



Open Symposium

30th Korean Cadastral Seminar & Commission 7 Annual Meeting 2007

“Good practice in Cadastre and Land registry“

Modern Real Estate Cadastre as Part of Geodata Infrastructure in Korea and Germany

Taikjin KIM, Hans KNOOP, Jaeone LEE, Seonghwa LEE

Monday 21 May 2007, Grand Ballroom, COEX Centre, Seoul

Agenda



- 1. Introduction**
- 2. History of Cadastral System in Korea**
- 3. Situation and Problems of Cadastral System
in Korea**
- 4. Historical Development in Germany**
- 5. German System of Land Registration and
Geodata Infrastructure (GDI)**
- 6. Conclusion**

Introduction



Establish of the modern Korean Cadastral System

The problem of discrepancy between actual boundary

Contribute to solve the problems occurred

*Complete set of Cadastre as a Part of
Geodata Infrastructure*



Activities of Cadastral Reform Project in Korea

History – Cadastral Act...



1910	Enactment land survey regulation
1918	Enactment forests and fields survey regulation
1943	Enactment of Land Tax Regulation
1950	Enactment of Cadastral Act
1974	Full amendment of Cadastral Act
1986 ~2006	Partial amendment of Cadastral Act

Organization of cadastre Division



MOGAHA

(31.12.2006)

**1 special city
Seoul**

**6 urban districts
: Pusan, ...**

**9 Provinz
: Gyeonggi,**

25 district

49 City/county/district

186 city/county/district



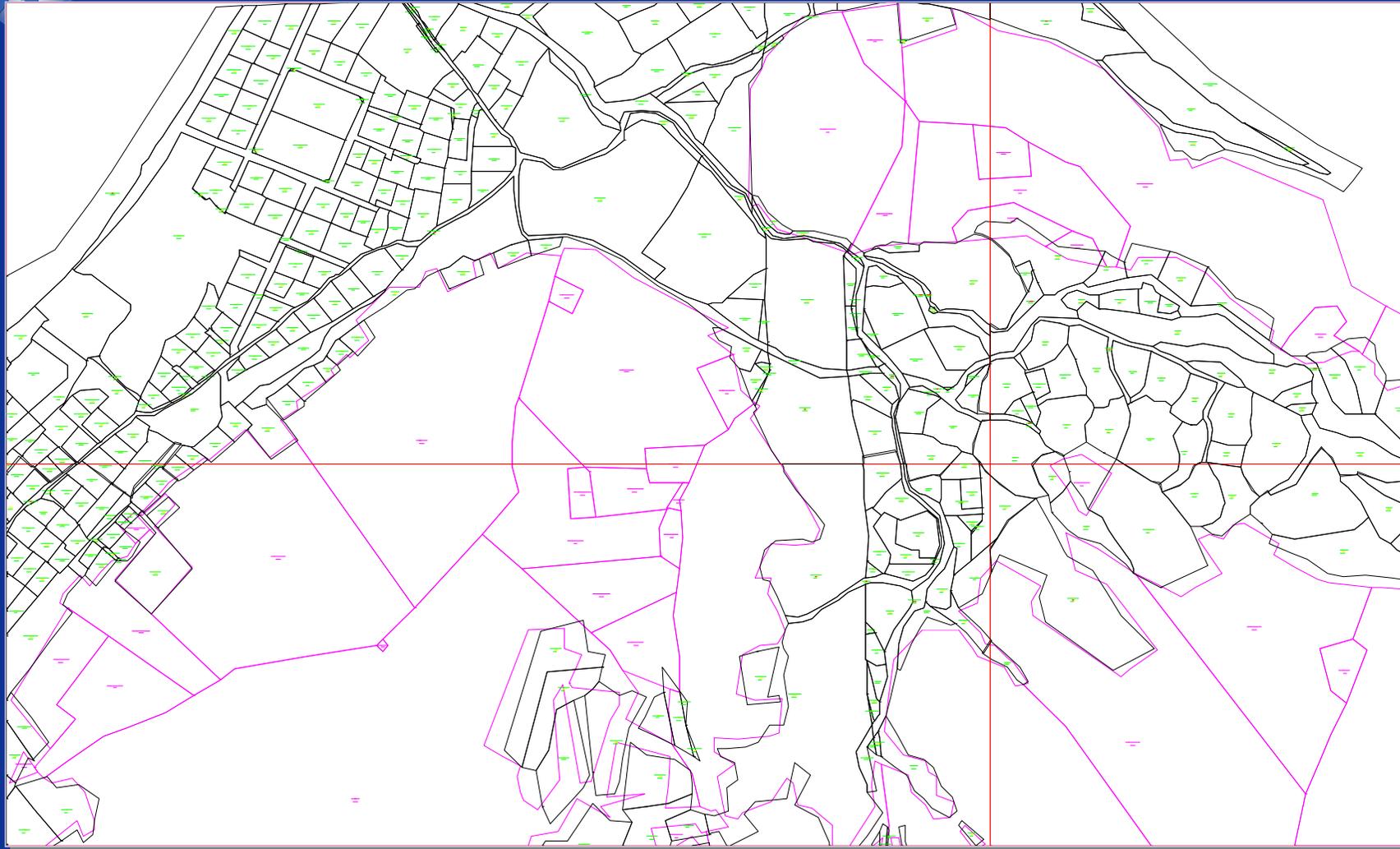
The Situation and Problems of Cadastral System

- **Cadastral survey control Points**
- **Registration Conversion in Cadastral map and Forest map**
- **Diversified scales of cadastral maps**
- **Problems of parcel numbering system**
- **Insufficiency of cadastral data**
- **Responsibilities of different Organizations**

Cadastral survey Control Points



Registration Conversion in Cadastral map and Forest map



Problems of parcel numbering system



The rapid development of the cities

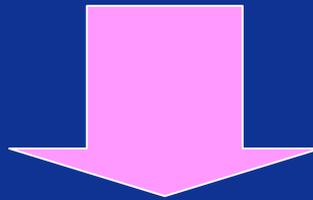
- New Registration
- Registration Conversion
- Partition
- Annexation
- Land Category change
- Scale change
- Urban - Land development project
- etc....



Insufficiency of cadastre data

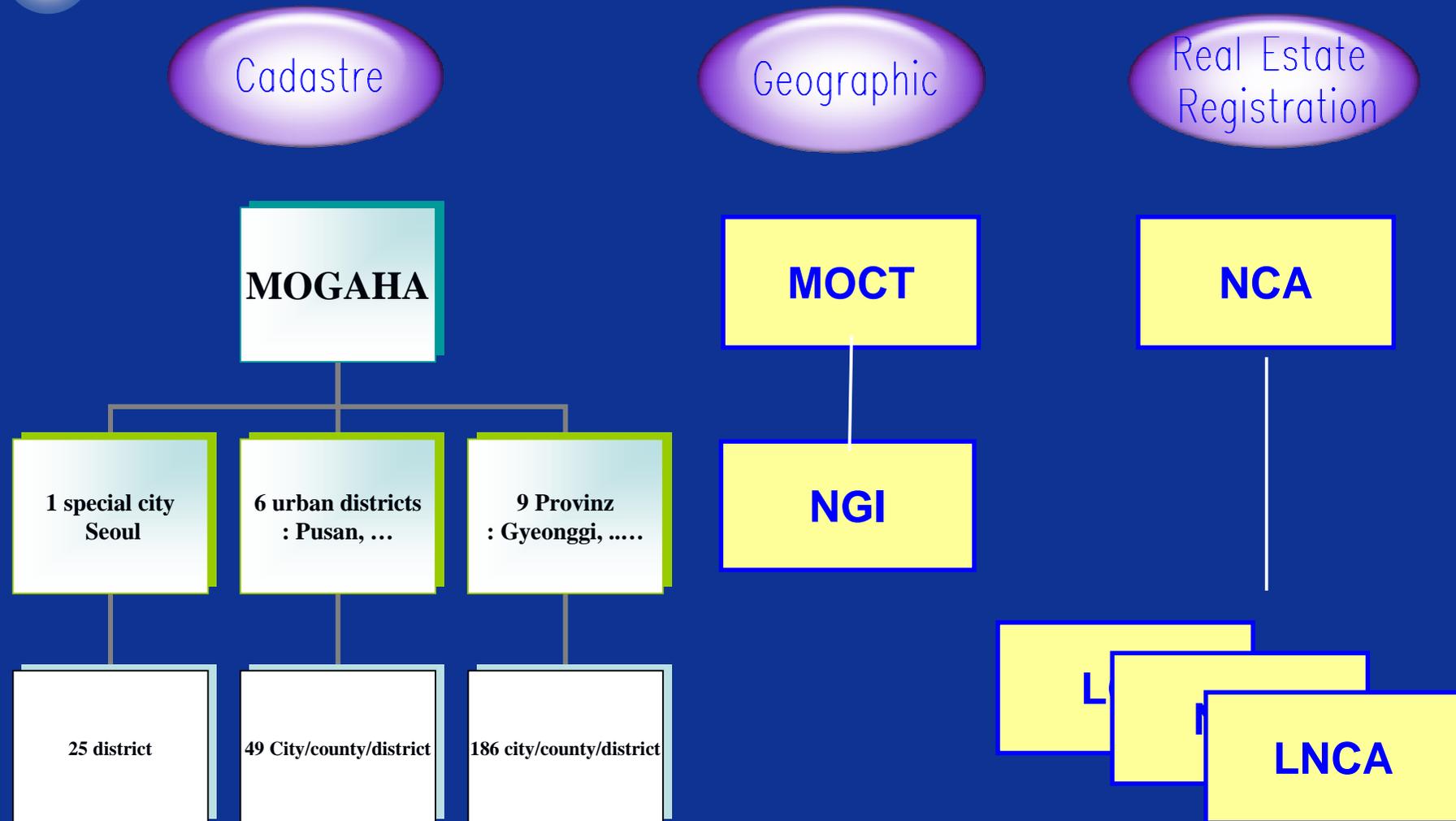
Cadastre record has limited
register information

Little amount of the information



People's requirement about
cadastre information is getting
diversity

Responsibilities of different Organizations





Agenda

Cadastral, Geobasisdata and GSDI in Germany

- Traditional Records - Development since 18th century
- First Generation of Geoinformationssystem 1971
- Second Generation , the AAA-System (AFIS/ALKIS/ATKIS), Paradigm Shift 1997
- Application of ISO/TC 211 Standards
- Contribution for GSDI (like INSPIRE)



Traditional Land Records – Different Origines

Real Estate Cadastre

- Inventory of all real estate, valuation
- Geometric (graphical) data, boundaries, alphanumeric data, land use, data on ownership, topographic features ... in ALB parcel-related
- in ALK layer-structured

State Survey

- Data on the whole state territory
- with topographic items and
- information on terrain
- in ATKIS object-related: settlements, traffic, waters, vegetation, areas, land forms...



Historical and Legal Development in Germany

STATE SURVEY

18th Century

- Trigonometry
- Topography
- Cartography

Military mapping

CADASTRE

18th and 19th Century

- Land Distribution and Registering

19th Century

- Tax Cadastre

1873

Cadastre has to be referred and connected to State Survey (*Central Order*)

1900

German Civil Code (Bürgerliches Gesetzbuch):
Official Landregistration (Grundbuch) with Cadastre (Map and alphanumerical data) as reference – legally to be kept complete and updated, and in permanent coincidence



History (II) of Landregistration

Real Estate Cadastre

- Starting as Tax Cadastre, later Property Cadastre (1900)
- Official register (reference) for Landregister (de facto since 1872) since 1900
- Nowadays: Multipurpose Cadastre
- as well Basis for all spatial related Informationsystems



Landregister (I)

Registration of rights and equated rights on parcels (since 1900)

- Title
- Data of Real Estate
- Section I: Owner
- Section II: Restrictions
- Section III: Mortgages



Landregister (II)

Effect of Landregistration (since 1900)

- Precondition of every acquisition of real estate
- **Registration compulsory**
- Principle of application
- Principle of registration
- **„Garantie“ for correctness of data (§ 891 BGB)**
- **„Public trust“ of contents and form (§ 892 BGB)**



System of Landregistration



Section 1 → Original data of Landregister → Ownership Data

Register of Real Estate ← Original data of Real Estate ← Real Estate Data

PERMANENTLY IN COINCIDENCE !



Historical and Technical Development

- 1924** Committee for Surveying, Mapping and Cadastre
- Implementation of Gauß-Krüger-System
 - Cadastre to be referred to State Survey
 - **Unification of Cadastre and State Survey definitely**
- 1934** New Basic Law for Surveying and Cadastre for all (larger) Germany
- Verification and Standardization
 - Organization
 - Laws/Legal/Technical Regulations
 - Assessment for Tax Implementation
 - Control Network
- **ONE GERMAN SYSTEM (until today)**



History

1950

Federal Republic of Germany

AdV and 10 States and Federal Agency (IfAG)

1971

**Development of First German Geoinformationssystem
(Cadastre (ALB,ALK) and Topography (ATKIS))**

03.10.1990

Reunification AdV 16 States + Federal Agency (IfAG, BKG) - 11/89

1997

**Second Generation of Geoinformationssystemen for combined
and unified Controlnetwork,Cadastre and Topography
(AFIS/ALKIS/ATKIS) by AdV**

→ Geobasisdata GSDI



Traditional and Current Land Records

Real Estate Cadastre

- Inventory of all real estate, valuation
- Geometric (graphical) data, boundaries, alphanumerical data, land use, data on ownership, topographic features ... in ALB parcel-related
- in ALK layer-structured

State Survey

- Data on the whole state territory
- with topographic items and
- information on terrain
- in ATKIS object-related: settlements, traffic, waters, vegetation, areas, land forms

Real Estate Cadastre in Germany



Real Estate Cadastre

Real Estate Book (ALB, alphanumerical data)

- Identifier of parcel
- Coordinate of parcel
- Location
- Area
- Real Use
- Public legal data (Soil Assessment)
- Other data

Real Estate Map (ALK, geometric data)

- Presentation of parcels, exact in location and scale
- Parcel boundaries
- Real Use
- Results of Soil Assessment
- Public restrictions
- Other Data

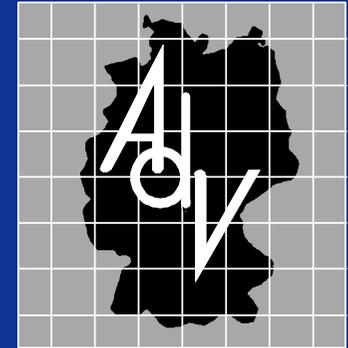
Surveying data (elements)

- Calculated coordinates
- Results of surveying activities
- Not for public information

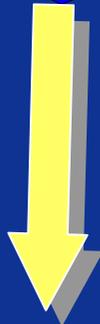


The conception of the project “ALK” - 1971

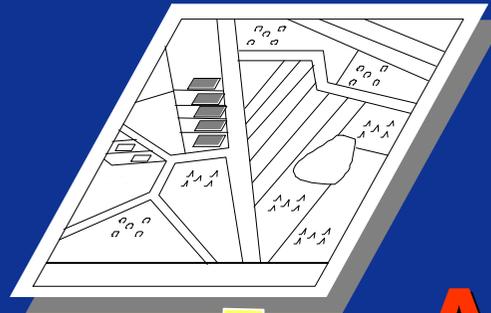
- A common project of all (old) Federal States of Germany steered by the Working Committee of the Surveying Authorities of all States (**AdV**)
- 1971 theoretical concept:
Adopted 1973: automated real estate register (ALB)
and 1975: automated real estate map (ALK)
- They developed uniform principles for establishment and maintenance of the ALK
- The ALK is generally based on the information given by the already established analogue real estate map and updated by results obtained from actual real estate survey.



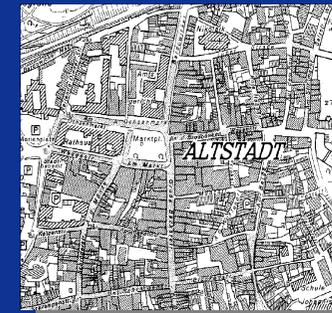
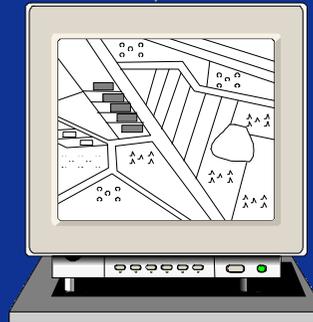
Conversion of Paper-Based Maps To Digital Datasets in Germany (from 1971)



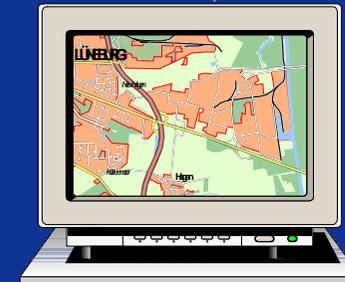
**A
L
B**



**A
L
K**



**A
T
K
I
S**



Paradigm Shift



Since 1997: Concept of AdV for

Modelling of Geoinformation of the Official Surveying and Mapping“

- Integration of Cadastre Map and Register (ALK and ALB)
- Harmonisation of Cadastre and Topographic Mapping (ALKIS-ATKIS)

Cornerstones

- **Integrated maintenance of graphic data and descriptive data**
- **Constant object view**
- **Data maintenance without redundancies**
- **User profile according to data protection legislation**
- **Focus on customers**
- **Economicalness of the concept**





Target System

Uniform geospatial base datasets for Germany

Only one data model for

Spatial Reference System



AFIS

Real Estate Cadastre



ALKIS

Topography



ATKIS

3A - base schema, one 3A - application schema

NAS = standard-based data exchange format

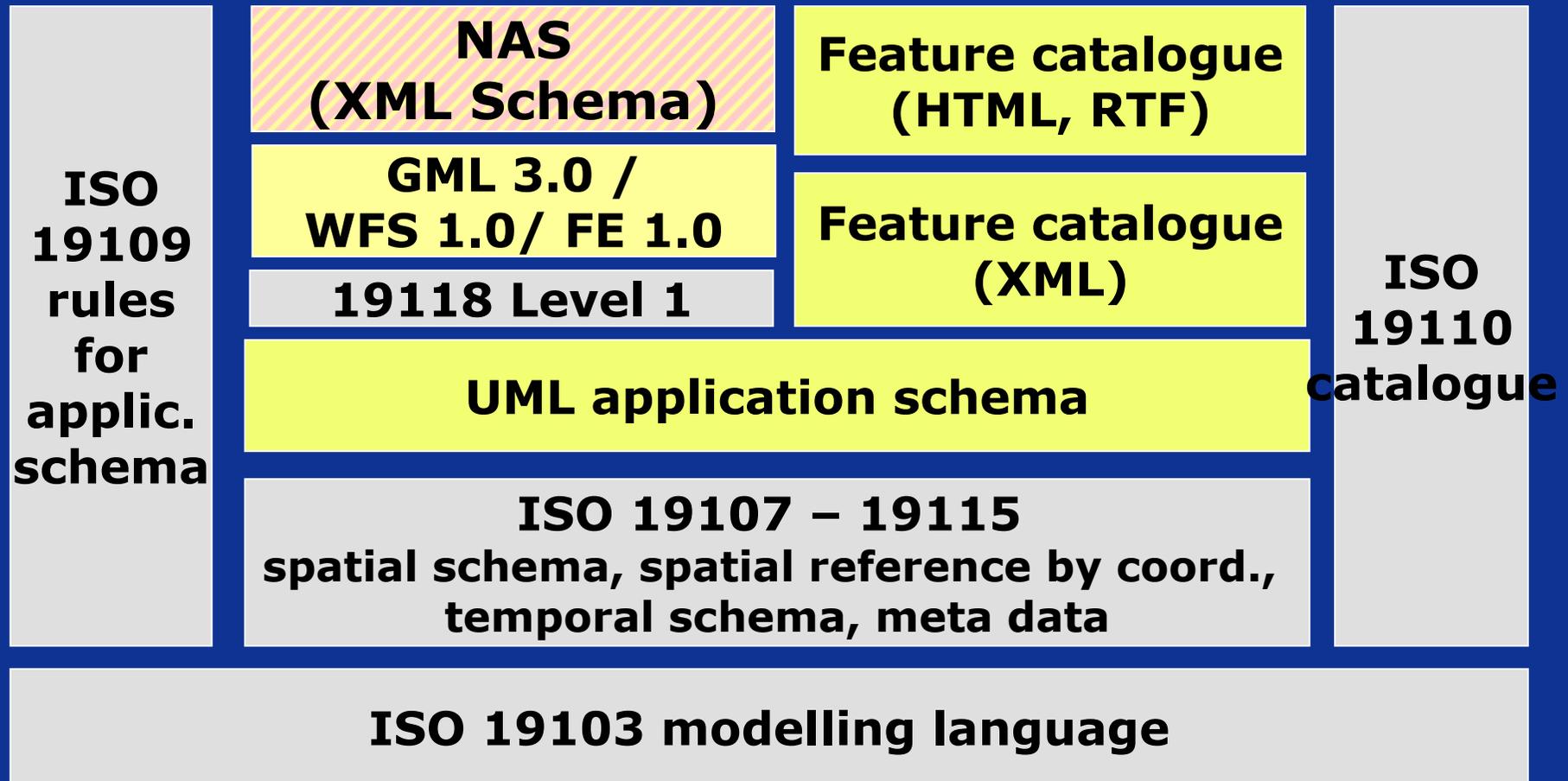


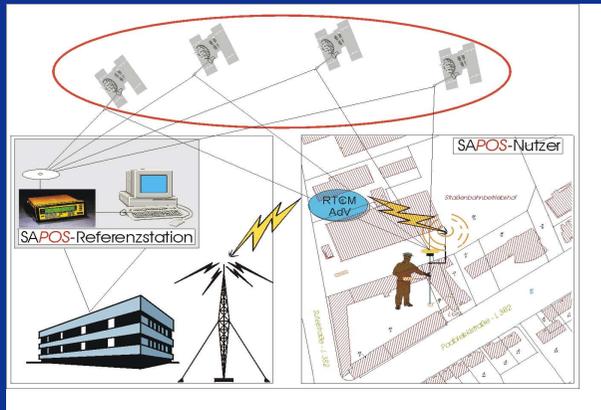
Co-ordinated data capture, maintenance and supply/delivery

Geospatial Base Data Information Management (GIM)

Implementation (stage-wise realisation)

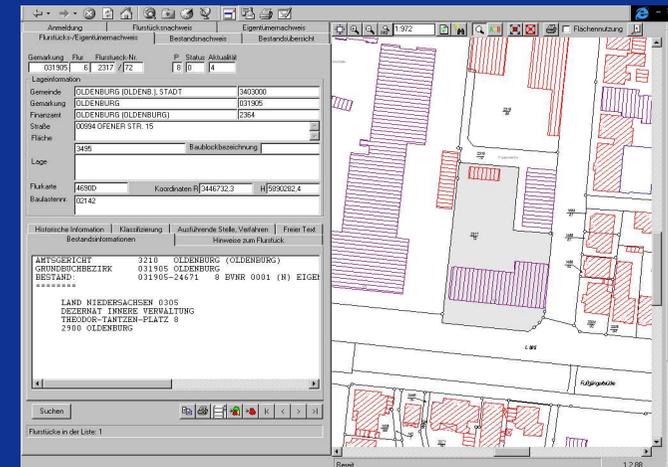
Standard based data exchange Interface (NAS)





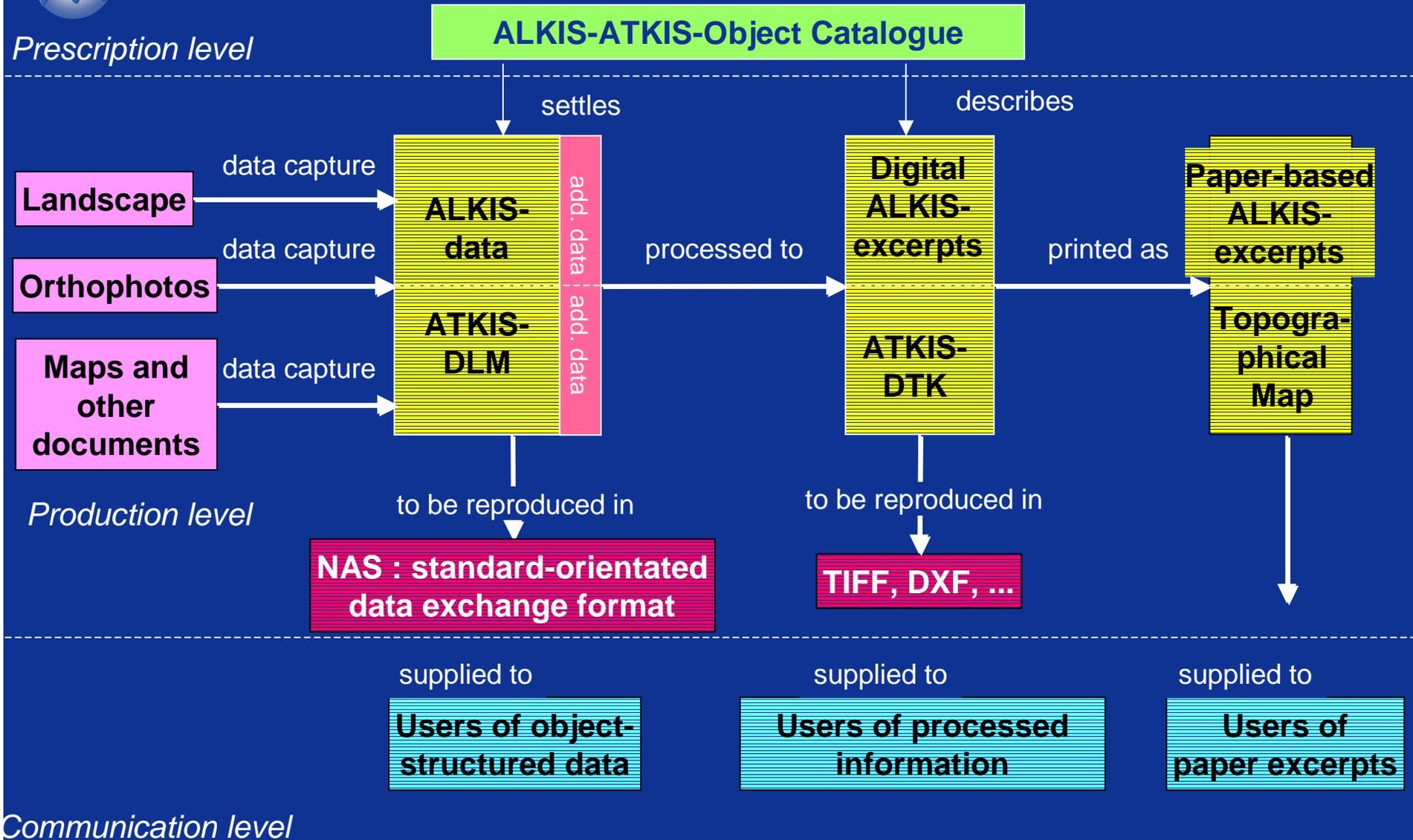
AFIS

ALKIS



ATKIS

ALKIS[®]/ATKIS[®] - Reference Model

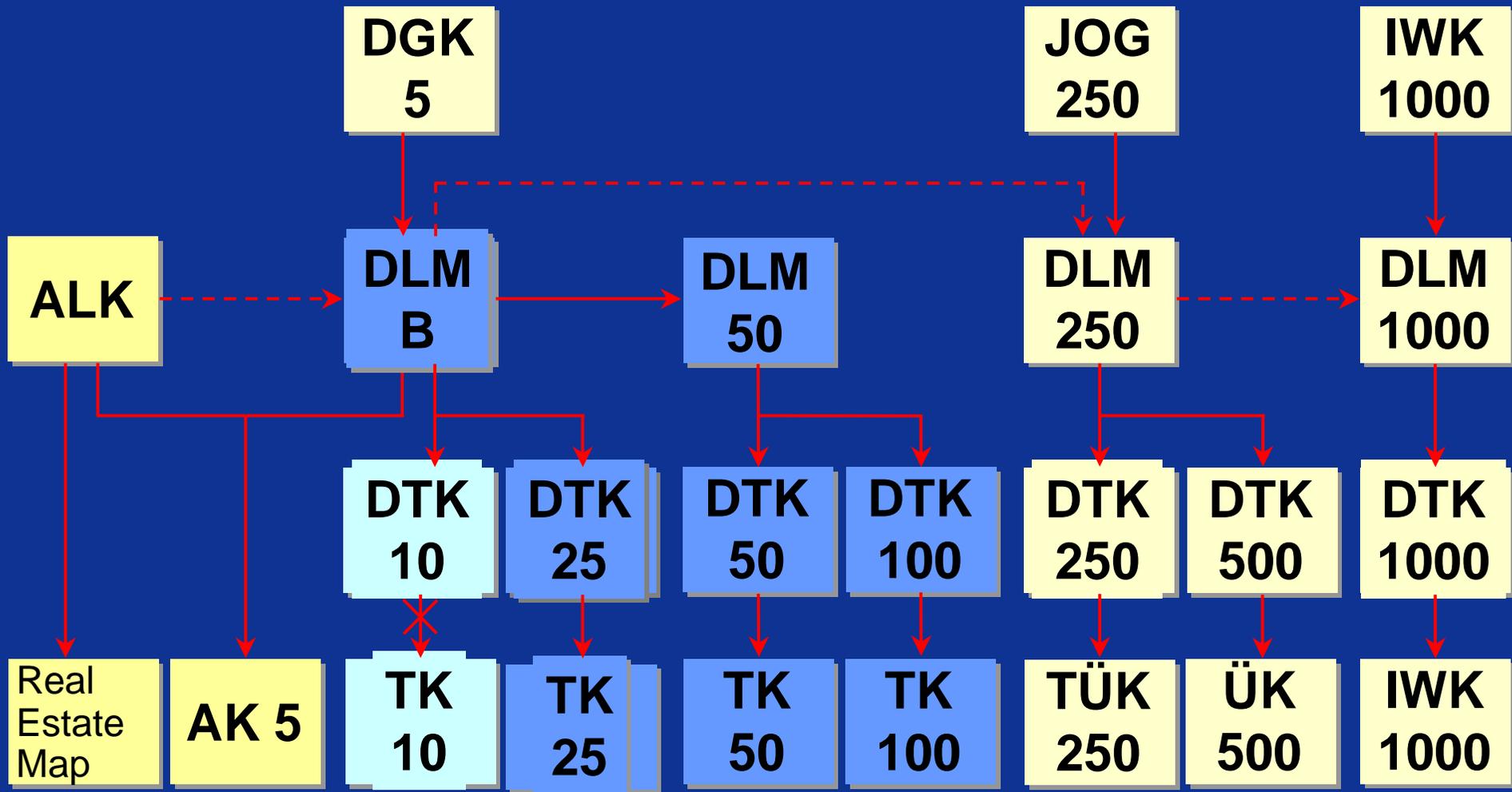


Uniform Geospatial Base Data

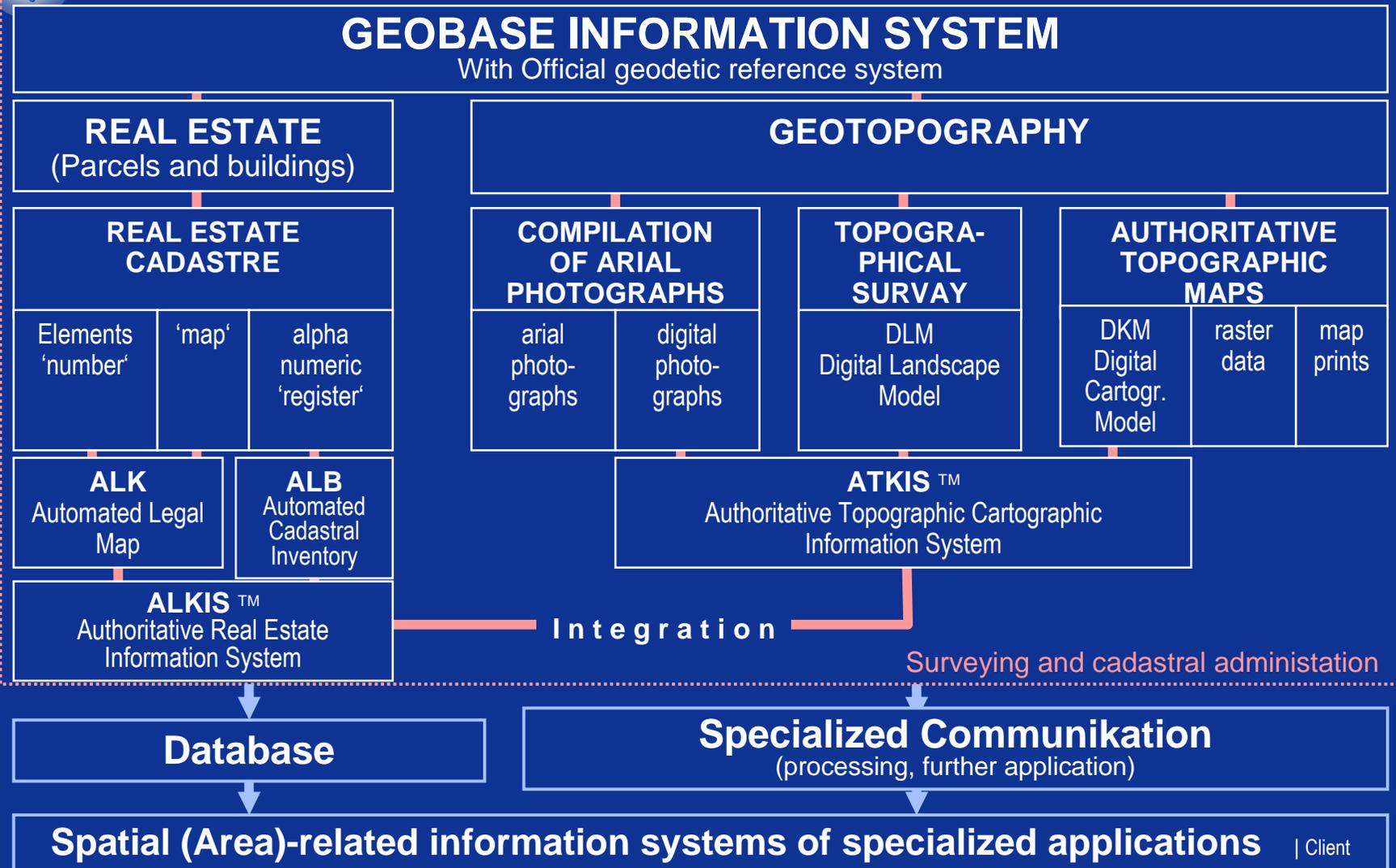




Products derived from ALK / ALKIS and ATKIS



Spatial-Related Information System





Federal Public of Germany



REUNIFICATION

*Solution and Approved
Important Precondition!*

	Area (km ²)	People	Cadastral districts	Parcels
Nieder-sachsen	47 700	8 000 000	24	6 000 000
Berlin	892	3 400 000	12	368 727
Bayern	70 548	12 400 000	79	10 330 018
Germany	357 332	82 500 000	406	62 177 721

Conclusion



Cadastre

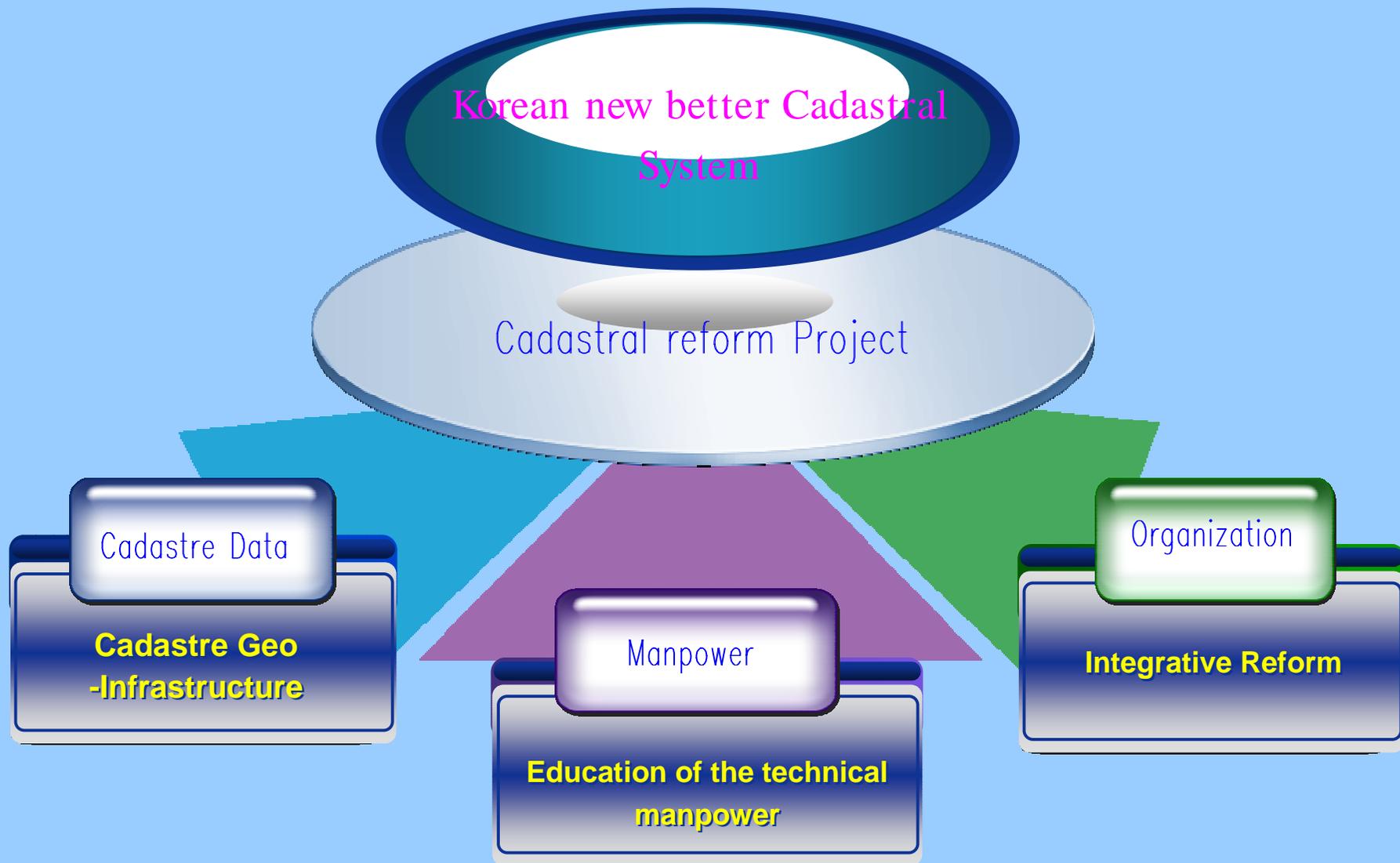
One of the country's basic registers

Based on land surveys and decisions by authorities

Public register



Develop an integrated system.....



Thank you!



Questions and Discussions

Taikjin KIM

ktjmoha@mogaha.go.kr

Hans KNOOP

hans.knoop@gmx.de

hans.knoop@t-online.de

Jaeone LEE

leejo@dau.ac.kr

Seonghwa LEE

lsh0817@mogaha.go.kr