

# Advanced Planning and Building Permits through Road Digital Twins

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## Background & Motivation

- Accurate planning permissions and building permitting are **essential for construction safety** and societal benefits
- But processes are **error-prone, time-consuming**, and involve multiple stakeholders
- Road digital twins can be used to streamline the process

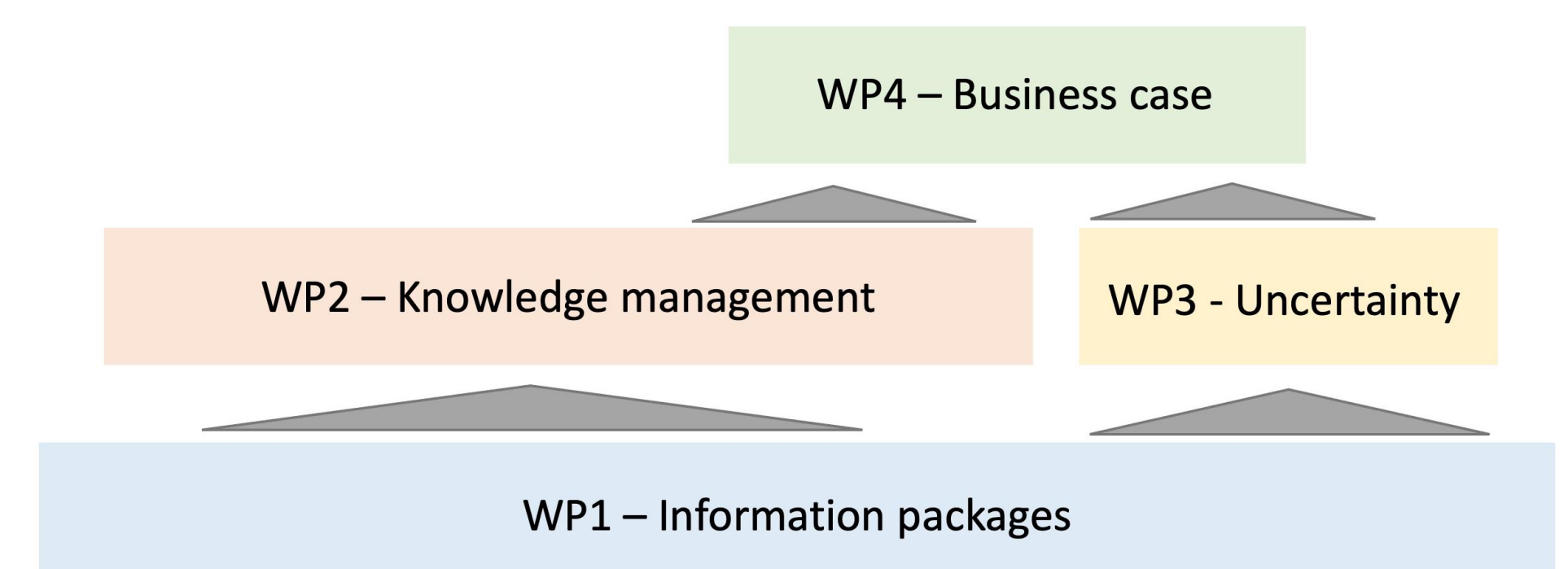
## Objectives

- Linking road digital twins and building permits,
- Reuse cross-domain information,
- Breaking down information silos
- Leverage the connection to generate value for both sides

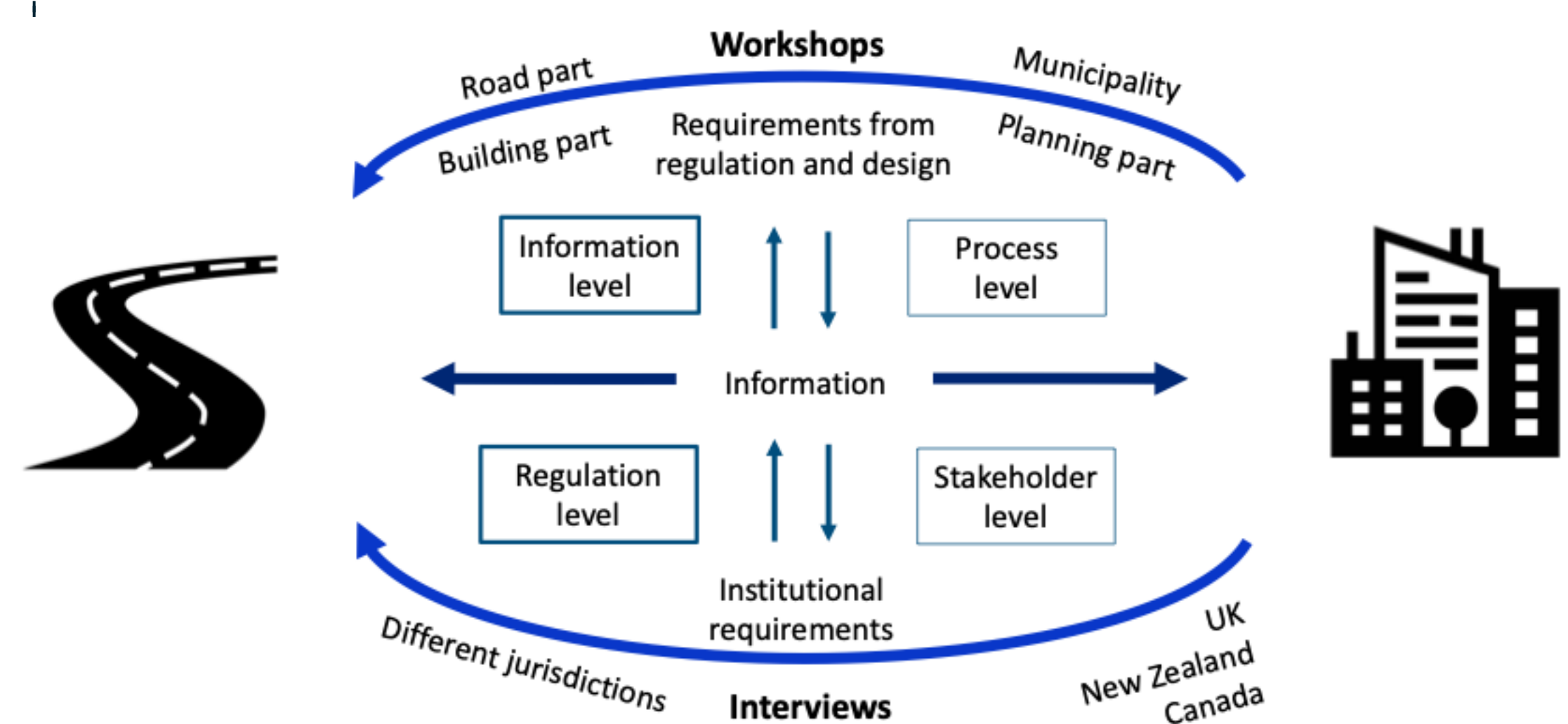
## Research Framework and Summary

The approach is structured into four steps, each addressing different needs and challenges in the planning and building permit process:

- **WP1:** Define *Information Packages* linking road digital twin data with planning and building permit needs, including data on land access, utilities, and compliance, using qualitative methods.
- **WP2:** Implement *Knowledge Management* to organize and retrieve data, improving decision accuracy.
- **WP3:** Conduct *Uncertainty Analysis* to address legal and procedural complexities.
- **WP4:** Develop a *Business Case Evaluation* for practical applications, like automated data querying for applicants and authorities.



Work packages of the project



Qualitative approach for WP1

## What next?

### WP1

- Overview information packages
- Alternative/parallel approach: identifying shared factors through literature and regulatory documents

### WP2

- Ontology alignment of road ontology and building permit ontology

## Acknowledgements

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**References** Fauth, J. & Brilakis, I. (2024). Concept for Leveraging Road Digital Twins for Enhanced Planning and Building Permit Processes. Proceedings of International Digital Building Permit Conference, April 2024. EUnet4DBP Publication, pp. 189-192. DOI: <https://zenodo.org/doi/10.5281/zenodo.12760551>.