Evaluating Spatial Planning Practices with Digital Plan Data

DIGIPLAN Project

www.espon.eu/digiplan

UNIVERSITY OF COPENHAGEN

WSL — Swiss Federal Institute for Forest, Snow and Landscape Research WSL
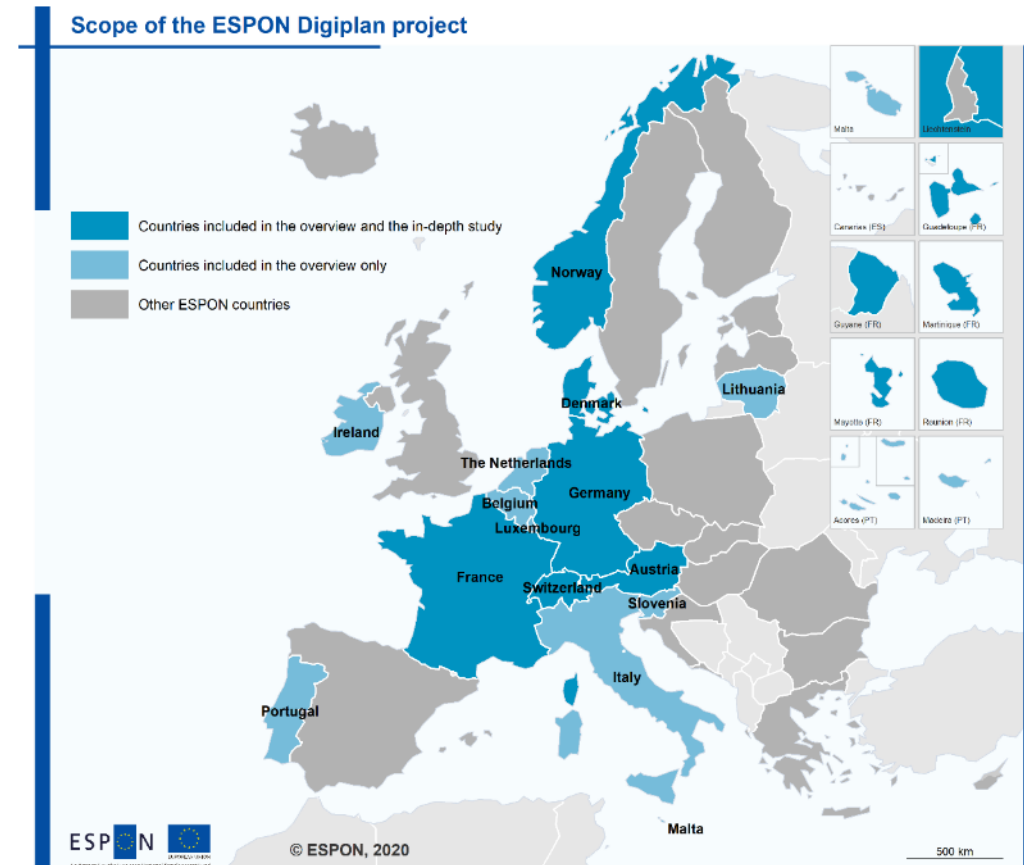
Nordregio

Norwegian University of Life Sciences

DIGIPLAN facts

Countries included in DIGIPLAN

- Project ran from Jan 2020 – June 2021

- Funded by ESPON (300.000 EUR)

- Project partners:
  UCPH (lead), NMBU (NO), WSL (CH), Nordregio (SE)

- Advisory group:
  Danish Business Authoriy (now Plan Authority), Norwegian Ministry of Local Government, Swiss Fed. Office of Spatial Dev., ESPON EGTC

- Interviews with 50 experts
  (planners/experts from planning authorities on local, regional and national level, consultants, planning software experts)

- Overview of 15 countries (blue)

- In-depth case studies in 6 countries (dark blue)

- Report, and thematic papers on scope, drivers, accessibility, legal status, and future opportunities

Scope of the ESPON Digiplan project

Countries included in the overview and the in-depth study
Countries included in the overview only
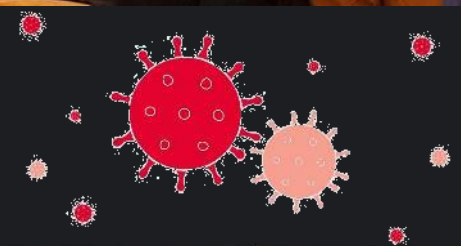Other ESPON countries

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Regional level: NUTS 0 (2013)
Source: ESPON Digiplan, 2021
Origin of data: ESPON Digiplan, 2021
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January 2020

November 2020

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ESPON
EUROPEAN UNION
Co-financed by the European Regional Development Fund

Inspire Policy Making with Territorial Evidence

Main concepts

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Concepts

What is digitalisation of plans and plan data?

- **Digitisation**: Transform from analogue to digital format, often by applying standardisation and harmonisation of data and (re)defining regulations

- **Digitalisation**: Ways in which society (or planning) reacts to digitisation

- **Digital plan data:** Showing planning intentions, regulations, and risks and opportunities in a digital, GIS, format.

- Many European countries have established **digital plan registers** and digitising spatial planning processes.

- **Digital portals** provide access to plan data

Danish plan data portal
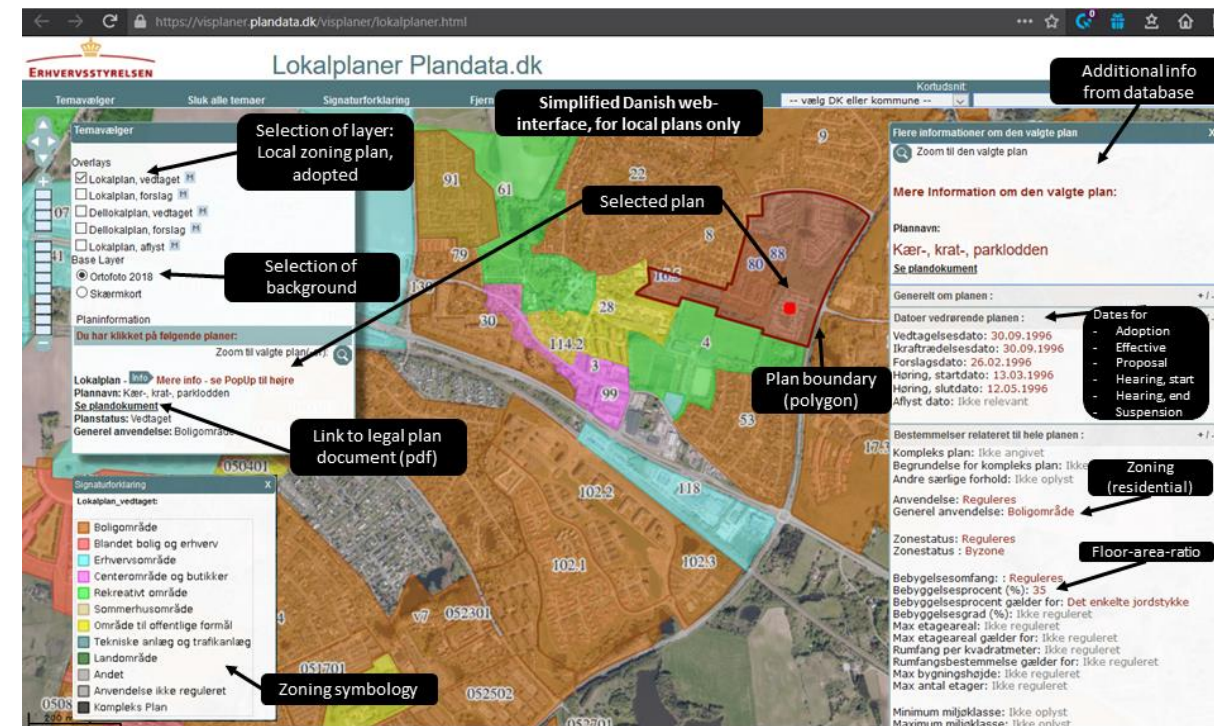
Degree of digitisation of plans
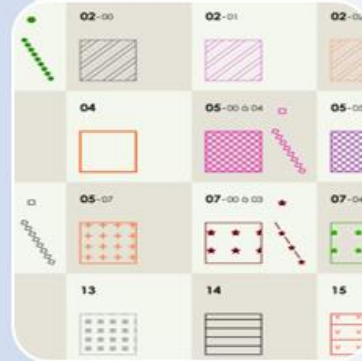
| Plan on **paper** | Plan as **PDF** (or similar format) | Plan as geo-referenced **image** (plan boundaries could be geodata) | Plan as **geodata** | Plan as **machine-readable system?** |

analogue plan data

digital plan data in broad sense (often embedded in digital database)

plan data not in GIS environment

**digital plan data in narrow sense** (plan data in GIS environment)

Concepts

Characterising the digitisation of plans and plan data

Topic	Key features
Standards	• more or less strict standards: no standard, mainly technical standards (e.g., INSPIRE), strict standards across many administrations or other units. high inclusion vs high harmonisation
Data collection	• Digital plan data can be collected by different means: Scanning analogue plans, digitising analogue plans, File exchange by e-mail, specific data upload, incl. automatic technical checks, data creation directly in a geoportal (e.g., by drawing and snapping or choosing existing parcels)
Data format	• Digital plan data can be presented in various formats: Scans (raster images) of plans, PDF with plans as images, Raster ring method data (boundaries of a plan as vector, the reminder as a georeferenced image), Full vector data
Accessibility	• Distinction of accessibility for different user groups (e.g., intern/extern); different types of access: viewing only, analysis or manipulation functions, restricted download of data, free download, metadata listings
Time dimension	• Digital data can display current regulations, alerts that planning is in process for a certain area, plans under revisions, potential future planning intentions, historical plan status
Collaboration	• Digital plan data can be conceived as stand-alone approaches by interested authorities, relying on voluntary contributions, or required by law (e.g., to foster data exchange)
Digital/analogue	• Digital plan data represents some aspects of the analogue plans; parallel systems exist (common in the transition period); There is no analogue plan data but prints and excerpts are possible.
Legal status	• Only for information purposes, de facto binding (e.g., because they are widely used in formal planning processes), Legally binding PDF, Legally binding plan data, both analogue and digital plans are binding
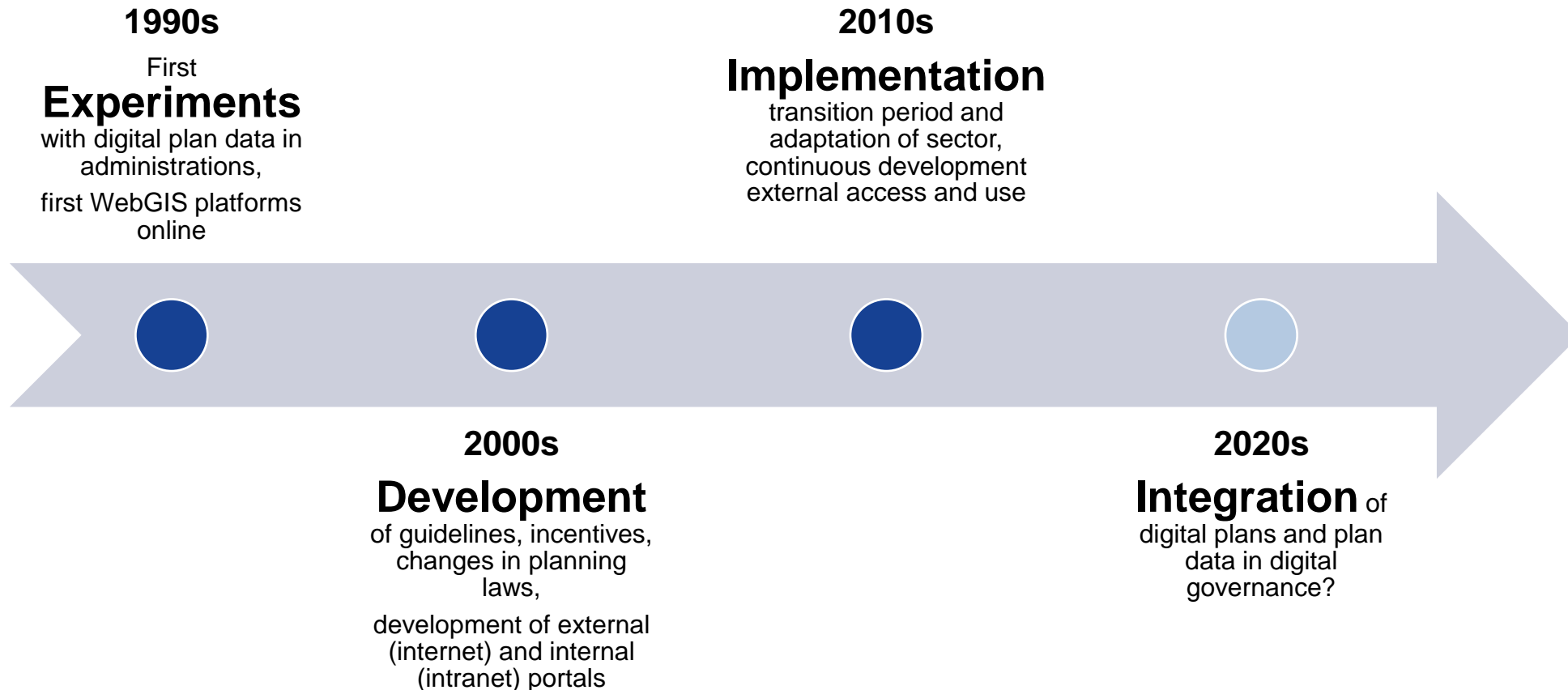
Introduction

- Scope

  - Explorative, synthetic and up-to-date overview of the digitalisation of plan data in fifteen European countries.

  - Describes the key similarities and differences in the **digitalisation process of plan data** as well as their current **uses** and **foreseen development**.

- Methodology

  - Desk research

 - Qualitative structured interviews, following the development of a questionnaire.
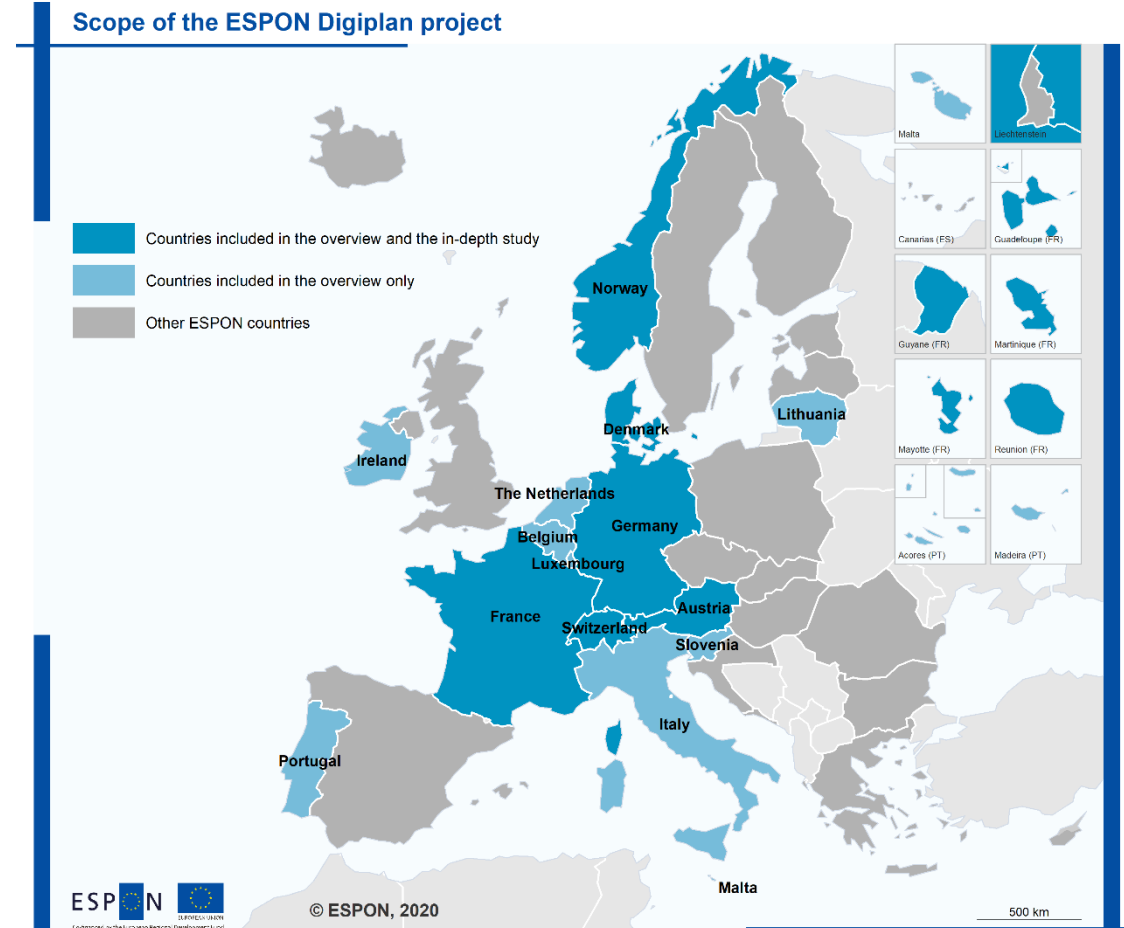
Scope of the ESPON Digiplan project

- Countries included in the overview and the in-depth study
- Countries included in the overview only
- Other ESPON countries

Regional level: NUTS 0 (2013)
Source: ESPON Digiplan, 2021
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500 km

Overview

Key findings

- The eagerness of spatial planning actors to provide harmonised and standardised plan data on a digital and open platform from the 2010s onwards.

- An improved workflow and planning practices contributing to cost-reduction.

- Differences in the organisation and publication of digital plan data reflect differences in spatial planning traditions and competences.

- Digital plan data, that have been harmonised and standardised, allows for innovative practises.

- Foreseen developments of the digitalisation of plan data might be affected by relocation of priorities and budget due to the COVID-19 pandemic.

Figure 1
Share of planning instruments covered in the digital portals

| National level	Sub-national level	Local level
16/26 (62%)	8/16 (50%)	30/33 (90%)
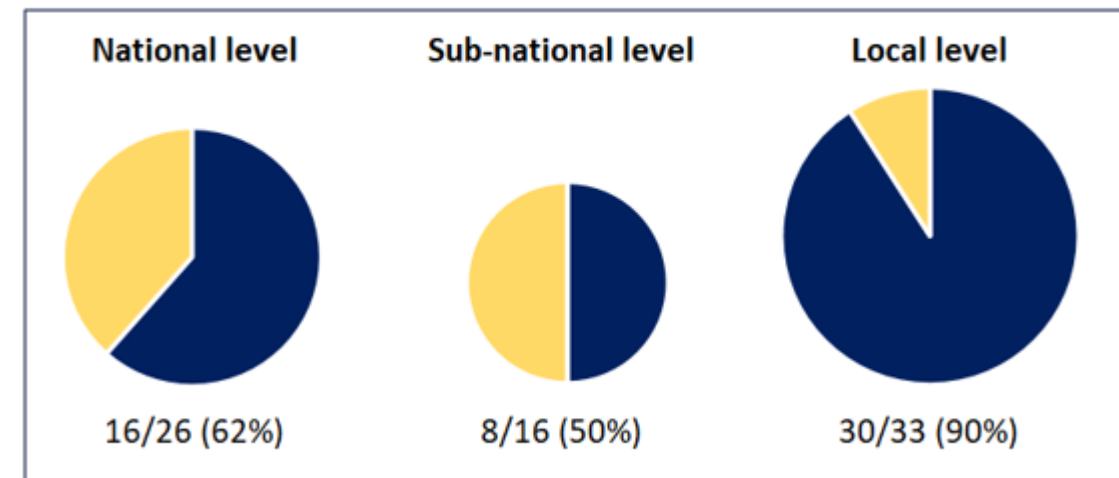
Data from 15 cases. Read more in DIGIPLAN Final report

The digitisation of plan data

- Main purposes

  - To provide plan data with easy access and high level of transparency to everyone

  - To create a nation-wide (or region-wide) digital portal, contains harmonised plan data or plan data with better quality than the non-digital format

- Added-values

  - The possibility to produce national or regional-wide analyses

  - Improved workflow and planning practices

  - Cost reduction

- Main drivers

  - Top-down process lead by national/regional planning actors

  - The INSPIRE Directive

  - The general digitalisation process and technological development

**INSPIRE Guidelines
for Theme Land use**
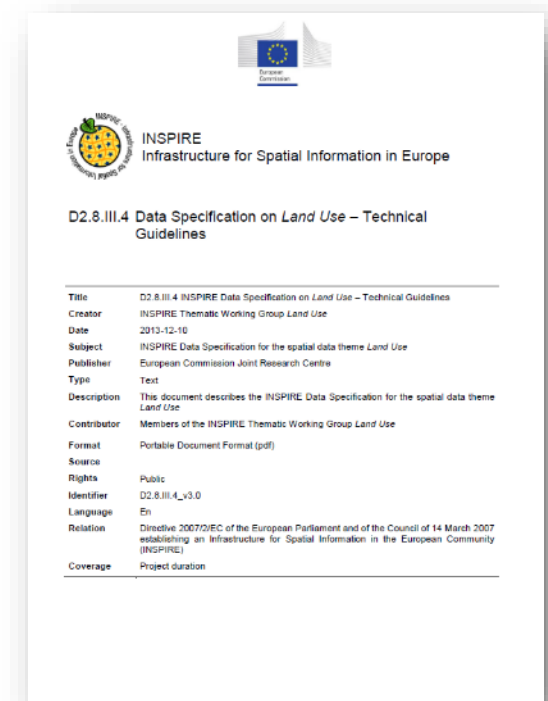
The digitisation of plan data

- Main obstacles
  - The lack of experience and technical expertise
  - The low quality of the input data
  - The lack of financial resources
- Standards and methods
  - Country-specific
  - Some degrees of similarity with INSPIRE
  - Data entry by data owner or service provider
  - Standards usually developed by national actors for the production and delivery of digital plan data

Online registration mask for Danish plan data

The uses of digital plan data

- Types of digital plan data
  - Mostly of regulatory characters
  - Highest share of digitised plan data is from municipal planning instruments, followed by national and then regional planning instruments.

- Legal status
  - General not legally binding, but "considered" as de-facto legally binding
  - Exceptions: Portugal and The Netherlands

- Types of users
  - Generally similar to user groups of analog plan data (planners, public authorities, researchers, companies, and individuals)
  - Diverse ways to count the number of visits/users prevents comparisons
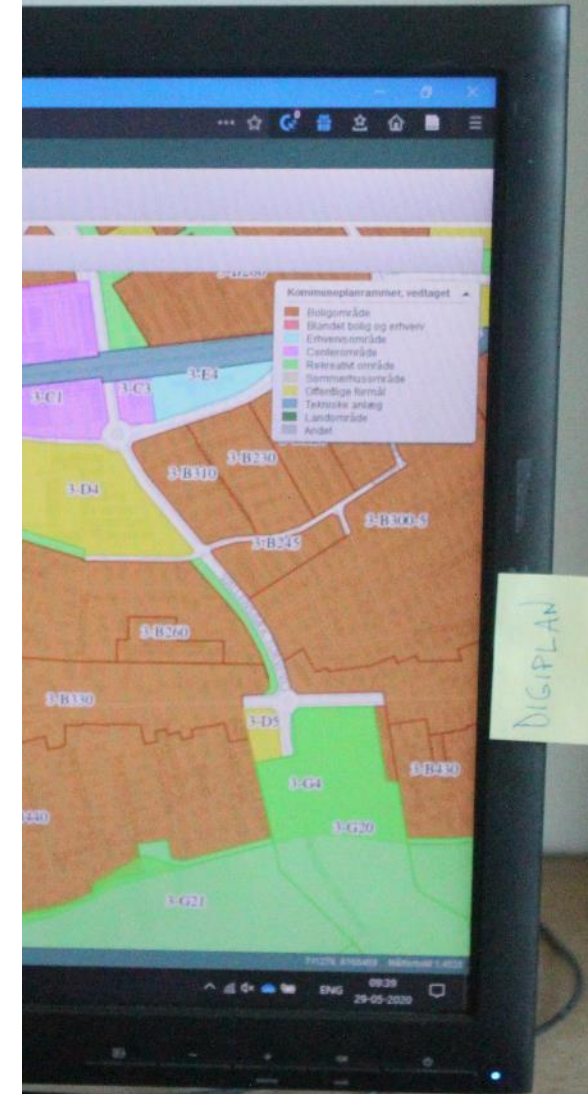
Foreseen developments

- Short term (within two years)

  - To improve the existing data systems

  - To increase the number of plan data to be digitized

  - Better coverage (e.g. including more municipalities or regions)

  - Adaptation to new requirements and standards

- Mid-term (within five years)

  - No specific plans in most cases

  - Exceptions related to better automation and standardisation (e.g. Austria ad France) and improvement of the existing data systems (e.g. Germany, Norway and Portugal)

- Possible impacts of the Covid-19 pandemic

  - Delays

  - Budget cuts
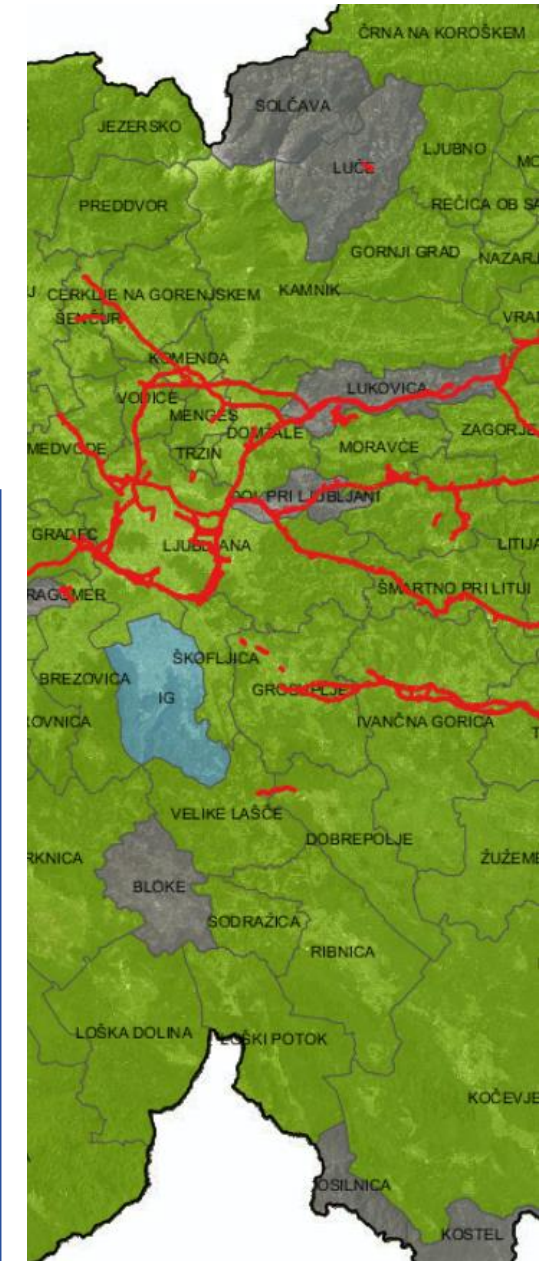
Municipalities included in Slovenian plan data portal, http://storitve.pis.gov.si/pis-jv/informativni_vpogled.html
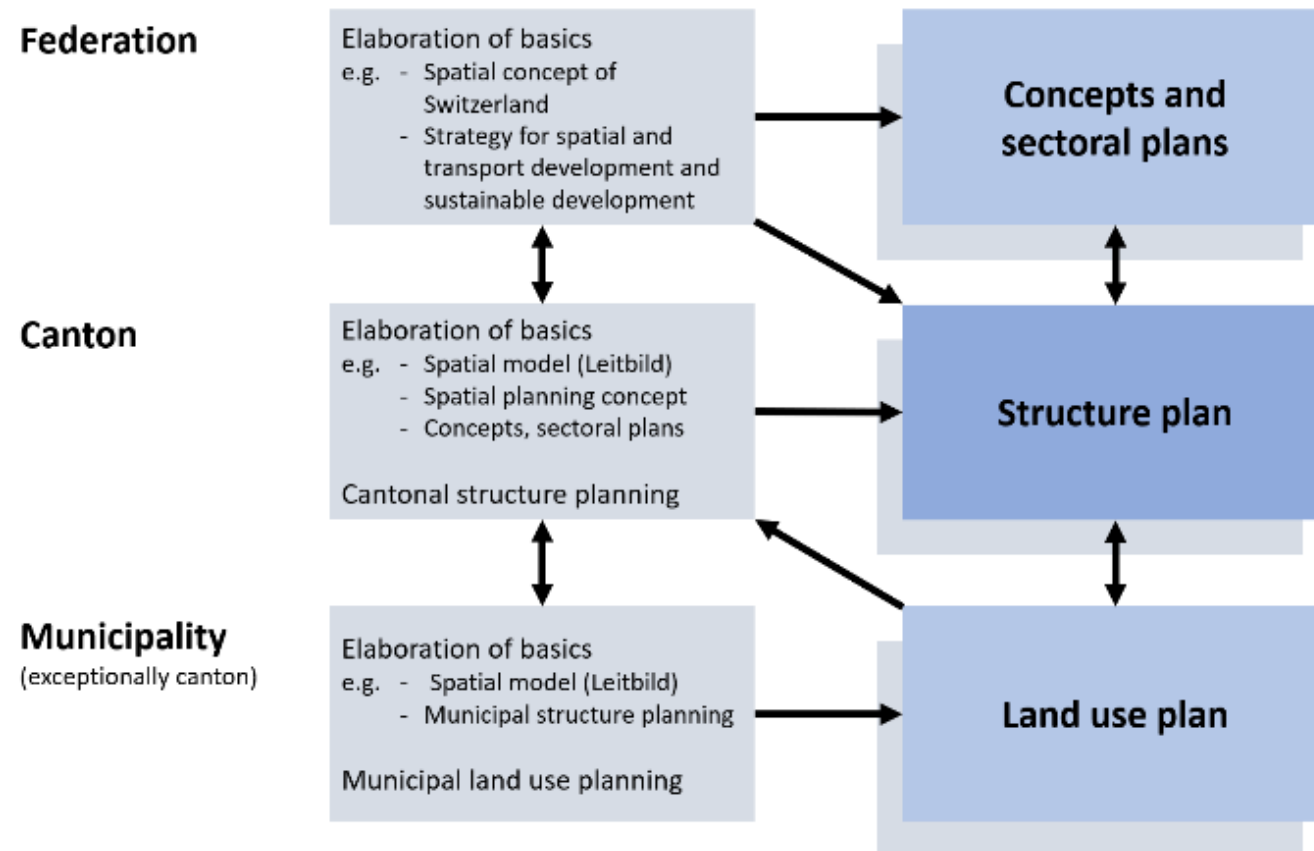
Swiss case study

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Case study Switzerland
Context

▪ Federation, cantons and municipalities have specific roles in planning

	Federation	Elaboration of basics e.g. - Spatial concept of Switzerland - Strategy for spatial and transport development and sustainable development	Concepts and sectoral plans
	Canton	Elaboration of basics e.g. - Spatial model (Leitbild) - Spatial planning concept - Concepts, sectoral plans Cantonal structure planning	Structure plan
	Municipality (exceptionally canton)	Elaboration of basics e.g. - Spatial model (Leitbild) - Municipal structure planning Municipal land use planning	Land use plan

Case study Switzerland

Important portals associated with geodata and digital plan data in Switzerland.

| Name Portal	Description	Link to portal
map.geo.admin.ch	Federal geoportal with data viewer	https://map.geo.admin.ch/
geocat.ch	Meta-Search-Engine for Geodata of Switzerland	https://www.geocat.ch/geonetwork/srv/ger/catalog.search#/home
geodienste.ch	Aggregation-portal for cantonal data	https://geodienste.ch/
open data swiss	Portal for open government data in Switzerland	https://opendata.swiss/de/
PLR Cadastre	Cadastre of Public Law Restrictions on Landownership	https://www.cadastre.ch/en/oereb.html

Case study Switzerland
PLR Cadastre

- Public law restrictions on 20+ topics from the fields of spatial planning, roads, railways, airports, polluted sites, groundwater protection, noise and forests.

- Zoning regulations

- Excerpts

- Since a few weeks available in all cantons, for all municipalities

- Based on mutually developed federal minimal data model

- Outstanding quality, but not yet legally binding
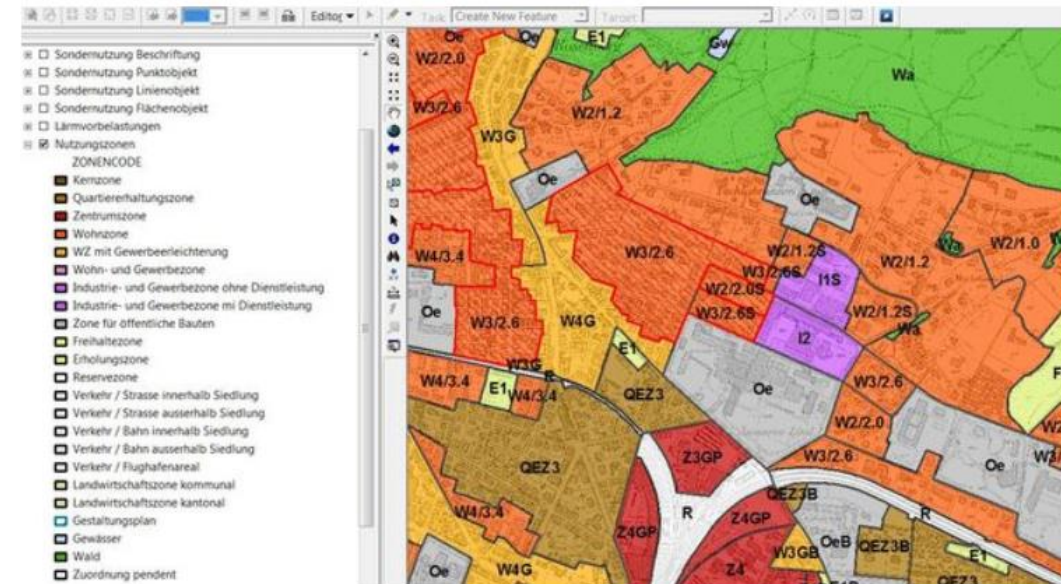
Case study Switzerland
Cantonal structure plan

- Digitalisation of strategic plans is a challenge

- How to avoid unwanted precision (zoom in)?

- Federal minimal geodata model for cantonal structure plans still in the process of being developed
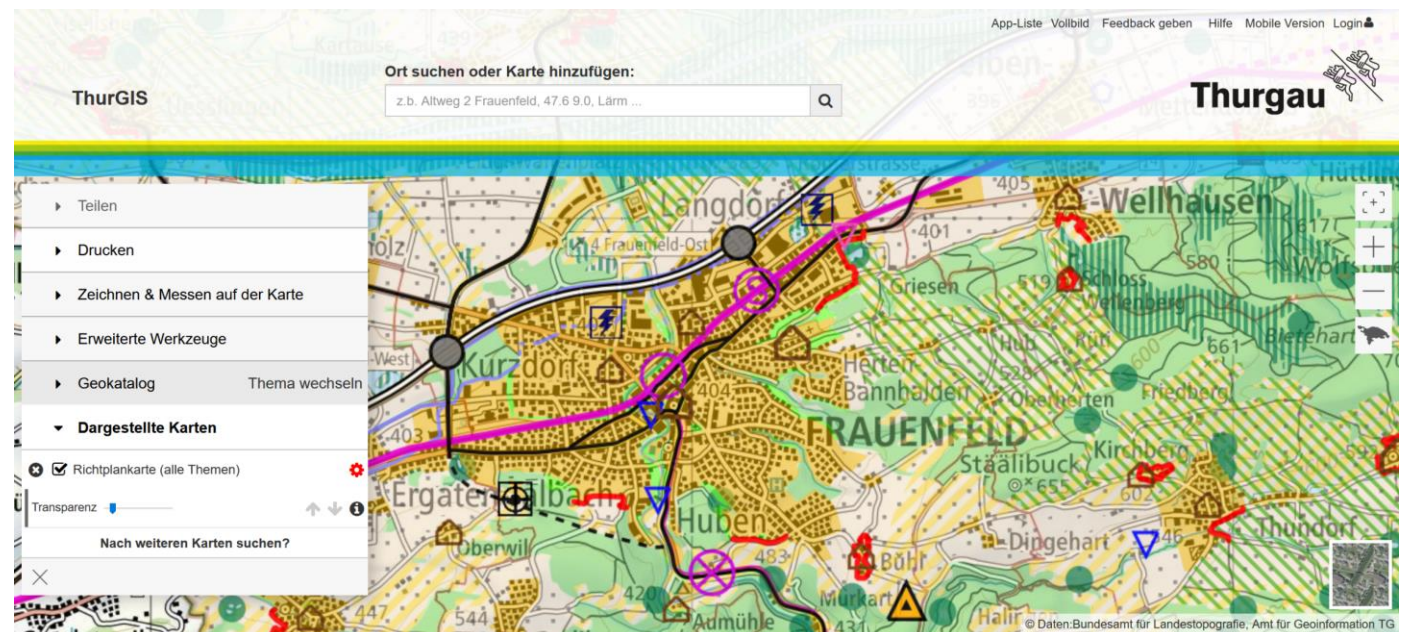
Case study Switzerland

Synthesis

- Digitisation begun in Switzerland in innovative cities and private companies

- Access to digital land-use plan data with PLR cadastre is considered a great achievement

- Federal minimal geodata models and deadlines have been crucial for smooth implementation

- Time consuming elaboration of data models because of consensus approach

- Standardization and harmonisation remain an issue for comparability

- **Current tasks**

  - Promote the PLR cadaster to a broad range of stakeholders

  - Clarify the legal role of digital plan data

Policy recommendations

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Digitalisation to improve efficiency

- Planning system sets the scene

- Need of standards

- Ensure compatibility between the plans and the plan data / standards

- Use to reduce workload for plan administration

- More accessible data and thus easier to collaborate

- Develop digital process chains to facilitate cooperation

- Use digitisation to improve flexibility in the planning process

- Clear strategy and funding

- Fully digital plan data

- Address digitisation in rural area

Policy recommendations
Digitisation to enable innovation

- Accessibility to digital plans and plan data enables innovation

- Involve of citizens or the private sector in the development

- Share knowledge and examples, nationally and internationally

- Make use of digital plan data to evaluate planning

- Consider better monitoring of the use

- Consider parallel systems as a compromise for transition

- Adapt the planning system and its instruments is advantageous

- European institutions can support exchange

- Support exchange between planning and GIS community

Policy recommendations
Digitisation to increase transparency

- Improve transparency regarding current regulations with portals

- Use digitisation to make full planning process visible

- Use open data approach

- Develop portals collaboratively so that all users profit

- Consider benefits of digital plan data for all levels of governance

- Enhance communication and participation with digital plan data