



**Agency for Land Relations and Cadastre of Moldova**



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## Moldova: National Spatial Data Infrastructure

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## Introduction

### Republic of Moldova:

- √ Total area – 33,846 thousand km<sup>2</sup>
- √ Capital – Chisinau
- √ Population – 3 mln
- √ Real Estate – 5.7 mln



- √ divided to thirty-two districts (raion), three municipalities, and two autonomous regions (Gagauzia and Transnistria).
- √ 1, 681 localities, of which 982 localities have their own LPAs. Five localities have municipality status, 66 have city status, and 916 are villages with commune status.



### The Agency for Land Relations and Cadastre of Moldova



√ **ALRC is Founder of** S.E. Institute of Geodesy, Engineering Research and Cadastre "INGEOCAD", as a Production Unit  
<http://www.ingeocad.md>

√ **The Agency for Land Relations and Cadastre:** Public Government Authority carrying out execution, control and supervising the Land Administration, Geodesy, Mapping and Cadastre Systems in Moldova <http://www.arfc.gov.md/>

√ Established in 1994

√ National contact point for the NSDI implementation, responsible for establishment, maintaining and management of the NSDI geoportal, monitoring and reporting of the spatial data infrastructure at all levels.

## E-Government and Open data in Moldova



✓ The Open Data portal <http://www.date.gov.md> applies to currently around 944 data sources and around 30 applications.

The public service portal <https://servicii.gov.md> hosts around 635 services and around 164 e-services

✓ In April 2012, the Government of Moldova joined the Open Government Partnership initiative.

✓ With the World Bank's support the Government of Moldova launched its M-Cloud platform in 2013 .

✓ MCloud products provide strong infrastructure support for the further development of e-Services

<http://egov.md/en>:

- i) *MPass* (government authentication and access control service),
- ii) *MSign* (government digital signature service), and
- iii) *MPay* (government electronic payment gateway)

## NSDI in Moldova

The development of NSDI in Moldova achieved a significant progress in recent years, thanks to donors support as:

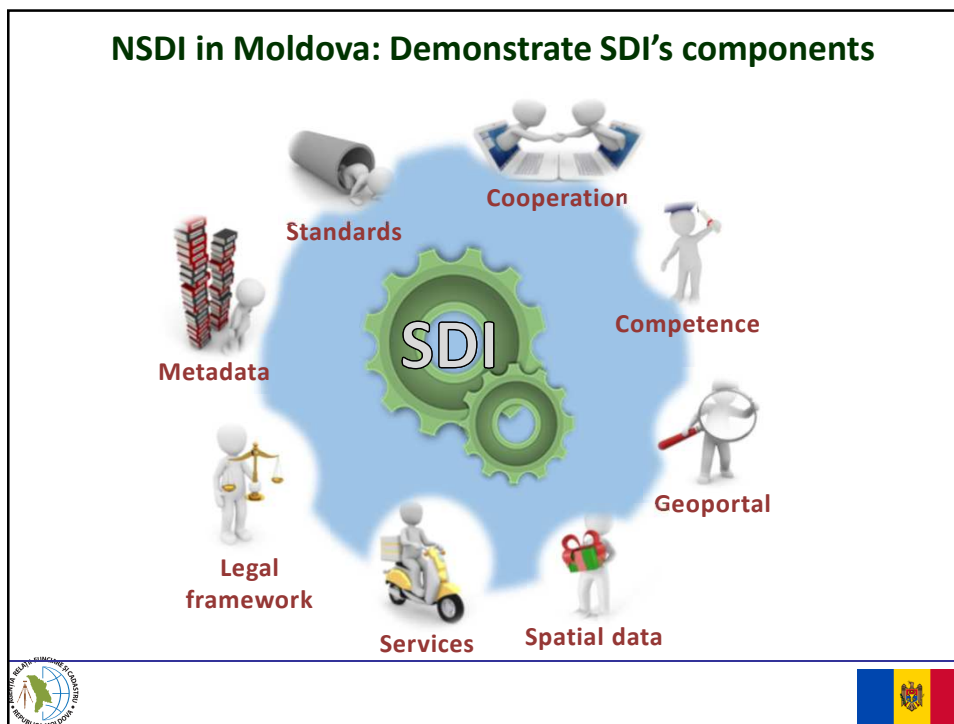
**i) Norwegian Government and Norwegian Mapping and Cadastre Authority “Kartverket”(2006-2018):**

- ✓ Orthophoto maps <http://moldova-map.md>;
- ✓ Digital Terrain Model <http://moldova-map.md>;
- ✓ CORS system (MoldPOS Net) <http://www.moldpos.md/>;
- ✓ Laser Scanning of Flood Risk areas <http://moldova-map.md>;
- ✓ Land Information System development in Cadastre MoldLIS;
- ✓ Pilot testing of Drones (UAV/UAS) technology;
- ✓ Vector base mapping for the NSDI <http://moldova-map.md>

**iii) JICA:** Creation of Digital Base Map for Development of National Spatial Data Infrastructure in the Republic of Moldova (2010-2012).

**iv) EU funds:** EU Twinning Project “Organization, Streamlining and Computerization Process in Mapping in the Republic of Moldova” (2014-2016). Twinning partners: **SWEDESURVEY** overseas agency of **Lantmäteriet** (Swedish Agency for mapping, cadastre and land registration) from Sweden and **State Geodetic Administration of the Republic of Croatia**.





### NSDI in Moldova: Legal Framework Component

**Umbrella Law on NSDI approved by Parliament in 2016**



- ✓ Responsibility for spatial data
- ✓ Content and creation of metadata
- ✓ Interoperability
- ✓ Network services
- ✓ Data sharing
- ✓ Duties of public authorities and third parties
- ✓ NSDI Steering Committee
- ✓ Coordination authority - ALRC

**Legal framework**

- ✓ Government Decision Nr. 458 of 22 June 2017 on responsibilities of public entities on spatial data sets;
- ✓ Government Decision Nr. 459 of 22 June 2017 on Council of national spatial data infrastructure;

**Strategy on NSDI**

- ✓ Vision
- ✓ Strategic goals
- ✓ Operational goals
- ✓ Action plan

## NSDI in Moldova: Standards Component



### Standards

- ✓ Metadata profile for spatial datasets
- ✓ Metadata profile for network services
- ✓ Guidelines for metadata profiles
- ✓ Profile for data specification
- ✓ Guidelines for data specification profile



## NSDI in Moldova: Cooperation Component

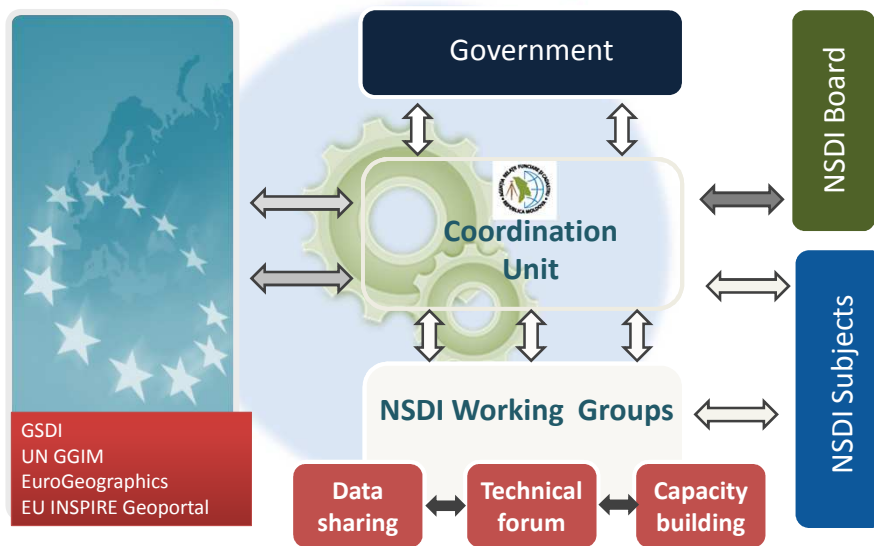


### Cooperation

- ✓ Collaboration agreement with regards to demonstration of an SDI solution on a pilot area in line with EU best practices
- ✓ Collaboration agreement on sharing data sets and implementation of NSDI in the Republic of Moldova
- ✓ Organization structure for NSDI



### National arrangement in Geospatial Information Management



### NSDI in Moldova: Competence Component

#### Trainings

- ✓ SDI and INSPIRE
- ✓ Standards and metadata
- ✓ Geoportal
- ✓ Network services
- ✓ Legislation
- ✓ Business model and agreements
- ✓ Cooperation
- ✓ Training of trainers (coordination-role)
- ✓ Data harmonization
- ✓ Elaboration of data specifications



#### Competence

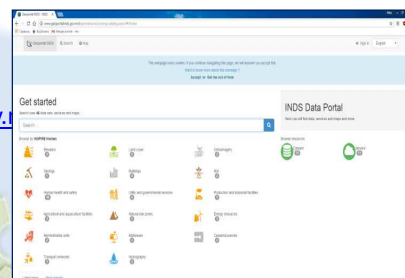
✓ The current national capacities of the responsible public authorities are not sufficient for establishment of the NSDI in Moldova.  
 ✓ The provision of adequate technical infrastructure and skilled staff with sufficient level of IT and GIS knowledge for public authorities on different levels is needed.



## NSDI in Moldova: Geoportal Component

### Provisional National geoportal

- ✓ Demonstration of SDI
- ✓ GeoNetwork <http://www.geoportalinds.gov.md>
- ✓ Data can be transferred to NSDI geoportal



- ✓ National geoportal of the Republic of Moldova - a gateway to spatial data in the Republic of Moldova
- ✓ Does not contain spatial data, contains a catalog of metadata for spatial data and network services
- ✓ Is under development
- ✓ A working group is established



## NSDI in Moldova: Spatial Data Component

- ✓ Spatial data exists in the Republic of Moldova
- ✓ Only part of the spatial data is in digital form
- ✓ Spatial data is in different formats
- ✓ Much data spatial data is in format not suitable for digital dissemination
- ✓ Duplication of spatial data occurs, i.e. same spatial data sets may exist within several organizations
- ✓ On the governmental level it is recognized how deep spatial data is connected with decision making process

Spatial data

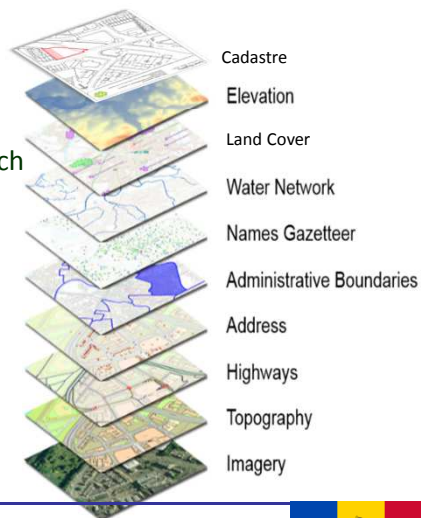


## Fundamental/Reference Geospatial Data

✓ Basic data is available in digital format. Orthoimagery and base maps are published on <http://moldova-map.md>, <http://geoportal.md> and <http://www.geoportalinds.gov.md/>

✓ A lot of data is available in formats which are not suitable for digital dissemination, such as ungeoreferenced scanned paper maps <http://www.statistica.md>

✓ Several thematic datasets are available via the Open Data portal <http://www.date.gov.md>



## NSDI in Moldova: Metadata Component



- ✓ Metadata for at least one dataset from each stakeholder was created together with the stakeholders
- ✓ Metadata for several network services was created together with stakeholders responsible for the services
- ✓ Metadata has been registered in the provisional national geoportal



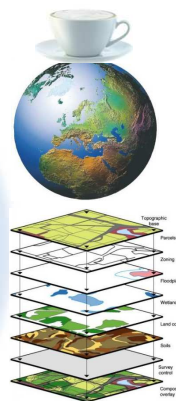


## NSDI in Moldova: Services

✓ **Network services.** These services are: discovery/search, view, download and transformation.

✓ Most public entities do not have network services in Moldova. In the case of those authorities which had them, their services were not compliant with the ISO/TC211 standards.

Spatial data, available in the Republic of Moldova, provided through network services are limited.



Services



## Conclusions

✓ The development of the NSDI in Moldova achieved a significant progress in recent years, thanks to donors support as Norwegian Government and Norwegian Mapping and Cadastre Agency “Kartverket” (2006 to today), JICA and EU funds/TAIEX and Twinning.

✓ Data sharing is already established between several organisations (ALRC, Ministry of Transport, Forest Agency “Moldsilva, Emergency Service for Civil Protection etc.).

✓ The Agency for Land Relations and Cadastre of Moldova/S.E. INGEOCAD/S.E. IPOT provide available fundamental datasets such as Orthoimagery, Elevation Data, Base Maps in different scales through web-based services, which are extensively used by other public entities.



## Conclusions... next steps

✓ Good progress in development of NSDI in Moldova has been made, but further support is required if the achievements made so far are to be developed into meaningful benefits.

✓ In particular, data exchange protocols and procedures need to be developed, standards have to be defined and adopted, more data must be made available in the correct format, complete de metadata catalog, develop the licensing conditions and Business Model, and further capacity built in the sector.



## Thank you for your attention

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