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Standardization perspective towards interoperable and sharing of real estate actual price registration data: An Example of Taiwan

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Content



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Introduction



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Collaboration, Innovation and Resilience:
Championing a Digital Generation

Brisbane, Australia 6–10 April

Real estate functions as a vital indicator of a nation's economic progress and fluctuations.

Actual price
registration



Open data



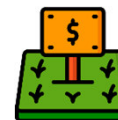
Application



Transactions



Sales/ purchase
Leasing
Pre-sales



land, buildings, and parking spaces

Aligned with national standard and international
GIS standards → consensus application schema.



ISO 19100 series of standards
open data format



Support innovative applications, such as
identifying transaction hotspots.



關於平台

服務介紹

操作指引

服務目錄


如何使用介接服務

完整步驟說明介接服務步驟
輕鬆上手使用沒煩惱

 提供服務數量

Number of provided service

59

 服務使用量(萬次)

Number of service used

975

 熱門服務 **Popular service**

- MOI_API_005地籍建物所有權... **Building ownership**
- MOI_API_003地籍土地他項權... **Land of other rights**
- MOI_API_004地籍建物標示部... **Building identification**

ANALYSIS

DATA





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**DATA
Analysis**

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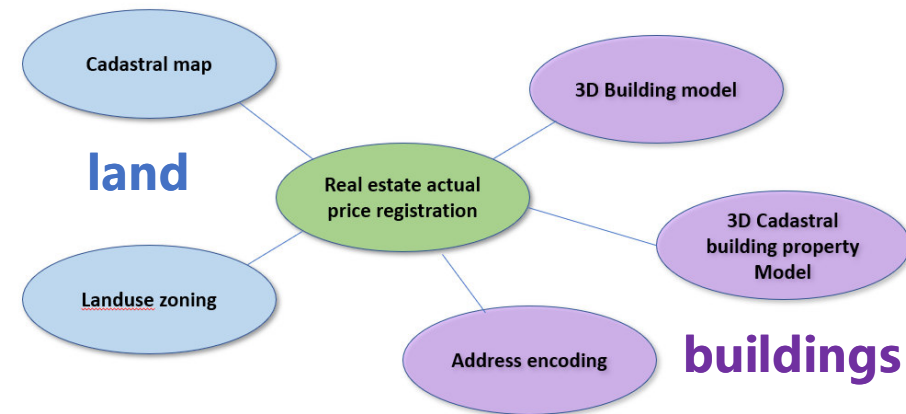
FOCUS real estate sales, real estate leases, and pre-sale housing.

Design the application schema based on the characteristic analysis results of the data, which serves to elucidate the meanings and application constraints of the designed content.

The considerations regarding the characteristics of real estate actual price registration data are as follows:

NGIS specifications

- Feature Design
- Identification
- Spatial Representation
- Temporal Aspect
- Changes in Recording Regulations
- Thematic Aspects
- Distributed Data Format
- Data Management and Supply



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THE SCIENCE OF WHERE

Geosystems

meter

6

Feature Design

- Transactions (sales, leases, and pre-sale housing)
- Buildings, lands, parking spaces
- Person **data types**



Changes in Recording Regulations

Actual price registration data may vary across different timeframes.



Identification

- transaction IDs
 - land numbers, building numbers, and addresses
- principal linking reference**
- foundational references**



Thematic Aspects

Customized to correspond with the intrinsic properties of the data and the demands of subsequent applications.



Spatial Representation

- cadastral maps **land number**
- cadastral building property model data **building numbers**



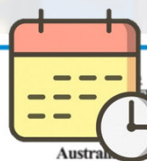
Distributed Data Format

Adopted GML, as endorsed by ISO/TC211 and OGC. CSV data format is also a choice.



Temporal Aspect

- transaction date (or leasing date)
- registration date.



Data Management and Supply

The public can access and download from the website to obtain the most current information.

MANAGEMENT

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CHCNAV




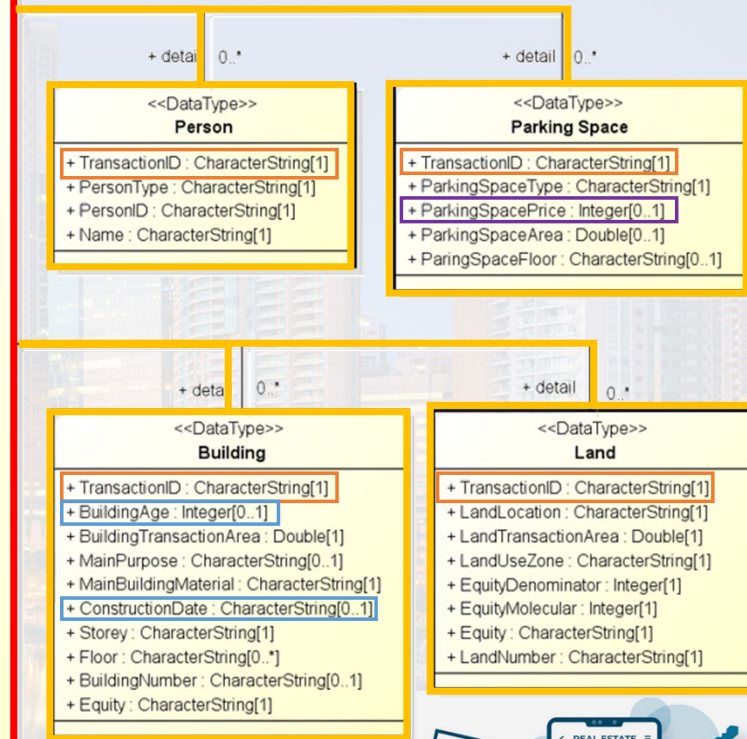
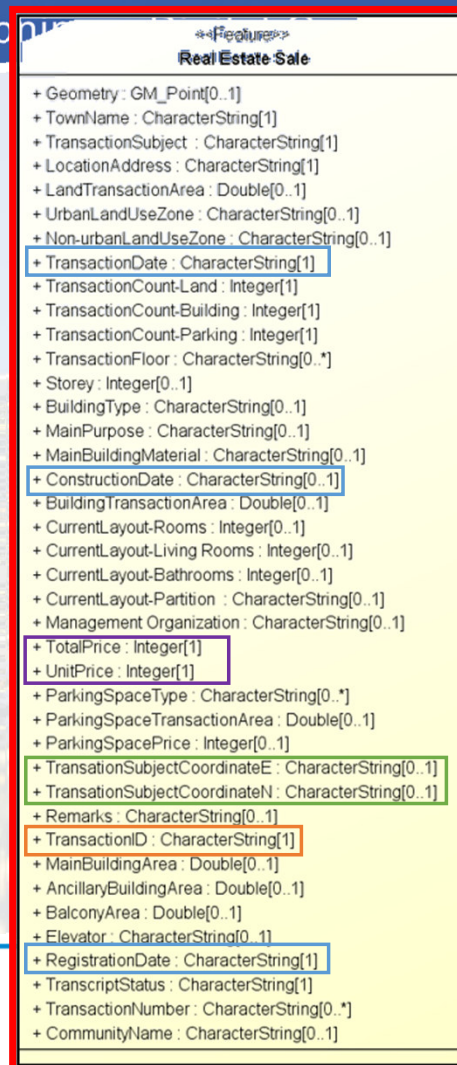
DESIGN

SCHEMA



- 
Comprehensive Transaction Status Overview: transaction ID, administrative district, total number of transactions, etc. The transaction ID serves as a unique identifier.
- 
Land Characteristics: land area and zoning must be documented in the context of land transactions.
- 
Building Characteristics: building type, intended use, construction materials, transfer area, dimensions of both primary and ancillary buildings, and layout of the property.
- 
Parking Space Characteristics: type and area of the parking space.
- 
Temporal Information: transaction date, registration date, completion date of construction and the age of building.
- 
Geospatial Information: Two-dimensional coordinates are chosen to represent the geographical location of the transaction.


Price Information: total transaction price, unit price (price per square meter), and individual prices associated with land, buildings, and parking spaces.



STRATEGY

ENCODING



ENCODING STRATEGIES

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GML-based distribution strategy

- Fully record the relational structure designed in UML and can accommodate future expansions to represent **three-dimensional spatial representation**, not limited to only point representation.

CSV-based distribution approach

- Can only record the current data's point coordinates and must be processed individually, with different types of data recorded in separate files, linked through **the same case number**.



RealEstateSaleAndPurchase

TownName, TransactionSubject, LocationAddress, Land TransactionArea, Urban LandUseZone, NonurbanLandUseZone, TransactionDate, TransactionCountLand, TransactionCountBuilding, TransactionCountParking, TransactionFloor, Storey, BuildingType, MainPurpose, MainBuildingMaterial, ConstructionDate, BuildingTransactionArea, CurrentLayoutRooms, CurrentLayoutLivingRooms, CurrentLayoutBathrooms, CurrentLayoutPartition, ManagementOrganization, TotalPrice, UnitPrice, ParkingSpaceType, ParkingSpaceTransactionArea, ParkingSpacePrice, TransactionSubjectCoordinateE, TransactionSubjectCoordinateN, Remarks, RemarksContent, TransactionID, MainBuildingArea, AncillaryBuildingArea, BalconyArea, Elevator, RegistrationDate, TranscriptStatus.
中正區, 房地(土地+建物)+車位, 基隆市中正區新豐街90號3樓, 26.07, 其他, 1130511.1, 1.1, 三層, 十一層, 住宅大樓(11層含以上有電梯), 住家用, 鋼筋混凝土造, 1120928, 139.7, 2.1, 1.1, 有, 有, 11400000, 101729, 坡道平面, 41.4, 1400000, 329543, 2781486, Y, 地下二層固定機車停車位 A2CD1130515002501, 56.56, 0.7, 76, 有, 1130619, N.

RealEstateSaleAndPurchase Person

TransactionID, PersonType, PersonID, Name.
A2CD1130515002501, 30, m.
A2CD1130515002501, 0, m.

RealEstateSaleAndPurchase ParkingSpace

TransactionID, ParkingSpaceType, ParkingSpacePrice, ParkingSpaceArea, ParkingSpaceFloor.
A2CD1130515002501, 坡道平面, 1400000, 41.40, 地下一樓.

RealEstateSaleAndPurchase Land

TransactionID, LandLocation, Land TransactionArea, LandUseZone, EquityDenominator, EquityMolecular, Equity, LandNumber.
A2CD1130515002501, 長潭段, 26.07, 都市: 其他: 住宅區(住一), 100000, 336, 持分移轉, 09710000.

RealEstateSaleAndPurchase Building

TransactionID, BuildingAge, BuildingTransactionArea, MainPurpose, MainBuildingMaterial, ConstructionDate, Storey, Floor, BuildingNumber, Equity.
A2CD1130515002501, 1.64, 32, 集合住宅, 鋼筋混凝土造, 112年9月28日, 三層, 陽台, 06246000, 全產移轉.

TEST

CASE



- The residential population in this highly developed area may not own their properties.
- A trend of residential communities developing towards the suburbs.

Real estate sale Kernel Density

Districts shown: Beitou District, Shilin District, Neihu District, Wanhua District, Daan District, Zhongzheng District, Yonghe District, Xinyi District, Zhonghe District.

Legend:

- <43.645651
- 43.645651 ~ 87.291302
- 87.291302 ~ 130.936954
- 130.936954 ~ 174.582605
- 174.582605 ~ 218.228256
- 218.228256 ~ 261.873907
- 261.873907 ~ 305.519559
- 305.519559 ~ 349.16521
- 349.16521 ~ 392.810861
- 392.810861 ~ 436.456512

- Several highly concentrated areas can be identified.

- The market's activity level in various years.
- An assessment of the potential impact of COVID-19.

CONCLUSION



- **Actual transaction registration data** serves as a crucial and informative resource.
- Since 2010, Taiwan government has established **websites** and **open data formats** to disseminate real estate transaction data to the private sectors and the general public.
- Promotes **transparency** within the real estate market but also fosters a more **equitable** and **rational environment** for real estate transactions.
- **A standardized framework** for the registration of actual real estate prices (property sales, real estate leases, and pre-sale houses).
- **Complies with national GIS standards** and **thoroughly documents the specifics** of real estate transactions (buildings, land, parking spaces, and involved persons).
- Dissemination and sharing of actual price registration data in an **open GIS data format**.
- Improve the **interoperability** of transaction registration data with other datasets.

Thank You For Listening

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