

Concept of the monitoring system for commune land management according to the ISO series 19100 standards

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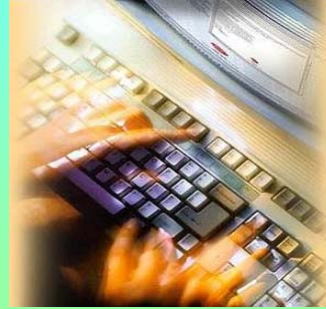


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Concept (1/2)



- monitoring the changes in the rural and urban areas is necessary for proper land management
- allows better decisions for the spatial plans and the optimal use of the space
- local SDI
- use of IT tools in the land management at the lowest level of administrative division

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Concept (2/2)

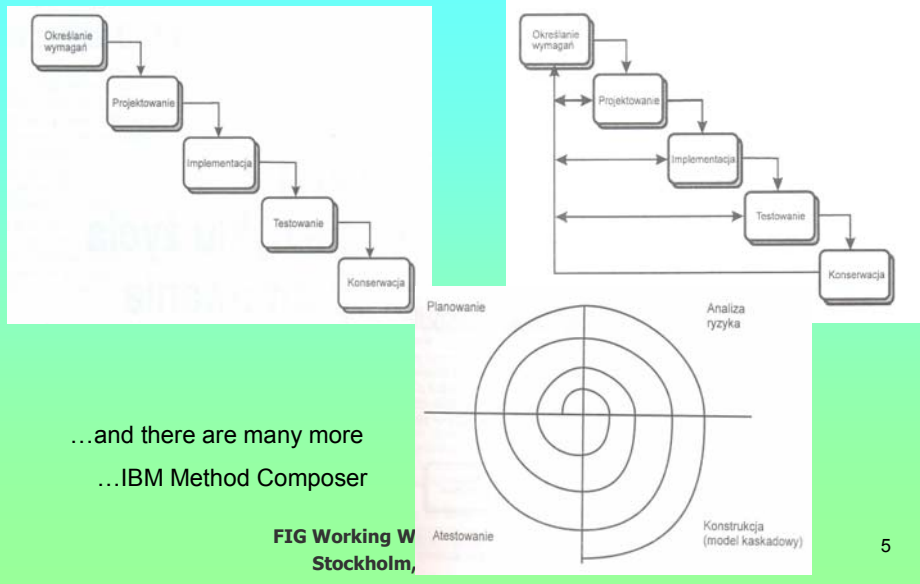


- ❑ the goal of the created system is to integrate monitoring of the rural and urban areas
- ❑ there are two subsystems, one of them realizes tasks for rural areas and the second one is for the whole administrative unit – commune
- ❑ interoperability between these subsystems and data interchange are provided

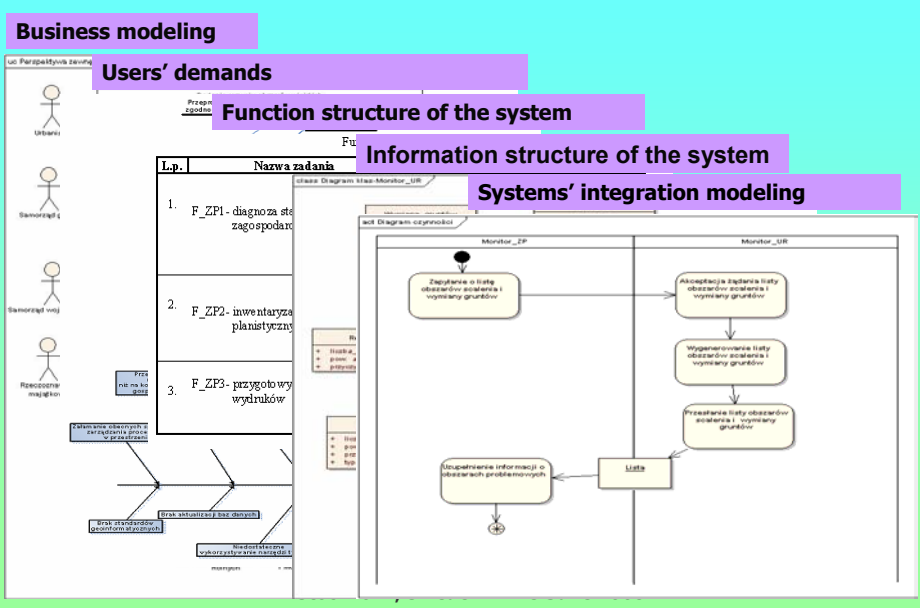
IT aspects



Cycle of system's life



System's model



Software prototypes

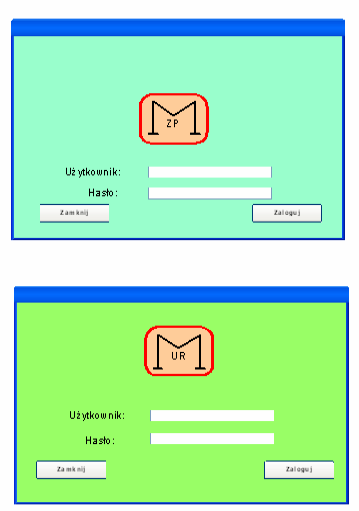
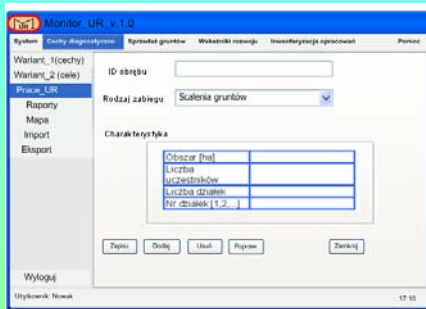


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Working within NSDI (1/2)

interoperability

data interchange

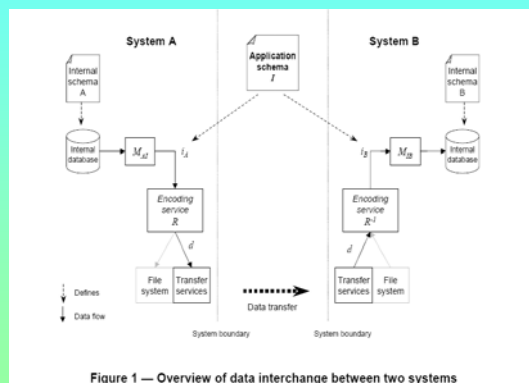


Figure 1 — Overview of data interchange between two systems

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Working within NSDI (2/2)



national standards and regulations

But

harmonization needed (lack of cohesion between themselves)

And

integration needed

also with

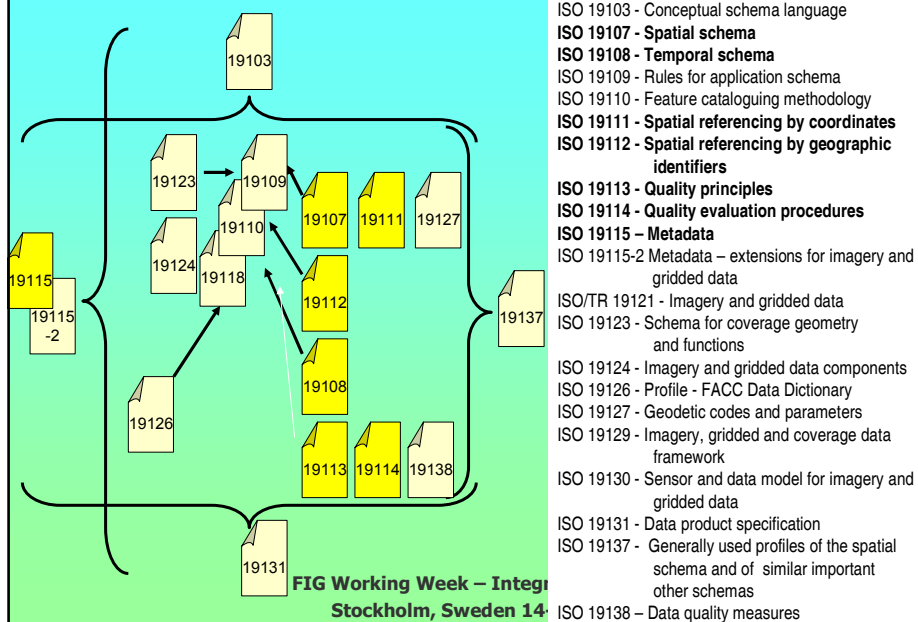


ISO series 19100 standards

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Structure of ISO standards (O. Østensen, Ispra 2004)



European standards (examples)

EN-ISO 19101:2005 *Reference model*

EN-ISO 19105:2005
Conformance and testing

EN-ISO 19107:2005 *Spatial schema*

EN-ISO 19108:2005 *Temporal schema*

EN-ISO 19111:2005 *Spatial referencing by coordinates*

EN ISO 19112:2005 *Spatial referencing by geographic identifiers*

EN ISO 19113:2005 *Quality principles*

EN ISO 19114:2005 *Quality evaluation procedures*

EN ISO 19115:2005 *Metadata*

Feature cataloguing ISO/DIS 19110 (1/3)

- feature catalogues define the types of features, their operations, attributes and relationships
- they provide better understanding of the content and meaning of the data
- reduce costs of data acquisition and simplify the process of product specification for geographic datasets
- in Poland classifications of features in datasets in spatial planning and especially for rural planning differ and are partly, because there are still not catalogued domains and the catalogued ones are not consistent in many cases
- harmonization is needed

Feature cataloguing ISO/DIS 19110 (2/3)

Tablica 1 – Oznaczenia graficzne obiektów budowlanych

Lp.	Przedmiot oznaczenia	Przedstawienie graficzne	Grubość linii mm	Uwagi
1				
1.1	Linia obrysu i przekroju projektowanego obiektu budowlanego		1.4	Przekrój poziomy należy wykonać 1.0 m powyżej poziomu terenu użytkownika obiektu budowlanego. Zewnętrzna krawędź obrysu ścian powinna pokrywać się z rzeczywistym zewnętrznym obrysem ścian projektowanego obiektu budowlanego.
1.2	Budynek adaptowany bez zmiany obrysu zewnętrznego		1.0 dla obrysu zewnętrznego 0.25 dla linii kreskowania ukłonnego	Linia kreskowania ukłonnego kreślić w odstępach 2 mm pod kątem 45°.

2. TERENY ZABUDOWY USŁUGOWEJ				
2.1	Tereny zabudowy usługowej	U		- kolor czarny
2.2	Tereny sportu i rekreacji	US		- kreskowanie zielono-czerwone
2.3	Tereny rozmieszczenia obiektów handlowych o powierzchni sprzedaży powyżej 2 000 m ²	UC		- kreskowanie czerwono-ciemnoniebieskie

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Feature cataloguing ISO/DIS 19110 (3/3)

FEATURE CATALOGUE

Name: Feature catalogue of subsystem RA
Scope: Monitoring system of urban and rural areas
Version no.: 1.2
Version date: 2008-02-25
Definition source:
Feature catalogue producer: Agnieszka Zwirowicz
 University of Warmia and Mazury
 Olsztyn

FEATURE TYPE

Name: Stagnant water
Definition:
Code: FT_W1
Aliases:
Feature attribute names: kind of reservoir, name
Feature association names: is on

FEATURE ATTRIBUTE

Name: kind of reservoir
Code: FT_W100
Value data type: character
Value measurement unit:
Value domain type: 1 ("enumerated")
Feature attribute values:

Label	Code	Definition
lake	1	
pond	2	

Fig. 2 The excerpt of the feature catalogue of the subsystem for rural area

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Application schema (1/3)

facilitate the acquiring, processing, analyzing, accessing and transferring of geographic data between different users, systems and locations

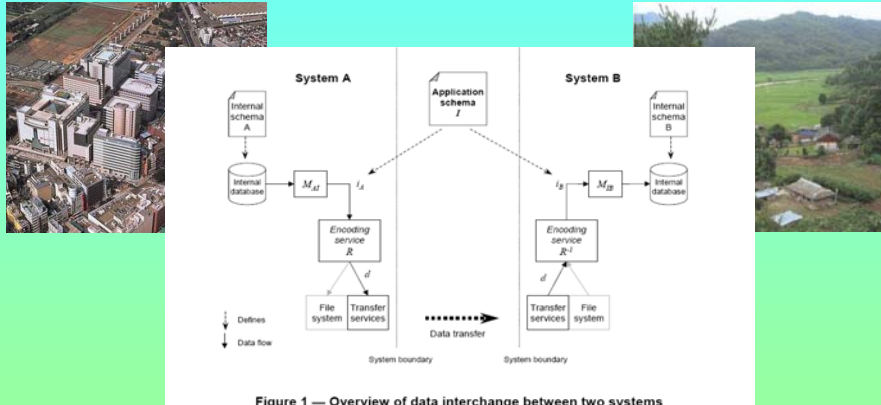


Figure 1 — Overview of data interchange between two systems

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Application schema (2/3)

A conceptual schema for a given specific application.

Conceptual schema

Abstract and general description of information in terms of IT. It is a basis for consistent realizations in different environments.

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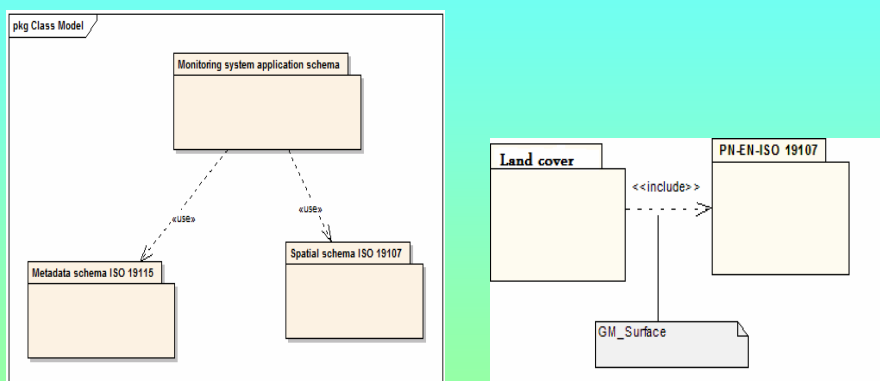
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Application schema (3/3)

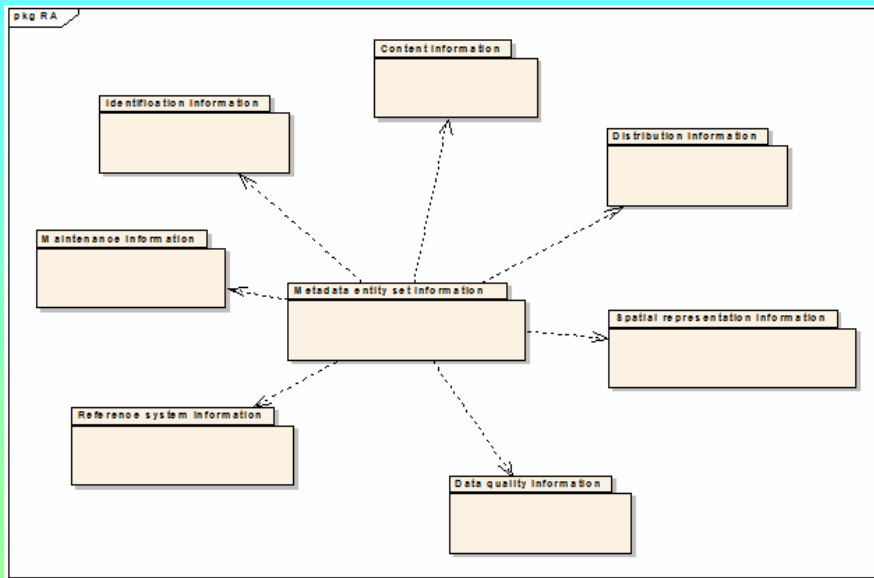
The feature catalogue can be the base for application schemas.

In presented monitoring system application schemas provide the description of the data structure required by two subsystems, one for the rural areas and the second one for the whole administrative unit – commune.

Example model integration with some standardized application schemas



Metadata



Closing remarks

The monitoring system, which is in accordance with the ISO series 19100 standards:

- can deal with web services (prCEN/TR 15449, 2006) and can be both the data producer and the data user
- metadata of the subsystems are placed in the catalogue servers, the application schemas provide reaching the consensus about data structure and are base for the transport and storage of geographic information in XML/GML
- can work within NSDI on the commune level (be part of local SDI)