

ACCORD



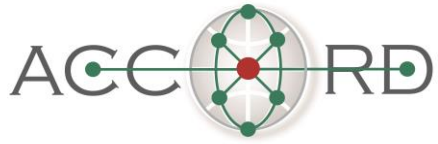
Funded by the
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Innovate
UK

Digital Building Permit

Automated Compliance Checks for Construction,
Renovation or Demolition Works



Sustainable future

European Climate Pact

**Twin transition
green & digital**

Leave no one behind

EU Green Deal

EU digital initiatives

Clean and circular economy

Building and renovating in resource efficiently

European data strategy

Open data directive

Circular economy action plan

Green Deal data space

Industrial data space

Data act

Data governance act

Digital passports

GAIA-X

International data spaces



May 3rd, 2023

Building Digital Twin International Congress





Toward digital building permit processes



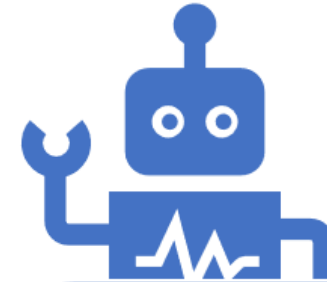
Manual

- Mail, people to people communication
- Paper or pdf data exchange
- Current practice in many European countries



Digital

- Open BIM
- Reuse of public data
- 3D for visualisation
- BIM-based analysis
- Some countries (Finland, Estonia) are showing the way



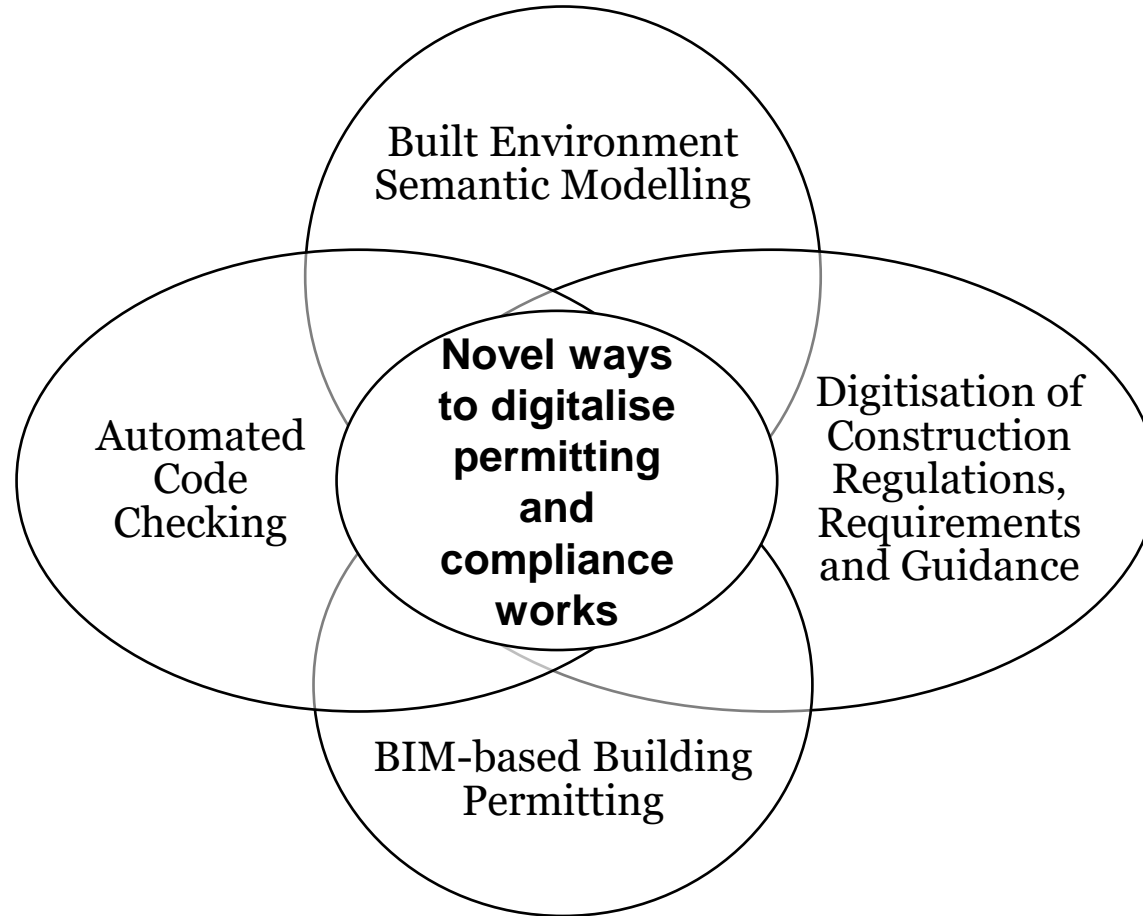
Automatic

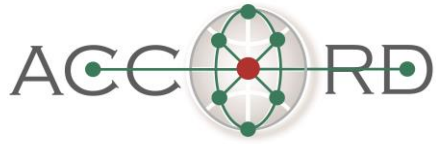
- Integrated
- Interoperable data exchange
- Open standards
- Machine readable and interpretable regulations





Beyond state-of-the-art



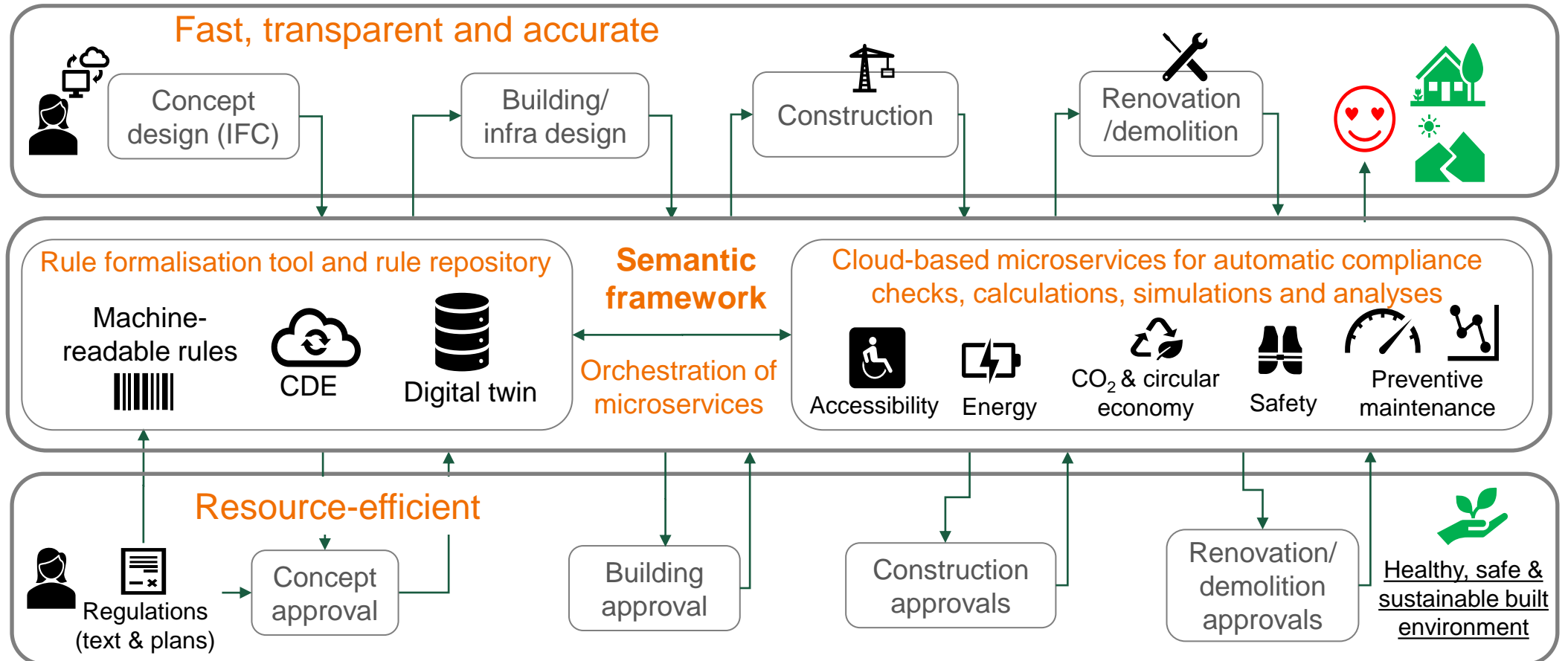


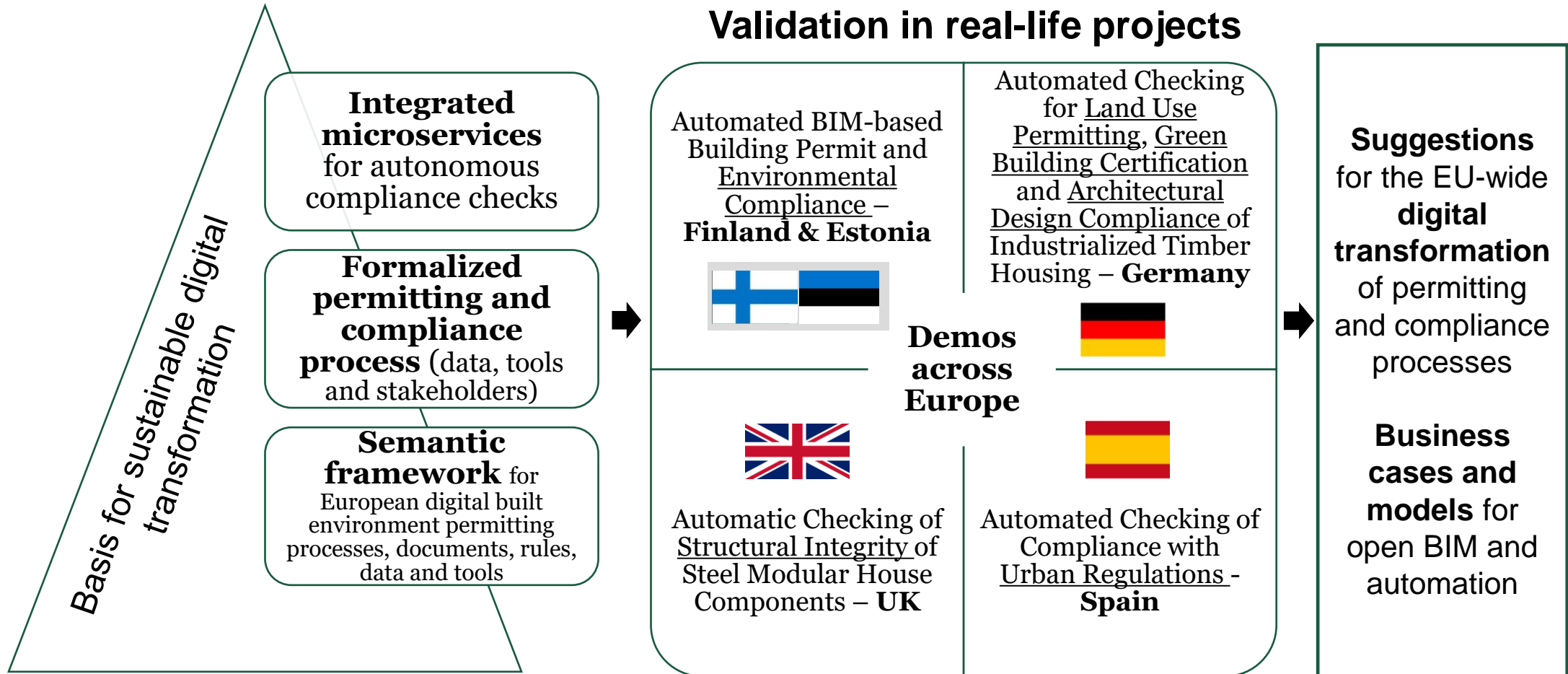
Transparent & resource-efficient building permit process

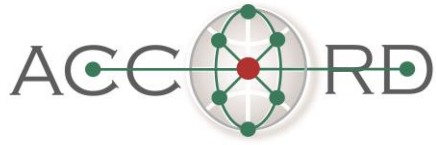
Applicants' permit application process

Single user interface

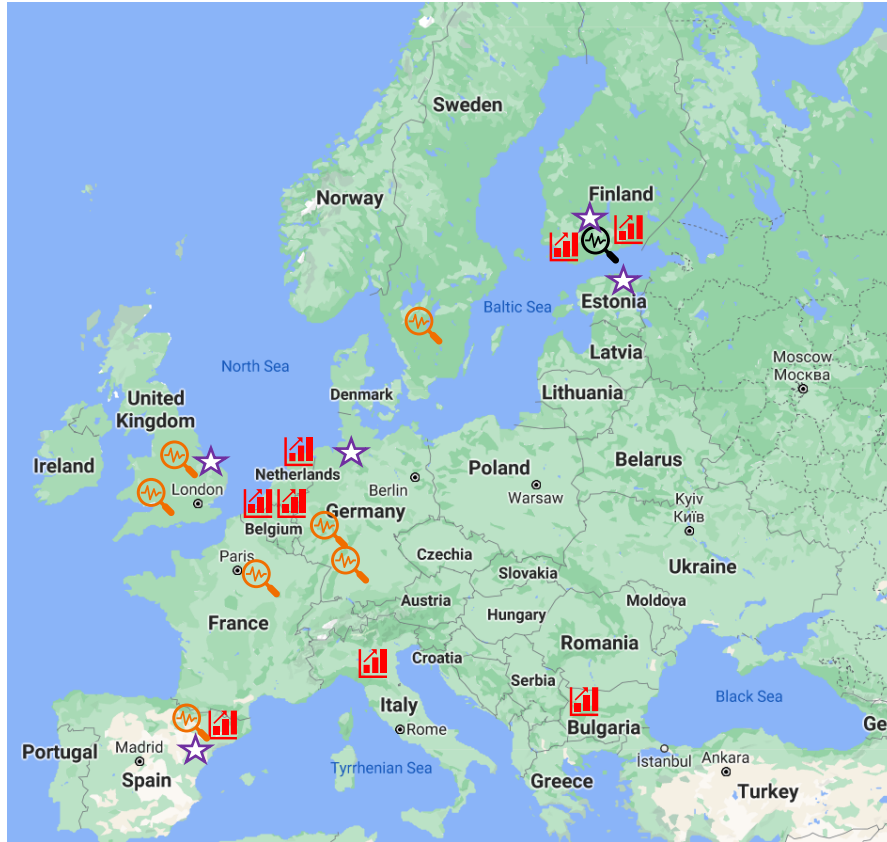
Authorities' permitting process







Project consortium



- **8 research organisations** 
 - Technical Research Centre of Finland (VTT)
 - Cardiff University (CU)
 - Birmingham City University (CU)
 - Fraunhofer Institute for Building Physics IBP (FhG)
 - University of Koblenz (UNIKO)
 - Ramon Llull University (FUNITEC)
 - Mines Télécom Institut (EMSE)
 - Jönköping University (JTH)
- **6 companies** 
 - Solibri (SOL)
 - Cloudpermit (CP)
 - Future Insight (FUI)
 - Sirma AI (ONTO)
 - Aether Engineering (AE)
 - The Catalonia Institute of Construction Technology (ITeC)
- **7 associations, cities and a ministry** 
 - BuildingSMART International (BSI)
 - GeoSpatial Consortium (OGC)
 - Estonian Ministry of Economic Affairs and Communications (MKM)
 - Architects' Council of Europe (ACE)
 - City of Hamburg (HAM)
 - Ajuntament de Malgrat de Mar (AMM)
 - Tegel project (TEGEL)



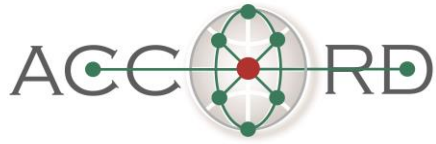
Some high-level conclusions so far



State of the Industry Survey

- Built on previous work from BSI Regulatory Room & DCOM(UK)
- Focused on understanding views on
 - the possible adoption and benefits of digital building permitting and automated compliance checking
 - how to achieve wider adoption
- A total of 472 responses received.





Toward partial-automation with human oversight

- Either partial-automation or full automation are possible in the next 10 years.
- The preference is for maintaining a final human sign-off regardless of the level of automation achieved within the process.
- The key desired outcomes
 1. time savings
 2. increase in certainty
 3. cost savings
 4. increasing awareness of compliance during the design
 5. auditability

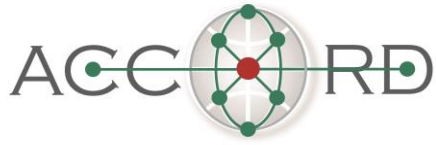




Key obstacles to overcome when adopting digital building permitting

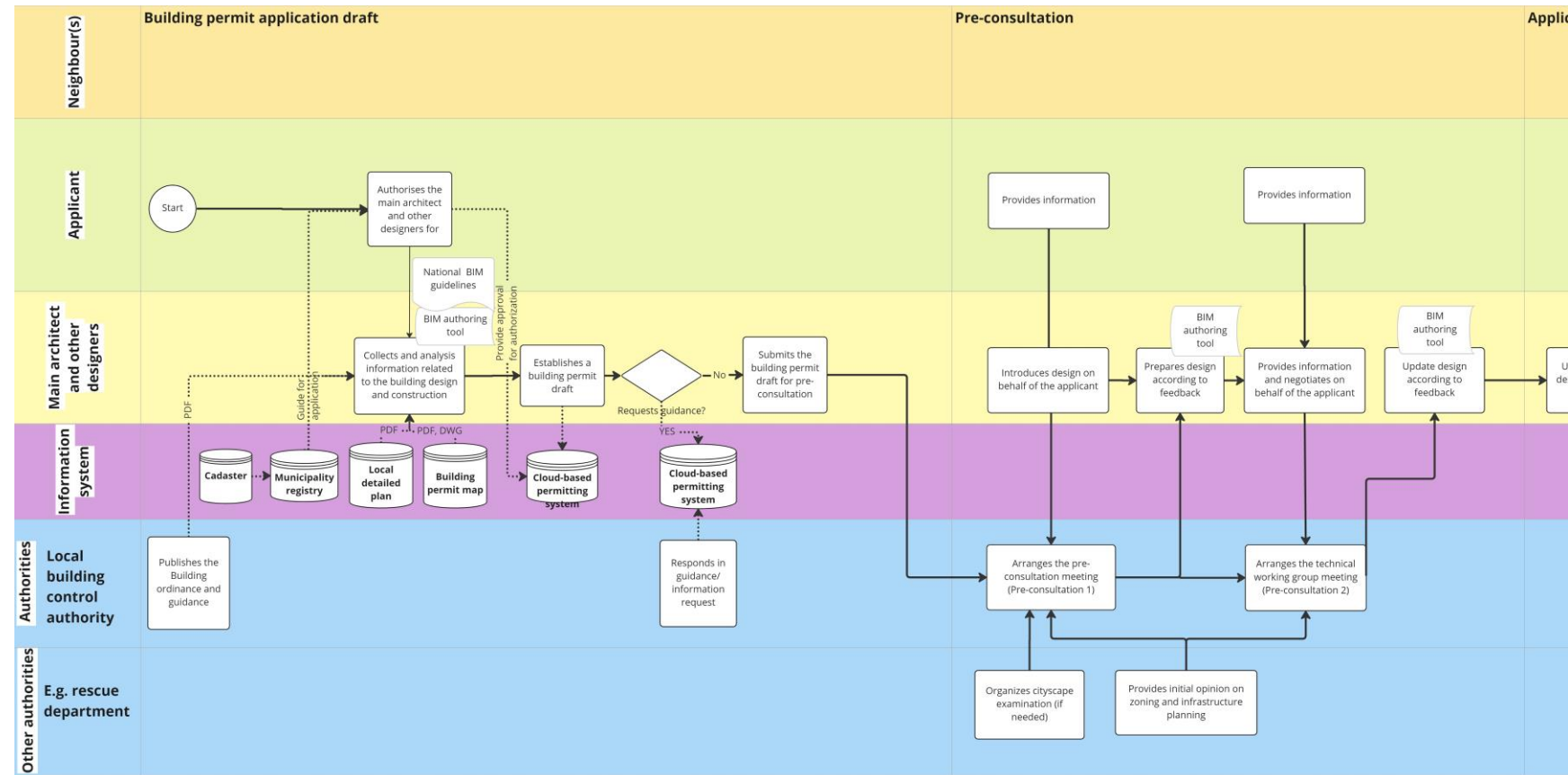
- Obstacles
 1. differing processes between territories/countries
 2. lack of digital skills in regulators
 3. lack of software tools
 4. No standard specification of design documentation
- Key requirements for digital building permitting
 1. Standardised submission processes
 2. Ability to link BIM to GIS
 3. Intuitive user-friendly user interface
 4. Extensive training and support
 5. Open access to high level result data
 6. Simple clear processes



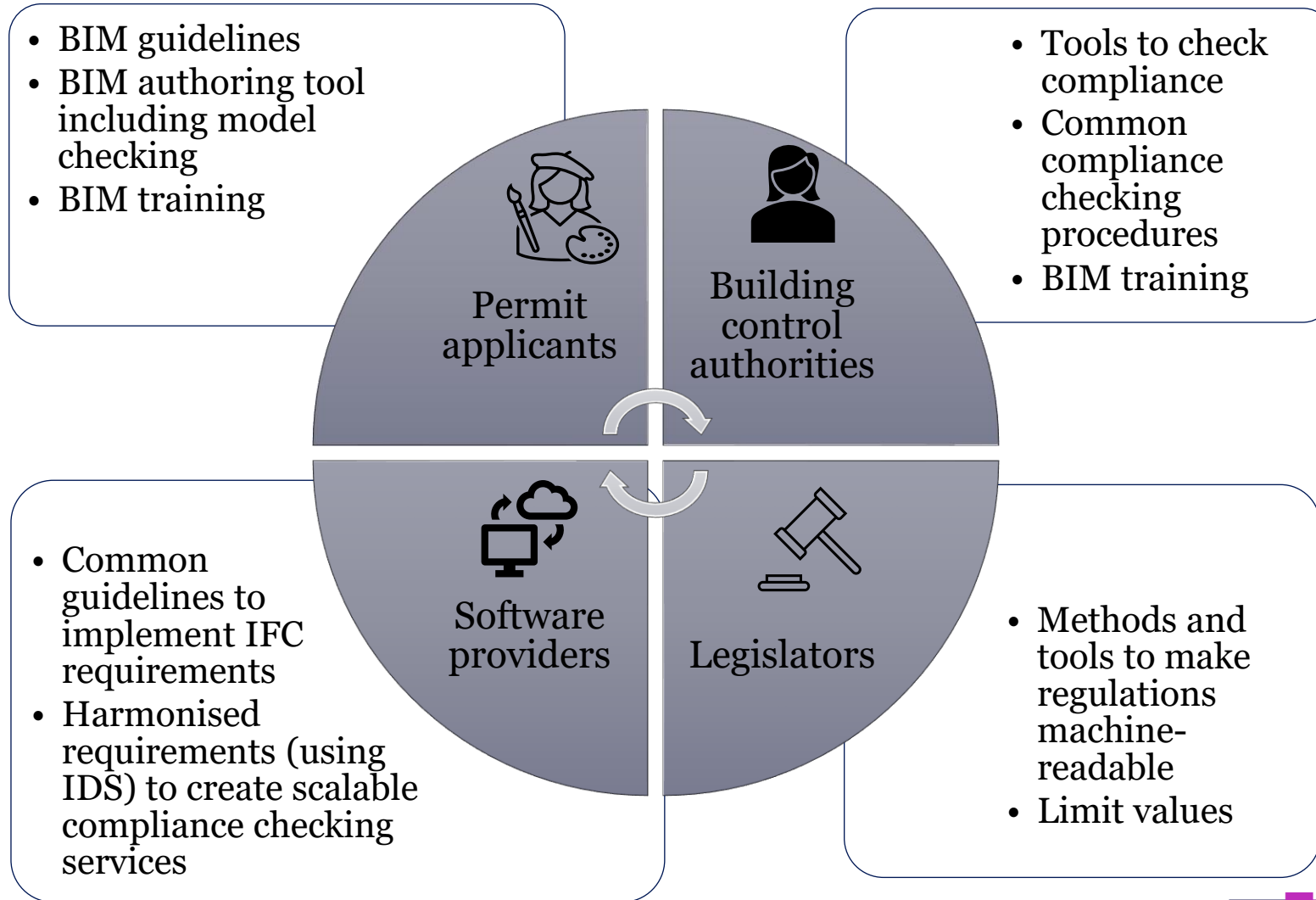


As-is building permit processes in the demo countries

- As-is building permit processes
- → to-be process
 - IFC-based
 - Machine-readable regulations
 - (Semi-) automatic compliance checking
 - Digital archival (IFC4)



Stakeholders' needs

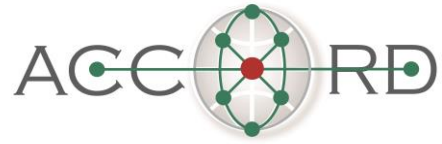




News from Finland

- Building Act in 2025
 - IFC-based building permit (national IFC requirements exist)
 - LCA assessment; national requirements for CO₂e calculation and national emission databases exist → buildings's CO₂ limit values
- Digital built environment
 - RYHTI project → interoperability through information harmonisation
 - National information model for zoning plans and building permits
 - National logical data model, vocabularies, and enumerations
 - New built environment information system in 2024
 - Construction permit decisions (construction, demolition, landscaping, ...)



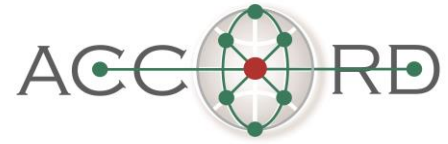


Partners



This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement no. 101056973





Thank you!

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