



UNIVERSITY OF NOVI SAD  
FACULTY OF TECHNICAL SCIENCES



# EXTENDED LADM COUNTRY PROFILE FOR PROPERTY VALUATION IN SERBIA

**Aleksandra RADULOVIĆ, Dubravka SLADIĆ and Miro GOVEDARICA, Serbia**



**Geoinformatics Laboratory**

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# INTRODUCTION

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- Real properties - important and valuable resources for the economy of every country
- The need for valuation arises in taxing, in real estate transactions, in taking mortgage loans, in litigation, in making investment decisions and in other cases
- Real property valuation in Serbia – value of real property is defined on a certain date
- Many different factors directly or indirectly affect the value of real property
- In the paper we presented:
  - Analysis of national regulations
  - LADM based model for real property valuation in Serbia
    - The model is an extension of the previously developed Serbian LADM country profile
  - Valuation examples for the municipality of Novi Sad

# PROPERTY VALUATION AND TAXATION IN SERBIA

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- In the Republic of Serbia, real property valuation is regulated by appropriate laws and bylaws:
  - ‘The Law on State Survey and Cadastre’ (2009),
  - ‘The Law on property tax’ (2001),
  - ‘The Law on tax procedure and tax administration’ (2002)
  - ‘The Rulebook on real estate valuation’ (2014).
- Key element for real property valuation are public registers:
  - Real Estate Cadastre
  - Real Estate Price Register
  - Central Register of Planning Documents
- The Real Estate Cadastre data are not sufficient for today's valuation practice!



# PROPERTY VALUATION AND TAXATION IN SERBIA

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- All data from sales contracts are entered into the system of the Real Estate Price Register system
  - data for the identification of transactions,
  - data on the price from transactions,
  - data on parties,
  - data on the type of the transaction,
  - basic data on real property
  - etc.
  
- An important factor in the assessment is also urban planning, possibilities and limitations of construction, current and planned land use and for such information the Central Register of Planning Documents is consulted.



# PROPERTY VALUATION AND TAXATION IN SERBIA

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- The law proposes individual and mass valuation.
- Three basic valuation methods are most often used in individual real property valuation:
  - cost-based approach,
  - sales comparison approach
  - and income capitalization approach.
- Mass valuation of real property is defined as the systematic valuation of a group of real properties on a given date, using standardized procedures (collection, verification and classification of physical, legal and market key characteristics of real property) and methods of mathematical statistics.

# PROPERTY VALUATION AND TAXATION IN SERBIA

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- Establishment of a system of mass real property valuation should be carried out in several phases:
  - preparation and adjustment of legal regulations;
  - improvement of the real estate price register;
  - verification and analysis of data from the real estate market;
  - formation of a model for mass valuation;
  - collection of assessment data for the entire real estate fund with the formation of the register of facilities and mass valuation of real properties.
- In order to carry out all the steps, cadastral authority implemented Real Estate Price Register.
- This register is the first step towards the mass valuation and it assures collection of data from the real estate market. Other steps have yet to be implemented.



# PROPERTY VALUATION AND TAXATION IN SERBIA

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- Real property valuation in Serbia is the responsibility of several institutions:
  - tax administration,
  - local self-government,
  - the cadastral authority,
  - court experts
  - and certified appraisers.
- Obligations of mutual cooperation are not legally defined, so real property valuation data are duplicated and collected in different ways and for different needs.
- The value of real property in tax administration is determined by a usable area and an average price per square meter of the corresponding real property in the zone where the real property is located.
- Average prices are determined by zones for the appropriate types of real property.
- Based on the real property transaction prices by zones, the average price of the real property by the zone is determined.
- At least three transactions in the zone are required.



# PROPERTY VALUATION AND TAXATION IN SERBIA

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- When the market value is determined by the tax authorities, the basic problem is that they do not have sufficient data on real property and rights to them, due to the lack of connection between tax and cadastral authorities.
- One way to solve this problem is to ensure that tax authorities can obtain up-to-date data on properties.
- This can be done by implementing SOA on top of the real estate cadastre data and that way to provide access to real-time data.
- Also, one of the most important roles of the system for mass valuation is the calculation of property taxes, and it is based on postulates that ensure fairness, equality and uniformity. Full implementation of such system could solve mentioned problem as well.





# DATA MODEL FOR PROPERTY VALUATION

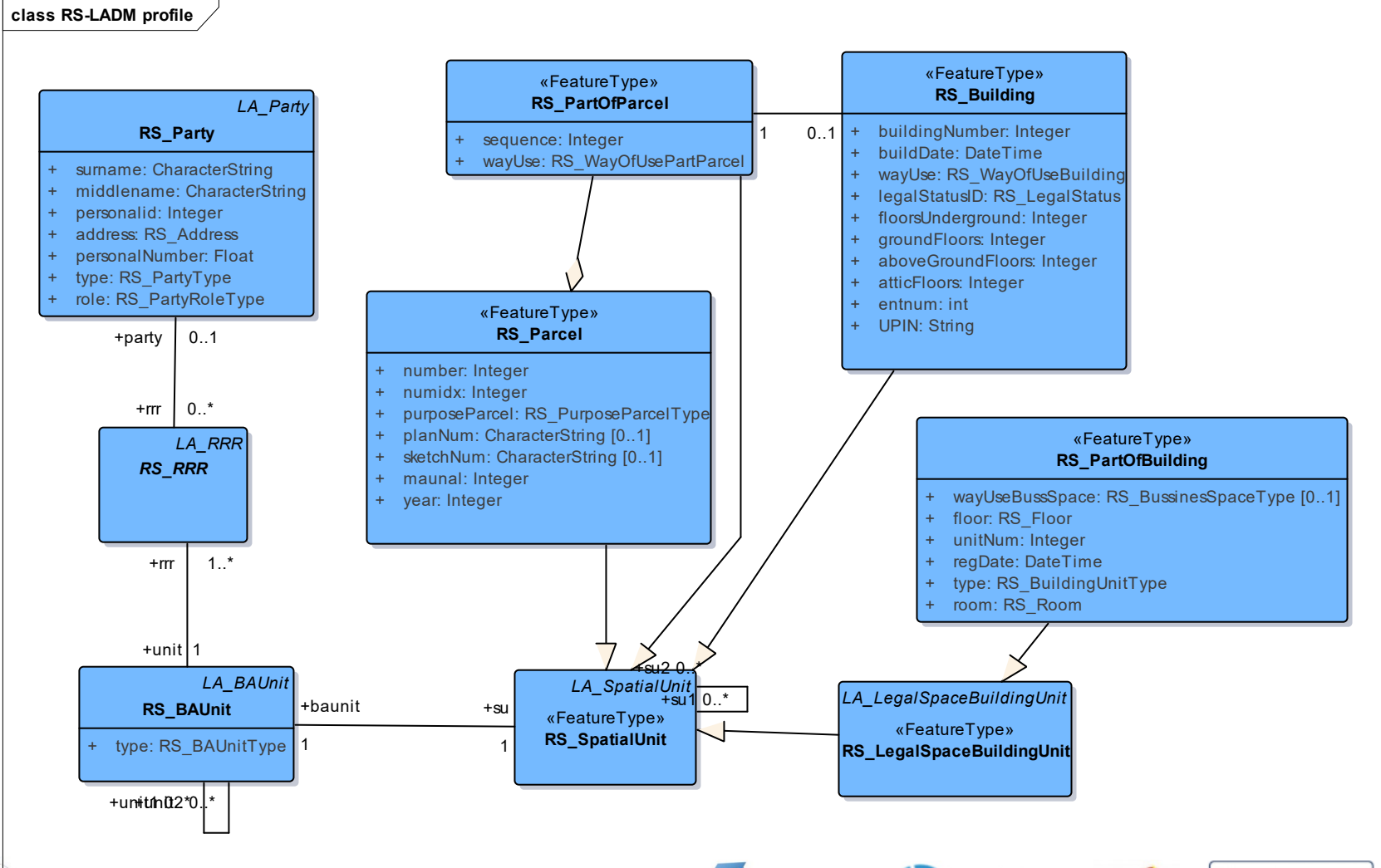
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- The country LADM profile for Serbia is previously developed by the authors (2017)
- On top of that model an extension for property valuation is developed
- This model is based on the LADM Valuation Information Model which is to be the part 4 of new ISO 19152

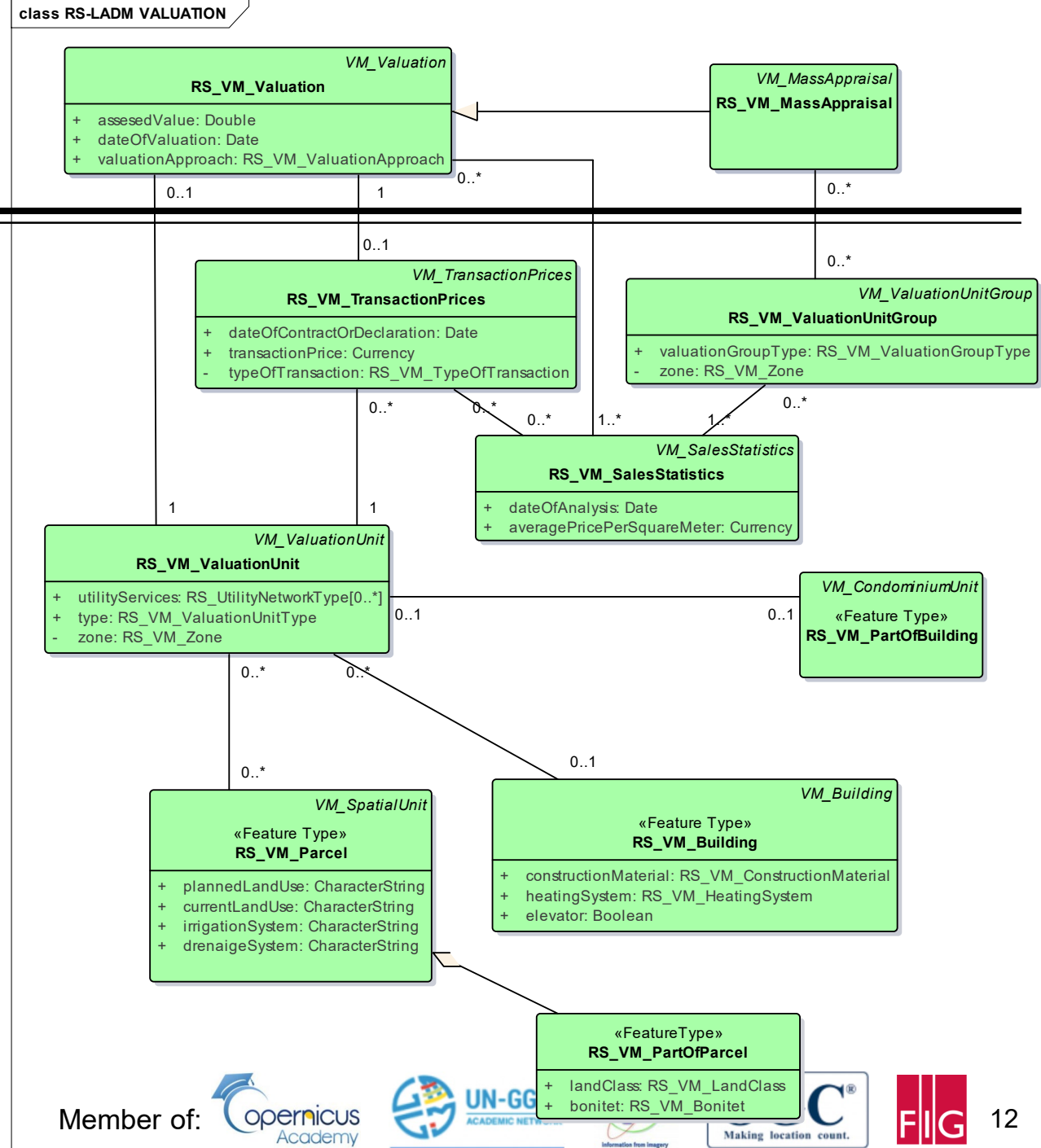




# LADM COUNTRY PROFILE



# LADM VALUATION PROFILE



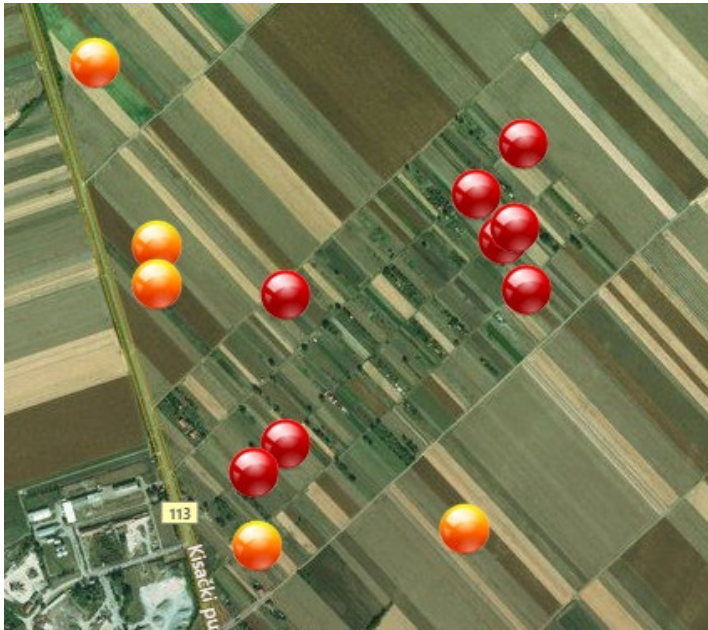
# VALUATION EXAMPLES FOR THE MUNICIPALITY OF NOVI SAD

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- Three different cases for the municipality of Novi Sad:
  - urban area - buildings with apartments and business spaces,
  - suburbs - mostly residential houses,
  - and rural settlements with agricultural land.
  
- For this analysis the Real Estate Cadastre , the Real Estate Price Register and the Central Register of Planning Documents are consulted.

# VALUATION EXAMPLES FOR THE MUNICIPALITY OF NOVI SAD

- Cadastral municipality Rumenka
- Valuation of agricultural parcel 3453 area 1113m<sup>2</sup>



<b>RS_Parcel/ RS_PartOfParcel</b>	<b>RS_VM_ValuationUnit</b>	<b>RS_VM_Parcel/ RS_VM_PartOfParcel</b>	<b>RS_VM_TransactionPrices/ RS_VM_SalesStatistics</b>	<b>RS_VM_Valuation</b>
number=3521 purposeParcel= agricultural land wayuse=filed area = 1158 address=Leje	utilityServices=0 type=parcel zone=4	plannedLandUse= agricultural land currentLandUse= agricultural land irrigationSystem=0 drenageSystem=0 landClass=1 bonitet=11	dateOfContractOrDeclaration= 8.7.2020 transactionPrice=2400€ typeOfTransaction= contract averagPricePerSquereMeter=2.071	
number=3699 purposeParcel= agricultural land wayuse=filed area = 1174 address=Leje	utilityServices=0 type=parcel zone=4	plannedLandUse= agricultural land currentLandUse= agricultural land irrigationSystem=0 drenageSystem=0 landClass=1 bonitet=11	dateOfContractOrDeclaration= 19.7.2021 transactionPrice=2250€ typeOfTransaction= contract averagPricePerSquereMeter=1.91	
number=3624 purposeParcel= agricultural land wayuse=filed area = 1032 address=Leje	utilityServices=0 type=parcel zone=4	plannedLandUse= agricultural land currentLandUse= agricultural land irrigationSystem=0 drenageSystem=0 landClass=1 bonitet=11	dateOfContractOrDeclaration= 5.11.2020 transactionPrice=2700€ typeOfTransaction= contract averagPricePerSquereMeter=2.6	
number=3453 purposeParcel= agricultural land wayuse=filed area = 1113 address=Leje	utilityServices=0 type=parcel zone=4	plannedLandUse= agricultural land currentLandUse= agricultural land irrigationSystem=0 drenageSystem=0 landClass=1 bonitet=11		assessedValue=2450€ valuationApproach=sales comparison approach



# VALUATION EXAMPLES FOR THE MUNICIPALITY OF NOVI SAD

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- Cadastral municipality Sremska Kamenica
- Valuation of the residential house no. 1 with area 112m<sup>2</sup> on parcel 4221/3





RS_Parcel/ RS_PartOfParcel/ RS_Building	RS_VM_ValuationUnit	RS_VM_Parcel/ RS_VM_PartOfParcel/ RS_VM_Building	RS_VM_TransactionPrices/ RS_VM_SalesStatistics	RS_VM_Valuation
number=4253 purposeParcel= urban construction land parcelArea=424 buildingNumber=1 wayuse=residential area = 120 buildDate=2003 legalStatus=building approved for use	utilityServices=electricity, sewerage, water, heating, telecommunication type=building zone=3	constructionMaterial=brick heatingSystem=gas heating elevator=0	dateOfContractOrDeclaration= 26.8.2021 transactionPrice=168000€ typeOfTransaction= contract averagPricePerSquereMeter=1400	
number=4970/4 purposeParcel= urban construction land parcelArea=648 buildingNumber=1 wayuse=residential area = 135 buildDate=2000 legalStatus=building approved for use	utilityServices=electricity, sewerage, water, heating, telecommunication type=building zone=3	constructionMaterial=brick heatingSystem=gas heating elevator=0	dateOfContractOrDeclaration= 23.3.2021 transactionPrice=165000€ typeOfTransaction= contract averagPricePerSquereMeter=1222,2	
number=5113/1 purposeParcel= urban construction land parcelArea=339 buildingNumber=1 wayuse=residential area = 102 buildDate=1998 legalStatus=building approved for use	utilityServices=electricity, sewerage, water, heating, telecommunication type=building zone=3	constructionMaterial=brick heatingSystem=gas heating elevator=0	dateOfContractOrDeclaration= 1.9.2021 transactionPrice=125000€ typeOfTransaction= contract averagPricePerSquereMeter=1225,5	
number=4221/3 purposeParcel= urban construction land parcelArea=447 buildingNumber=1 wayuse=residential area = 112 buildDate=2002 legalStatus=building approved for use	utilityServices=electricity, sewerage, water, heating, telecommunication type=building zone=3	constructionMaterial=brick heatingSystem=gas heating elevator=0		assessedValue=143647€ valuationApproach=sales comparison approach

# VALUATION EXAMPLES FOR THE MUNICIPALITY OF NOVI SAD

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- cadastral municipality Novi Sad II
- Two-rooms apartment, area 56m<sup>2</sup> within the building 1 on parcel 3931/5



RS_Parcel/ RS_PartOfParcel/ RS_Building/ RS_PartOfBuilding	RS_VM_ValuationUnit	RS_VM_Parcel/ RS_VM_PartOfParcel/ RS_VM_Building/ RS_VM_PartOfBuilding	RS_VM_TransactionPrices/ RS_VM_SalesStatistics	RS_VM_Valuation
number=3930/11 wayuse=residential buildingNumber=1 buildDate=2002 type=apartment room=two rooms floor = first floor unitNum = 321 area=54	utilityServices=electricity, sewerage, water, heating, telecommunication type=part of building zone=1	constructionMaterial= reinforced concrete heatingSystem=cental heating elevator=1	dateOfContractOrDeclaration= 22.12.2021 transactionPrice=82000€ typeOfTransaction= contract averagPricePerSquareMeter=1518	
number=3931/29 wayuse=residential buildingNumber=1 buildDate=1988 type=apartment room=two rooms floor = second floor unitNum = 173 area=53	utilityServices=electricity, sewerage, water, heating, telecommunication type=part of building zone=1	constructionMaterial= reinforced concrete heatingSystem=cental heating elevator=1	dateOfContractOrDeclaration= 4.2.2022 transactionPrice=69000€ typeOfTransaction= contract averagPricePerSquareMeter=1302	
number=3930/42 wayuse=residential buildingNumber=3 buildDate=2000 type=apartment room=two rooms floor = first floor unitNum = 8 area=55	utilityServices=electricity, sewerage, water, heating, telecommunication type=part of building zone=1	constructionMaterial= reinforced concrete heatingSystem=cental heating elevator=1	dateOfContractOrDeclaration= 27.12.2021 transactionPrice=74250€ typeOfTransaction= contract averagPricePerSquareMeter=1350	
number=3931/5 wayuse=residential buildingNumber=1 buildDate=1989 type=apartment room=two rooms floor = first floor unitNum = 115 area=56	utilityServices=electricity, sewerage, water, heating, telecommunication type=part of building zone=1	constructionMaterial= reinforced concrete heatingSystem=cental heating elevator=1		assessedValue=77840€ valuationApproach=sales comparison approach

# CONCLUSION

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- In Serbia, the valuation is performed individually, while the law also prescribes a mass valuation of real properties.
- The implementation of mass valuation is still under development. As one of the first steps, the Real Estate Price Registry was built and within it, information on real property transactions is recorded.
- LADM country profile for Serbia was developed previously. Since the valuation is envisaged to be found in Part 4 of the LADM standard, in this paper the existing country profile has been extended to contain valuation information.
- In future work, the values of the code lists will be defined in accordance with the law and rule books.
- This model, as well as the implementation of mass valuation will contribute to faster, more accurate and fairer valuation.

# CONCLUSION

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- Tax administration is responsible for taxation process.
- In this process, information on real properties is often duplicated and not up-to-date, and the right holders are left with the obligation to update this information.
- Since most of the data necessary for taxation is available from the cadastral records, the development of a service-oriented architecture would enable the delivery of current data in real time.
- As future work, the web services that would enable the delivery of current data, and harmonization of the existing code lists between two organizations will be implemented.



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Thank you for your attention!



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