

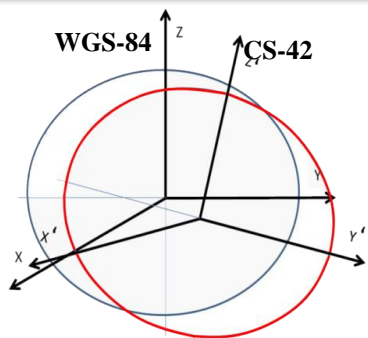
Ministry of Digital Development, Innovation and  
Aerospace Industry of the Republic of Kazakhstan

Committee of Geodesy and Cartography

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**project «National Spatial Data  
Infrastructure (NSDI) of the  
Republic of Kazakhstan»**

# Current situation in the Republic of Kazakhstan



## COORDINATE BASE

In Kazakhstan no satellite geodetic network and a modern coordinate system. The coordinate base of the Republic of Kazakhstan is represented by the coordinate system of 1942 (CS-42) with state geodetic networks. CS-42 has no connection with international positioning systems, in which modern geodetic instruments work.

Also are used the following coordinate systems: Local coordinate systems (for each locality), WGS-84 (not established on the territory of Kazakhstan) and another.

## Outdated geo-base - a constraint in the digitalization of cadastres

Different coordinate systems

Land border overlays

Accumulation of spatial data of different formats

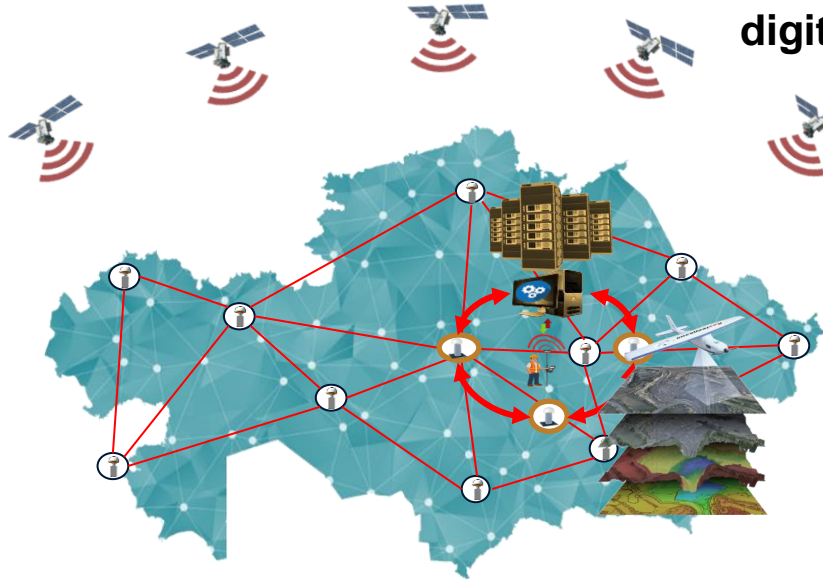
Differences in standards and low levels of accuracy



# Solution: National Spatial Data Infrastructure (NSDI)

Paragraph 56 of Plan of action of  
State Program "Digital Kazakhstan" for 2018-2022

Paragraph 123 of Plan of action of  
National project "Technological breakthrough through  
digitalization, science and innovation" for 2022-2025

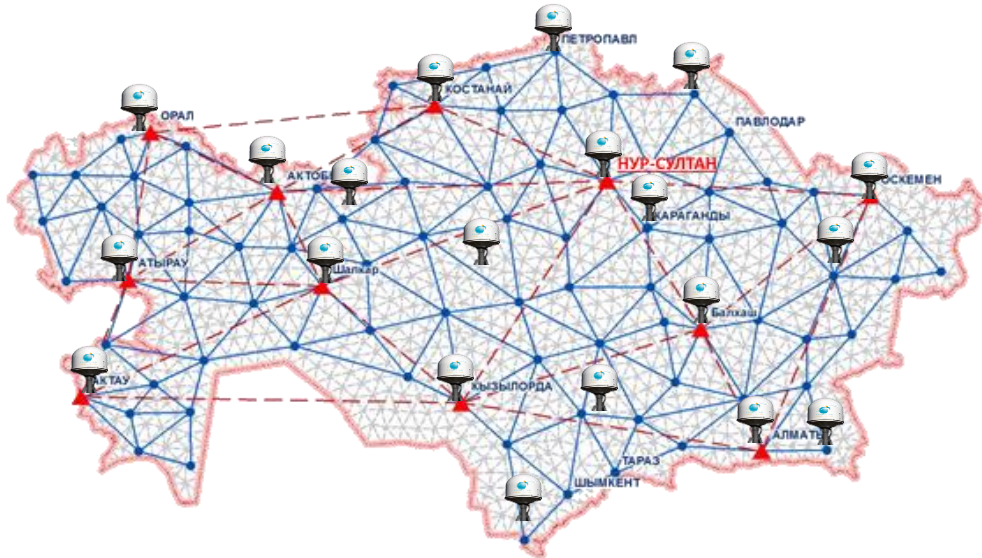


The project «NSDI» consists of 2 components:  
I. Establishment of a modern state coordinate system

II. Providing the territory of the country,  
including cities and district centers with open maps

Project implementation period: 2021-2024.

# I. Establishment of a modern state coordinate system



**86 reference stations**

*modernization of:*

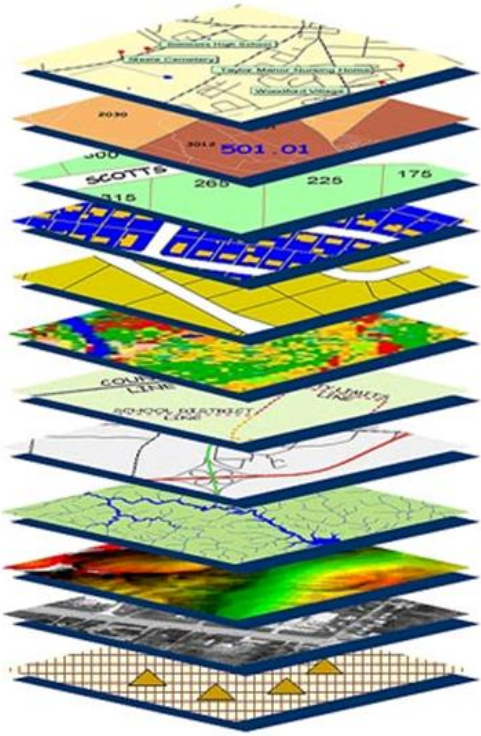
- **state geodetic networks**
- **leveling networks**
- **gravimetric networks**



**QTRS**

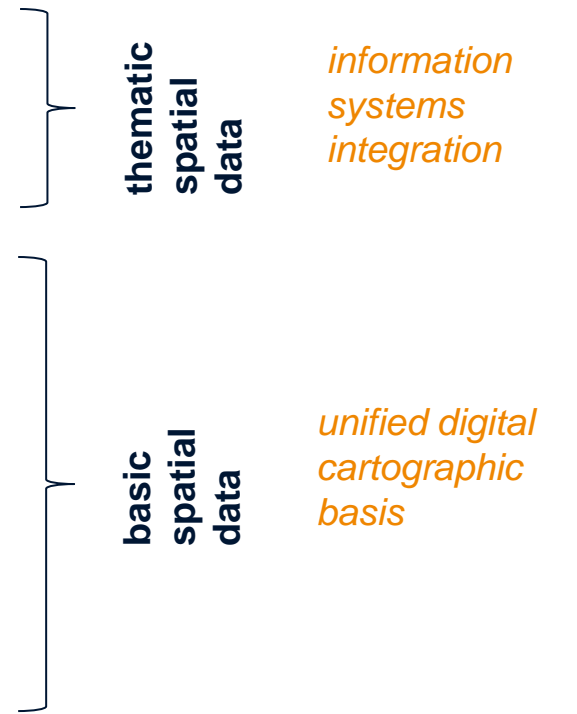
*(Qazaqstan Terrestrial Reference System,  
state coordinate system of Kazakhstan)*

# II. Providing the territory of the country with open maps



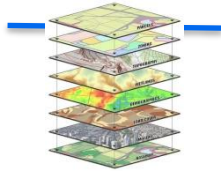
- Land cadastre
- Urban cadastre
- Forest inventory
- Mineral resources

- locality
- vegetation and soil
- borders
- road network
- hydrography
- relief
- aero and space photography
- coordinate base

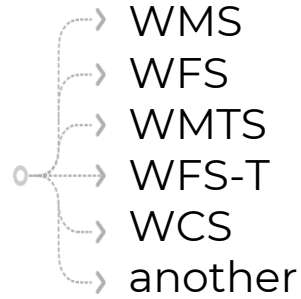


# NSDI Information System

## NSDI IS



## OPEN API



## Interaction with specific Information Systems

of land relations, real estate, architecture and urban planning, forestry, subsoil use, agriculture, wildlife, ecology, nature management, etc.

## The main functions of the Information System NSDI:

- Creation, editing and viewing of cartographic data, metadata
- Finding spatial data
- Connection of external services (city, land cadastres, etc.)
- Map bank



**Thank you for your attention!**

# Solution: National infrastructure of spatial data (NISD)

Отрасль	Повышение качества	Новые проекты
 <b>Земельные отношения</b>	Точное определение границ и отсутствие споров	Реинжиниринг земельных госуслуг ЕГКН
 <b>Архитектура и градостроительство</b>	Сокращение нарушений градостроительных регламентов	Внедрение 3D-технологий, VR и AR - технологий
 <b>Проектирование и строительство</b>	Сокращение проектных и строительных ошибок	Внедрение CAD и BIM-технологий
 <b>Природопользование, геология и недропользование</b>	Точная обработка рудных тел Повышение открытости и прозрачности данных	Экологический мониторинг и прогнозирование, Умные рудники
 <b>Жилищно-коммунальное хозяйство</b>	Точное геопозиционирование сетей, достоверность и современность сведений	Smart-city Умные датчики
 <b>Транспорт и логистика</b>	Повышение точности навигации	Навигация беспилотного транспорта Smart-логистика
 <b>Сельское хозяйство</b>	Повышение производительности сельского хозяйства	Точное земледелие