection of comparable properties include architectural style, property size, specific cultural or historic associations of the subject property and similarity in location as regards zoning, permissible use, legal protection and concentration of historic properties.

Historic property fully utilized for commercial purposes may be valued by means of the income approach. Where the distinctive physical features of a historic property contribute to its drawing power under an income-producing use, it is particularly important to reflect the cost of any work necessary to restore, adapt or maintain the features of the property.

When applying the cost approach to the valuation of a historic property, consideration is given to whether the historic features of a building would be of intrinsic value in the market for that property. In this case is important also service potential, for example, national gallery. Every approach has its own recommendation and view to the same building.

2. Understand HB or CCB as a Part of System

In the context of HB or CCB, one question is relevant. Why should need the system and why should need view through the point of the system? As Bertalanffy defined [11], the system is more than a sum of parts, it is complex and it involves interaction.

System theory was always an integrative tool for all sciences, aiming for a dialogue between scientific disciplines. However, a city center is a system of different buildings for example galleries, operas, sports parks, old and new buildings, traffic, river/rivers/ocean, marine, airport, sports areas, playgrounds, schools, houses, skyscrapers, hospitals, hotels, different infrastructures, etc. The wider/border concept of real estate is, therefore, an economic, technical, sociological, psychological category and as such represents a grateful starting point for an interdisciplinary approach [12]. HB are usually a part of the city center, and therefore they are the small system into the part of bigger/wider system. The city affects the global system and the global system influences events in the city and people who live there. For example, an explosion of nuclear power plant in Chernobyl had involved in the global system. People and politics think about nuclear power plant and care about a safer planet. At this moment in Europe, a hot topic is diesel cars which arise from the global system (increased CO₂ emissions) and affect events in local/smaller communities. In Hamburg, Germany in 2018 came into force a ban on driving with diesel vehicles, with certain exceptions for two urban roads are allowed. Similarly, they are predicted for other cities in Germany and across Europe [13]. On the other hand planning and construction buildings influence the global system as a construction of the Aswan dam which impacts on cultural heritage and agriculture.

In Fig. 1, the presented model of the city system, where various specialized uses and activities intertwine.

3. Close (Nearby) and Distant Surroundings

Real value HB or CCB may/should be including properties that do not come out of buildings, such as traffic, sun exposure, the distance between social buildings (hospital, bus station, railway station, and

schools), noise, air pollution, etc. Real estate represents in many reasons an interdisciplinary polygon and is a part of the whole/bright global system. HB or CCB is a part of a higher/larger system [14]. Therefore the question of methods and mechanisms to real value HB and CCB is important. What is the real value? How important is built material? How important is it to provide relevant construction information? How built material and whole system involved in the health and happiness of residents? Fig. 2 shows how people who live in CCB or HB (turquoise color arrow) affect city (produce traffic, make houses, offices, etc.) and in the same time buildings CCB or HB (with material, living area, distance to school, green areas, etc.) affect people who live there. But at the same time, the buildings and city center are interesting for tourists, researcher, facility managers, mechanical engineers, art historians, historians, and real estate value. For valuate HB or CCB should be taken into account all data to get a real value of buildings or flats in the city center.

In this point of view, HB or CCB is a part of the higher/bigger system and this is the reason why real estate represents many reasons to interdisciplinary polygon and why is a part of the whole global system.

4. International Valuation Standards (IVS 2017) and Valuation Approaches

International Valuation Standards Council (IVSC) value has launched *International Valuation Standards (IVS) 2017* (previously 2013) marking an important milestone towards harmonizing valuation practice across the world. Purpose of *IVS 2017* is as the key guidance for valuation professionals globally and underpins consistency, transparency, and confidence in valuations which are key to investment decisions as well as financial reporting and raise standards of international valuation practice for the benefit of capital markets and the public interest.

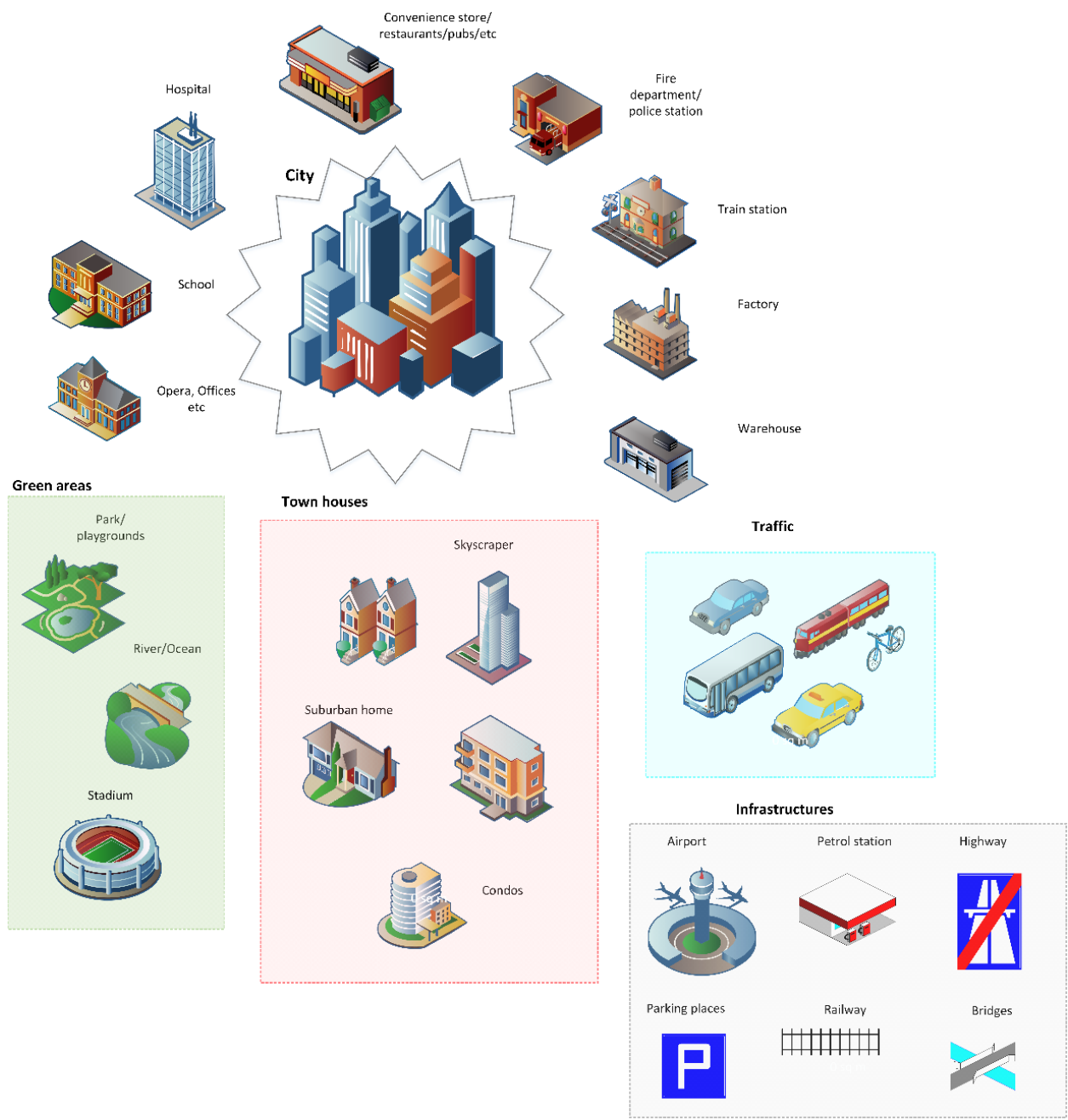


Fig. 1 City as a system.

condition deteriorates;

- It may be difficult to estimate their useful life, which could in some cases take hundreds of years.

Generally, *IVS 2017* permits two models for the recognition of operational assets in the statement of financial position: a cost model and a fair value model. “The fair value of items of property is usually determined from market-based evidence by appraisal. The fair value of items of plant and equipment is usually their market value determined by an appraisal.” “If no market evidence is available to determine the market value in an active and liquid market of an item of property, the fair value of the item may be established by reference to other items with similar characteristics, in similar circumstances and location.” For some buildings, it may be difficult to establish their value because of the absence of market transactions.

Because of the lack of evidence of comparable market transactions for many assets, the market approach often cannot be used and sanctions the use of alternative valuation methods to measure the fair value of an asset. According to this information, the question arises, which alternative valuation methods could be used for a recognized fair value of the historical property?

The historic property is a broad term, encompassing many property types. Some historic property is restored to its original condition, some are partially restored, and e.g. the building façade and other parts of the buildings are not restored. The historic property also includes properties partially adapted to current standards, e.g. the interior space, and properties that have been extensively modernized. A historic property is a real property that is publicly recognized or officially designated by a government body as having cultural or historic importance because of its association with a historic event or period, with an architectural style or with a nation’s heritage. The characteristics common to the historic property include the following:

- It is historic, architectural and/or cultural

importance;

- The statutory or legal protection to which it may be subject;
- Restraints and limitations placed upon its use, alteration, and disposal;
- A frequent obligation in some jurisdictions that is accessible to the public.

Historic property may have legal or statutory protection because of its cultural and economic importance. The UNESCO⁴ Glossary of World Heritage Terms [16] defines cultural heritage and cultural property as follows:

“Cultural Heritage. Three groups of assets are recognized:

(a) Monuments: elements or structures of an archaeological nature, inscriptions, cave dwellings and combinations of features, which are of outstanding universal value from the point of view of history, art or science;

(b) Groups of buildings: groups of separate or connected buildings which, because of their architecture, their homogeneity or their place in the landscape, are of outstanding universal value from the point of view of history, art or science; and

(c) Sites: works of man or the combined works of nature and man, and areas including archaeological sites, which are of outstanding universal value from the historical, aesthetic, ethnological or anthropological point of view.”

“Cultural property is property inscribed in the World Heritage List after having met at least one of the cultural heritage criteria and the test of authenticity.”

The valuation of historic property requires consideration of a variety of factors that are associated with the importance of these properties, including the legal and statutory protections to which they are subject, the various restraints upon their use, alteration and disposal, and possible financial grants, tax rate or tax exemptions to the owners of such properties in some jurisdictions.

When undertaking a valuation of a historic property,

the following matters should be considered depending upon the nature of the historic property and the purpose of the valuation:

(a) The costs of restoration and maintenance may be considered for historic property and these costs, in turn, affect the value of the property.

(b) Legal measures to safeguard historic property may limit or restrict the use, intensity of use or alteration of a historic property.

The valuation of historic property involves special considerations dealing with the older construction methods and materials, the current efficiency and performance of such properties in terms of modern equivalent assets, the appropriateness of methods used to repair, restore, refurbish or rehabilitate the properties, and the character and extent of legal and statutory protections affecting the properties.

But not all historic property is necessarily recorded in registers of officially designated historic properties. Many properties having cultural and historic importance also qualify as historic property for example Kropa. In this case, the house which is not cultural heritage is valuation different such as a neighbor house, even in the same legal protected city area.

In Fig. 3 with the magenta line is showed city area as a legal protected as a city center, but with red color is colored cultural heritage.

According to recommendations from *IVS 2017*, the very important to valuation HB or CCB is to treat as a system. If we want to answer the question what the real value of HB or CCB is, the building is to be viewed from several points of view, such as uniqueness, non-transferability, sustainability, limitedness, utility [10].

According to Dasso and Ring [17], real estate has certain specific properties, which distinguish it from other goods. These are:

- physical properties (immovability, indestructibility, heterogeneity, complexity);
- economic characteristics (a rarity, the social character of the environment, sustainability);
- institutional characteristics (legislation, local customs, the influence of interest communities).

According to specific properties we want to get an answer for some questions, for example: Which is the real value of fence from different HB in Figs. 4a and 4b? What is the real building's value with a hallway on Fig 4c? How can we evaluate intangible heritage as a knowledge, material and art value?

HB or CCB has no real value without intangible heritage and external properties. For the real value of HB, we need a bigger/wider system (resistant, traffic, pollution,...), because the small system (HB or CCB) is not enough.

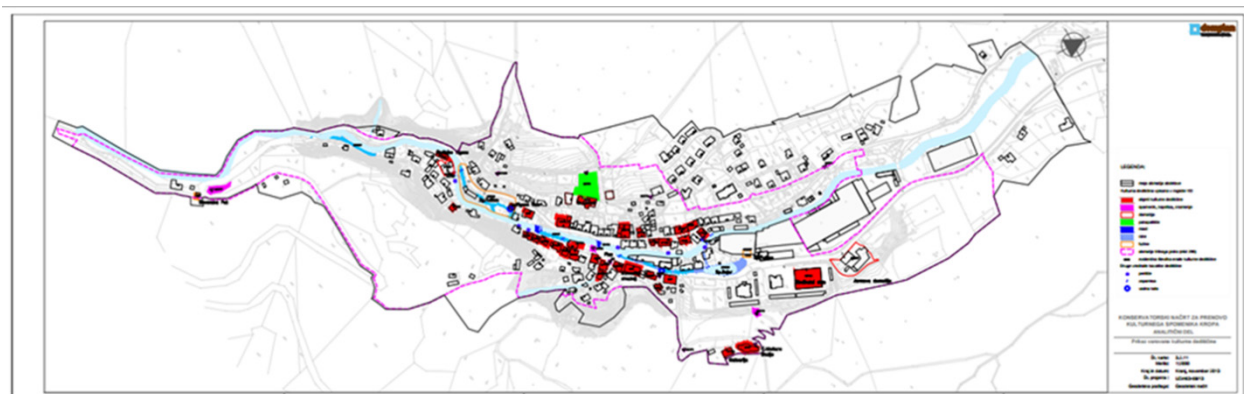


Fig. 3 Kropa—the small city in Slovenia.

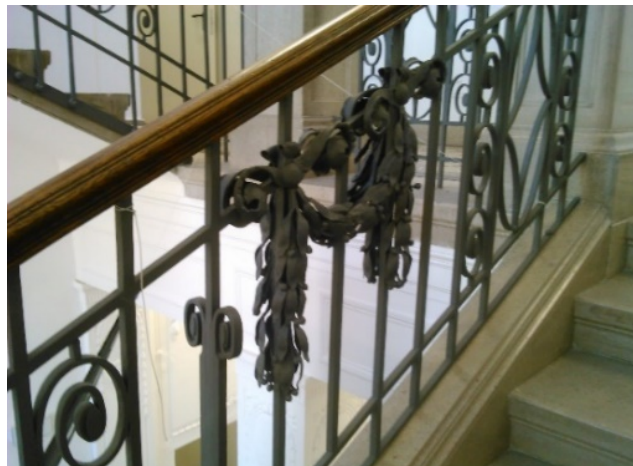


Fig. 4a The fence in Krekova 2 (photo by D. Dvornik Perhavec).



Fig. 4b The fence in Baronesses house, Prezihova 7, Maribor (photo by Bogdan Dugonik).



Fig. 4c The hallway in Krekova 2 (photo by D. Dvornik Perhavec).

5. Innovative Solution

How can we get all properties of HB or CCB as a part of the system which will help to real valuate HB or CCB? The answer is in the big database. Expansion of digitalization is one of the steps to obtain a system of elements of existing buildings.

In Fig. 5 is showing the process of collecting properties about HB or CCB and getting enable creating knowledge. Of course, at the beginning of the process is needed a lot of researches, and people who will collect the information, but in the end, the knowledge will be shared by many scientists and professionals. It takes a lot of time and patience to acquire building knowledge.

Information technology is allowed to get a wide range of information faster and better than in the past and at the same time, the same information changes into the necessary knowledge. Sharing the knowledge could improve the view of real estate as a system, and

predict the consequences of HB and CCB valuation model.

In our past work [18-23], a few ontologies and protocols have been done, which are for now in the base level of abstraction with some historical properties for example, thickness of main wall, building material, number of floors, construction year, etc. Ontologies are made with Protégé software. In Fig. 6 is showed a few buildings with properties (Fig. 6a) and connecting between, classes, object, and data properties (Fig. 6b).

Creating ontologies is one of the most important advantages. The level of abstraction can be adjusted by resources (people and money). In the beginning, we can start with a basic level of abstractions and later can reach a higher level of abstractions. Ontologies also enable managing with data within an interdisciplinary view of the same building, so the concept is suitable for an interdisciplinary approach.

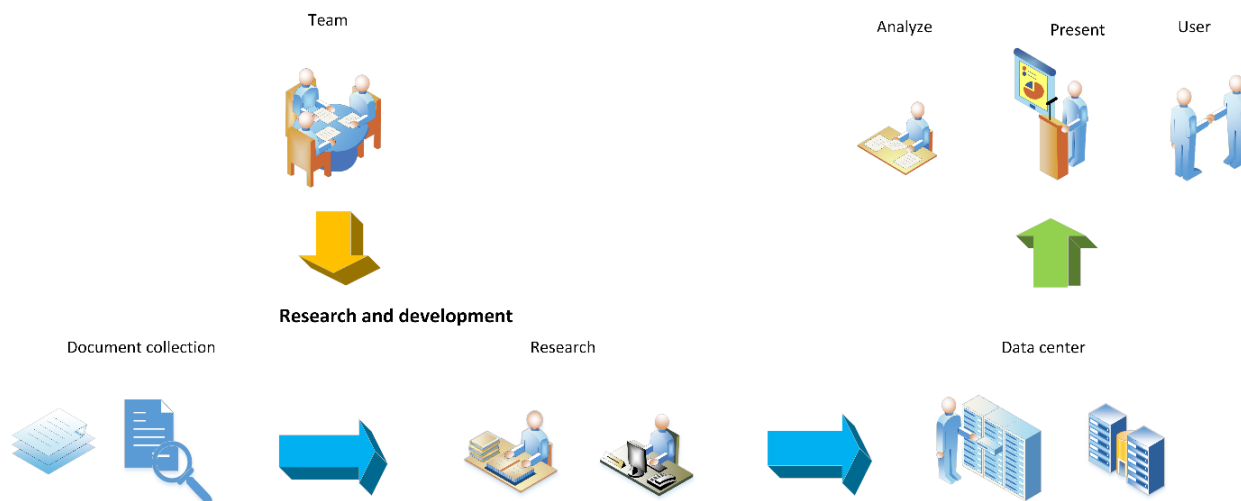
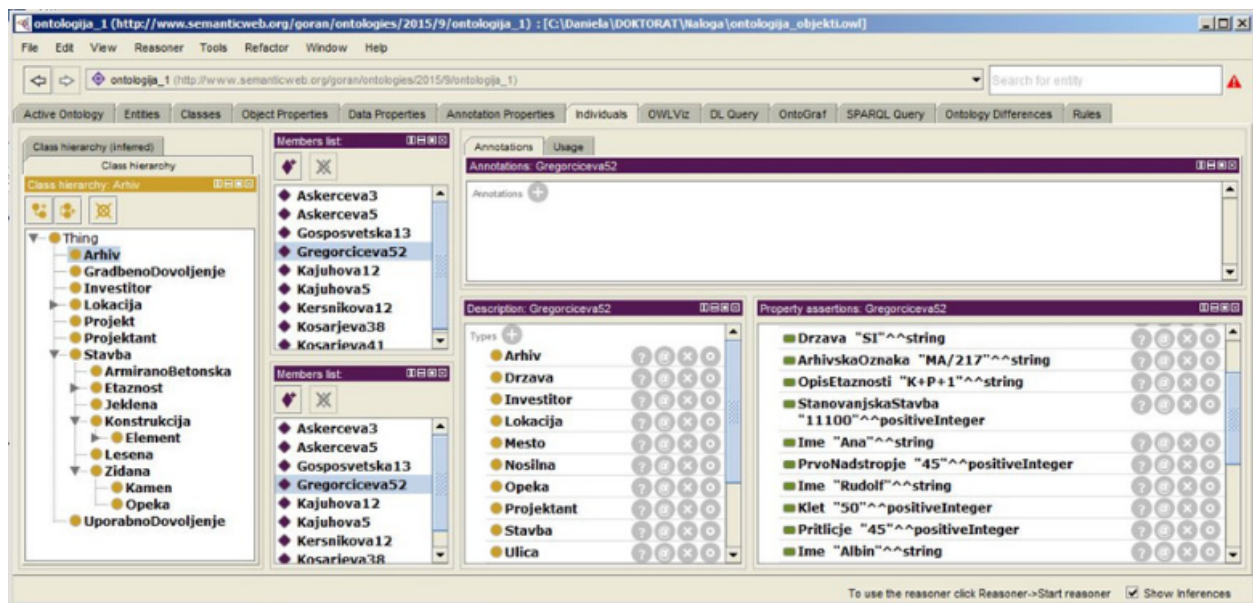
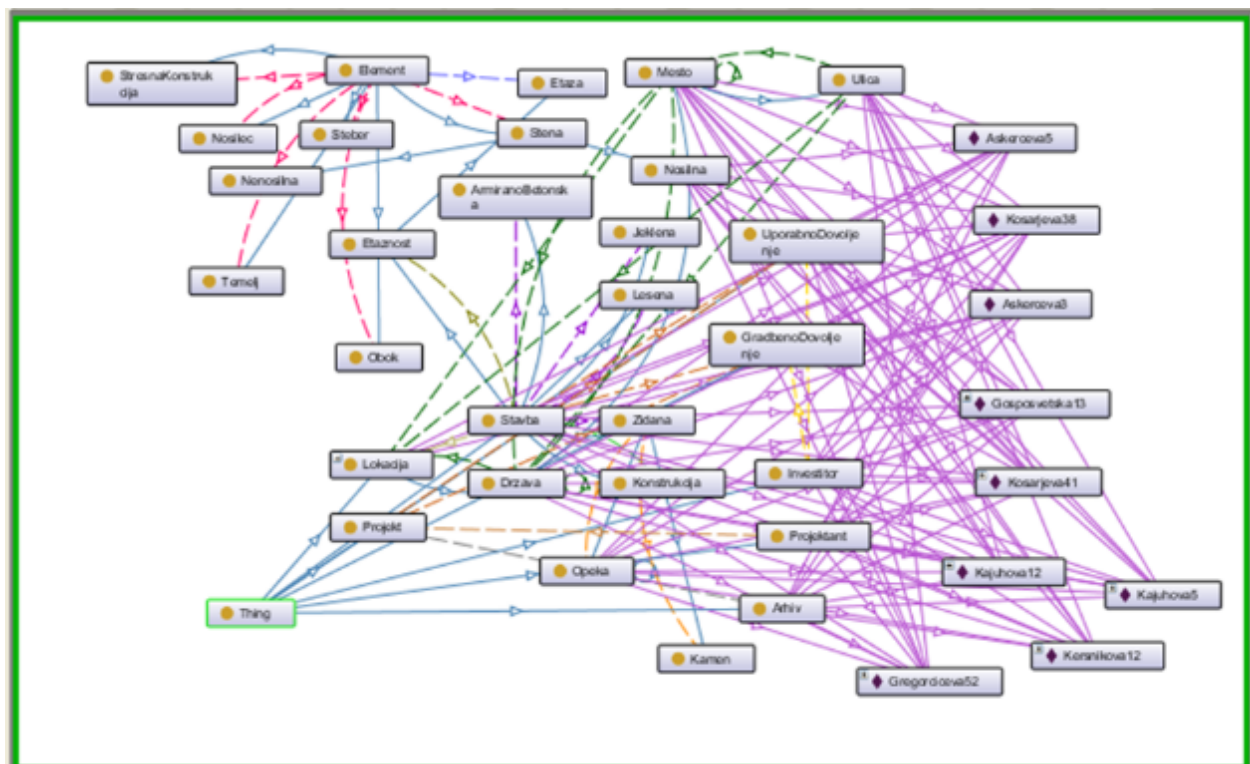


Fig. 5 Process from digitalization to sharing knowledge.



(a)



(b)

Fig. 6 Ontology.

6. Conclusion

The paper shows the concept of how to evaluate HB or CCB with innovative solutions, which provide a simpler and faster way with all recommendations *IVS 2017*. It could be included in the IVS approach for

tangible assets for buildings of historical or heritage value.

Digitalization of elements of buildings will represent the huge work in the next few years. With the collectivity approach, the interdisciplinary real estate got a new place to the system of HB or CCB. Created

and developed ontology with all properties will provide an easier and faster way to fair valuation, which is based on real data of HB or CCB. HB or CCB is important to understand our history and they are like books that contain history knowledge of engineering and arts.

The idea arises from Cost Action TD 1403 Advances in Digital Cultural Heritage where we created a model to collect and produce knowledge. A result was an ontology. The goal of the database is to be a simpler and faster way to gain knowledge about the object and system. The system is a picture of human thoughts about reality, but it is not whole reality, it is only a small or big part of this, depending on human perspective. The system is not a reality but the author's design about some part of the reality. The system is always complex.

In connection with the question, how important is building material in HB or CCB, we get the base to the interdisciplinary unrelated fields as maintenance, energy, sustainability, and others. Our further research will focus on valuating intangible heritage in HB and CCB.

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