



The Croatian Diabetes Registry as part of a unified Public Health Information System

B.Pleše, T.Poljičanin, I.Pristaš



A bit of context...

- The CIPH has historically been in charge of most public health registries, with national coverage and decades of data (National cancer registry, Disability registry, Healthcare providers registry, diabetes registry...)
- Every registry had its own IT solution supporting only internal processes (data entry, upload, validations, database administration, reporting)



A bit of context...

- High redundancy in public health reporting data sets (e.g. a hospital had 15 forms for CIPH only)
- Many paper forms (~50%)
- Low penetration of data standards (except ICD10)
- No central data governance and synchronization
- Low analytical flexibility and responsiveness
- High burden of administrative work on data



The answer...

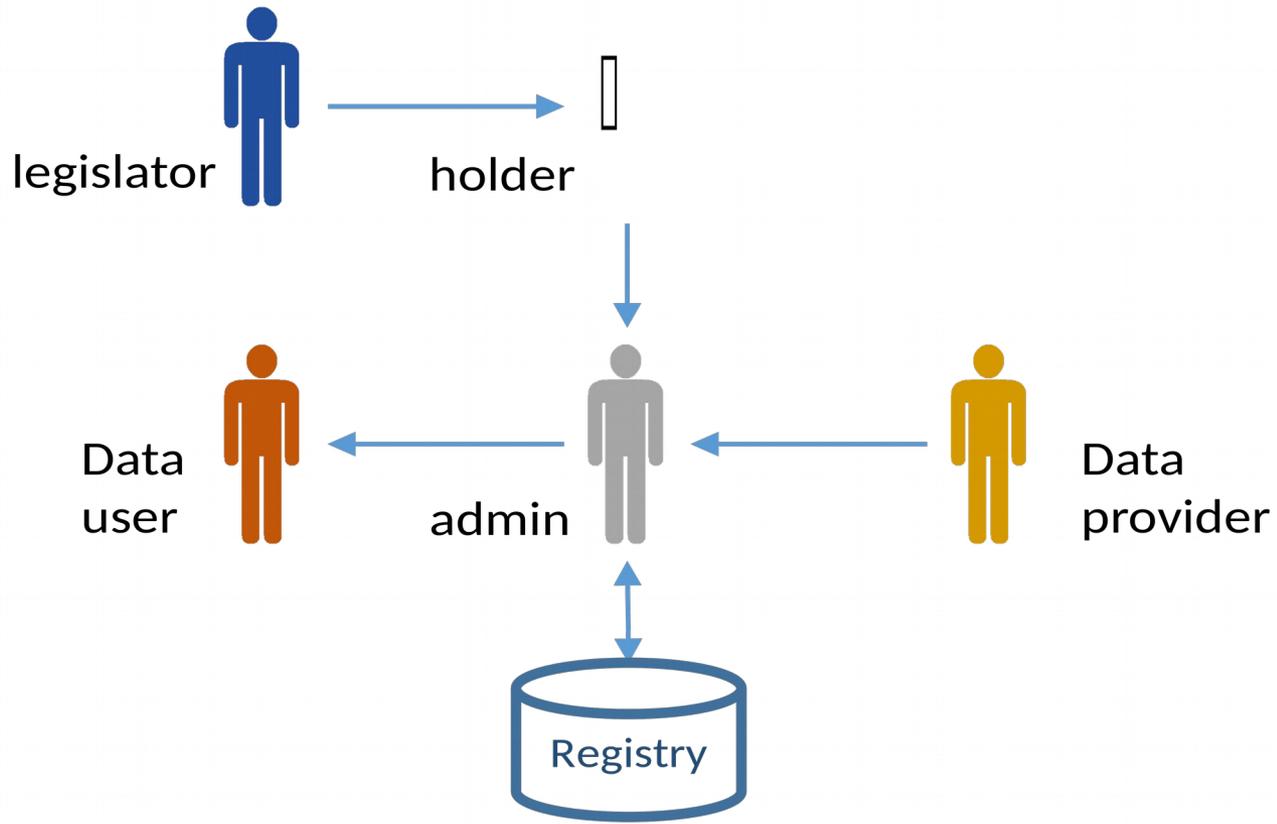
- A web-based unified registry platform that enables electronic data collection, as well as integration various local and external data sources





- All registries on one platform (central public health registry - NAJS)
- Business processes shared among stakeholders
 - county health institutes
 - MoH
 - HIF
 - national health agencies
 - professional chambers
- Single point of metadata administration (codebooks, standards, users)
- Consolidated reporting (joint procedures)
- Data redundancies eliminated
- Improved validations, data quality and analytics
- Improved data exchange (paper -> .txt -> xml -> EDC)

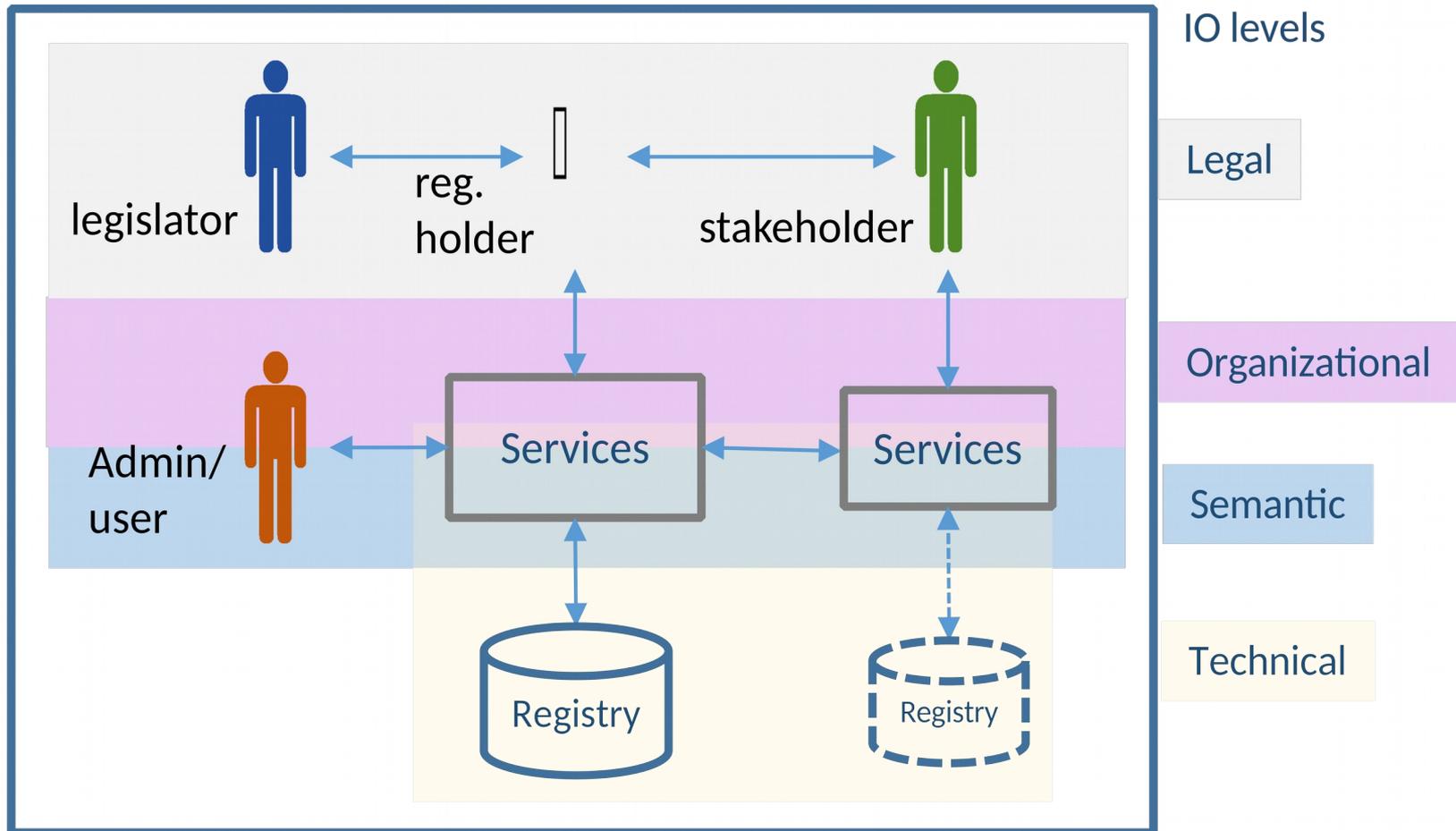
Registry before





Registry afterwards

Political interoperability context of registry service development



Cooperating partners with compatible visions, aligned priorities, and focused objectives

Political Context

Aligned legislation so that exchanged data is accorded proper legal weight

Legal Interoperability

Legislative Alignment

Coordinated processes in which different organisations achieve a previously agreed and mutually beneficial goal

Organisational Interoperability

Organisation and Process Alignment

Precise meaning of exchanged information which is preserved and understood by all parties

Semantic Interoperability

Semantic Alignment

Planning of technical issues involved in linking computer systems and services

Technical Interoperability

Interaction & Transport



Main goals

- One way data collection ➤ multi-stakeholder business process
- Health statistics ➤ health assessment
- Surveillance ➤ health outcomes (quality, efficiency & safety of procedures, products and equipment)
- Data quality management
 - accuracy
 - reliability
 - timeliness
 - completeness etc.
- Advanced analytical services
- Various information sources combining (e.g. comorbidity research)
- Decision making based on information

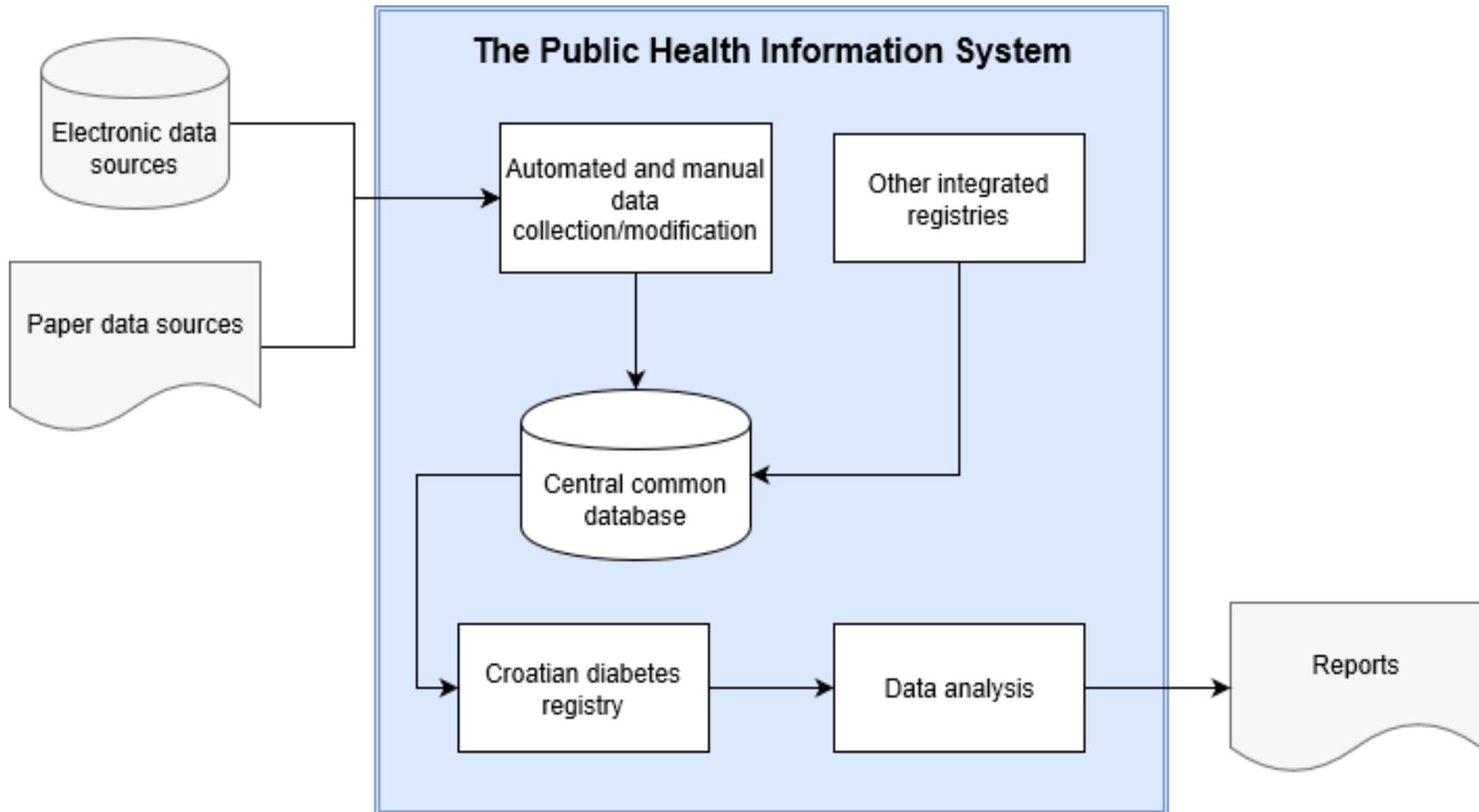


Main optimizations in all registries

- Address data coded uniquely according to national geo-codes
- Citizen's ID and ensured person's ID with accompanying demographic data updated uniquely through web services
- Health care providers uniquely coded (from one of the registries)
- Common codebooks (maintained by users)
- Cause of death synchronized in all registries
- Shared services, access by organisation and role permissions
- Multi-stakeholder platform



The Croatian Diabetes Registry





Planning for quality

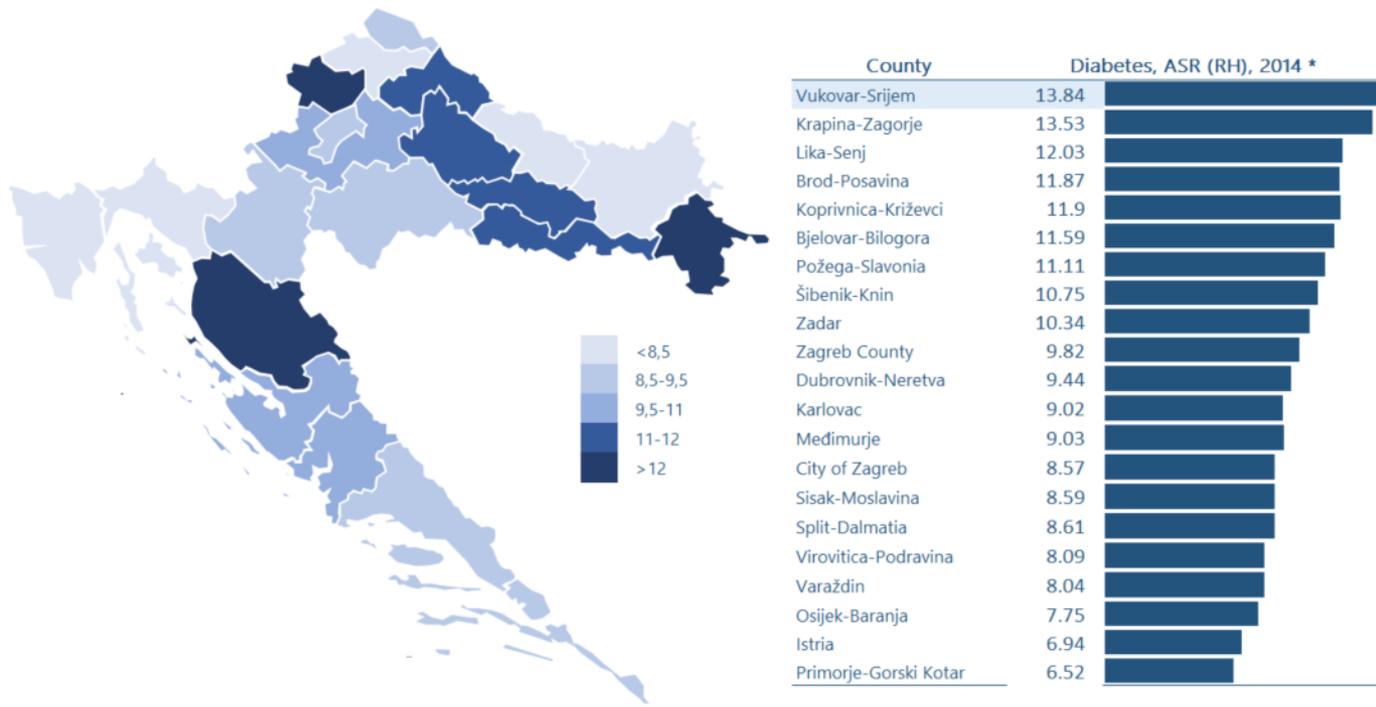
- Central database designed to reduce data redundancy
- Connected to basic public administration registries
- Greater technical interoperability (data upload, web-services...)
- Clear and unified documentation for administration and use
- Greater control and security
- Analytical reports more compatible with international standards





New analytical possibilities

Age standardized rates of diabetes incidence/100.000, Croatia, 2014.



Diabetes incidence pattern in Croatia in 2014, Pleše, Čukelj, Šekerija (EDEG 2017.)



Future steps

- Complete development of the diabetes registry
- Complete migration of existing data
- Define further integration with other services
- Expand analytics and cooperation with other institutions