



Future cities in the making overcoming barriers to information modelling in socially responsible cities

Benefits to: national, regional and local policy makers, civil servants, urban planners, infrastructure planners, project investors, technology innovators, citizens

“Overcoming barriers to information modelling for planning will address problems of collaboration and coordination. If done responsibly, this can help communities unlock the value of data to support sustainable and inclusive city management”

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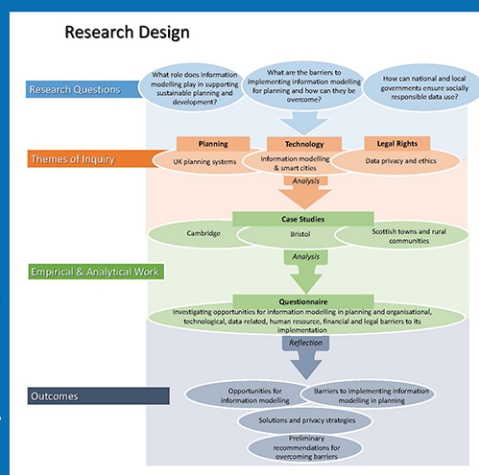
Summary

This project probed the relationship between Building Information Modelling (BIM) and the planning system. BIM is a set of digital tools, processes and standards used to capture and store data associated with a construction project so it can be used collaboratively by everyone working on the project and those responsible for the assets' subsequent operation. We selected three main case studies to explore information modelling in different governmental, socioeconomic, and planning contexts, and our research was informed by 40 stakeholder interviews, policy analysis and a stakeholder questionnaire. Specifically, the research addressed three questions:

1. What role can information modelling play in supporting better planning outcomes?
2. What are the barriers to its uptake in the planning system and what steps can be taken to overcome these barriers?
3. What are the ethical and legal considerations governments must address as public spaces become more digitalised?

Barriers fall generally into one of six categories: organisational, data-related, technological, human resource, financial and legal; however, barriers tend to be interrelated, and so overcoming them will require a coordinated approach:

| Examples of barriers to digitalisation and implementing information modelling for planning | | |
|--|---|--|
| Organisational | Technological | Data-related |
| Lack of collaboration between governmental departments and bodies | Contract lock-in with certain technology platforms or providers | Necessary data is difficult to access |
| Fragments government structures | Lack of standardisation in tools and protocols | Data is not of good quality |
| Unclear data-sharing arrangements | Lack of customisable tools | Data is not validated |
| Unclear information about existing data sets | Non-interoperable software systems | Data is not standardised |
| Political disagreement | Need for hardware upgrades | The level of detail in BIM is too high |
| Lack of leadership support | Path dependency based on legacy systems | Insufficient data storage capacity |
| Lack of awareness from politicians | | |
| Human Resource | Financial | Legal |
| Lack of in-house expertise | Software costs | Uncertainty around what can legally be shared |
| Lack of training | Hardware costs | Time-consuming nature of getting legal approval for sharing |
| No time to get up to speed | Data storage costs | Insurance and liability concerns |
| No time for implementation processes | Training costs | GDPR and other data privacy laws and regulations |
| Differences in expertise among collaborating parties | Cost of hiring right personnel | Restrictions around who can store public data and where it can be stored |

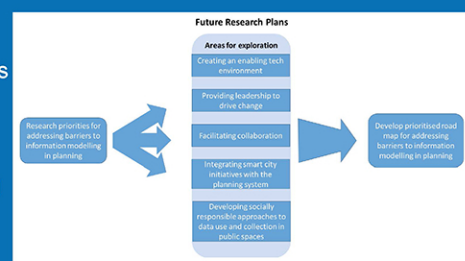


Key Findings

- The barriers to information modelling in planning are also barriers to effective data use in local government, so overcoming these barriers can help advance digitalisation efforts across local government.
- Tighter links are needed between smart city initiatives and planning departments, as currently these areas of local government are not well integrated, even though both areas are active in planning the future of communities.

Next Steps

- Having identified the barriers, next steps focus on development of recommendations and integrated actions to encounter the barriers.
- Support the development of pilot cases for strategic smart city planning using BIM light and digital twins.



Impact and Value

- This research identified the barriers to implementing information modelling for local authorities, which has the potential to put built environment data to use for public benefit, linking public planning policy with technological developments.
- This research highlights the need for a new data management paradigm that can extract value from data while protecting citizens' right to privacy and to the city.

Long-term Vision

The long-term vision for this project is three-fold:

1. Open up planning systems to successfully integrate data flows from the built environment to plan for a sustainable future. This is not just about building out hardware and software systems; this is about using the strategic function of planning to bring together insights from different sectors and departments to collaboratively plan for the future.
2. Integrate smart city planning with the planning system: In communities that are pursuing smart city initiatives, those responsible for smart city strategy tend to be isolated from planners. The smart city strategists and the planners are both responsible for planning for a sustainable future, and these two functions should be aligned to ensure successful outcomes.
3. Support the government in leading the drive towards socially responsible data use in the built environment: There is currently no definitive model to follow for how governments should protect residents' privacy while also extracting benefit from data flows.

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