

# The future in your hands

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**Ian Hetherington explores the wide-ranging benefits and return on investment to the property industry offered by 3D mapping in a mobile app**

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Our world is becoming increasingly mobile, and with it, industry is also mobilising. But many businesses struggle to use this transition to increase their return on investment.

For the property industry, mapping complex data sets in 3D in a mobile application enables businesses across every sector – construction, facilities management and real estate – to create an engaging and intuitive tool for navigating and visualising resources and managing assets.

The benefits for all property sectors are significant, and include building and occupancy optimisation, employee satisfaction, [building information modelling \(BIM\)](#) compliance and mobilising blueprints, as well as allowing estate agents using 3D models to display a property being bought off plan.

## Construction

Any decision can instantly change the plan and shape of a building and render traditional blueprints ineffective, so it is extremely important to have a representation of the building that can be modified in real time.

All government contractors have had to comply with Level 2 BIM since 4 April. This marked a milestone in the adoption of BIM, and most of the construction industry now realises its importance and benefits. But a [Royal Institute of British Architects? National BIM report](#) surveyed 1,000 firms between December and February and found that, although 96% were aware of BIM – up from 43% in 2011 – only 54% had adopted it. Of those respondents aware of BIM, 86% said they expect to be using it by the same time next year, and 97% within 5 years.



**Figure 1: Example of indoor 3D map**

BIM enables digital technologies to support the more efficient design, construction and maintenance of buildings. By embedding product and asset data in multi-dimensional computer models, information can be managed more efficiently throughout the project lifecycle.

One key benefit of using digital technologies ? in particular 3D mapping ? to improve the efficiency of a build is the lower costs they enable. Visualising a property on a mobile 3D map rather than traditional blueprints offers a clear return-on-investment model for construction firms of all sizes, for several reasons.

- Having 1 integrated building information model in a single 3D mapping app enables multiple data sets to be visualised in 1 resource, and allows conflicts and solutions to be identified in real time ? reducing rework, conflicts, waste and delays.
- Visualising a building in a 3D, geospatially accurate simulation helps clients explore spatial requirements. This could reduce client variations and scope creep from the outset all the way through to completion.
- Providing 1 app that can be accessed by all contractors encourages closer collaboration. In the long term, this can lead to reductions in tender risk premiums, fewer overall variations and fewer opportunities for claims.
- Recording execution plans in 1 app ensures that documentation is coordinated, timely and accessible for everyone involved in the build. Making project objectives visible can help ensure it progresses as planned.
- Details of component manufacturing and building tolerances can be integrated into the collaborative design process, enabling everyone on site to see them as well as better planning throughout the construction process.
- The use of 3D mapping can allow project programming simulations, which allow identification of the most efficient construction sequences and locations for key elements such as cranes, access and waste management.

Aside from saving costs, a 3D model of a building in a mobile app adds value to the build, and can often work as a competitive advantage. This is especially the case now that Level 2 BIM has come into play. Balfour Beatty is being seen as an industry leader, for instance, after

[announcing that it is one of only 5 UK construction companies](#) to have been awarded the [BSI certification](#) for Tier 1 Lead Contractor and Lead Designer, following compliance with Level 2 BIM.

The most important focus for Level 2 BIM requirements is monitoring maintainable assets following a construction handover. Embedding metadata on maintainable assets such as electricity and plumbing in a 3D map makes the tracking process more efficient and accurate.

This adds value when selling a property because, historically, homeowners have faced problems further down the line owing to a lack of communication throughout the building process from the architect to the seller. Providing a homeowner with all the information on their new home, packaged in an easy-to-navigate, engaging app, is not only a unique selling point but helps them make decisions on future home improvements and renovations.

## **Real estate**

The ability to walk potential homebuyers through an interior and exterior 3D representation of a property bought off plan is not only a sales tool but also adds value to the customer experience, opening up new revenue streams for estate agents as a premium service. Similarly, it can be difficult and costly for potential buyers to view properties abroad, so an interactive 3D map can help them visualise these remotely, yet in context. Aesthetics aside, buyers can also get an idea of the property's dimensions as the 3D map will be geospatially accurate and to scale.

## **Property management**

For property managers, a 3D mapping app for the interior and exterior of buildings ? whether shopping centres, office suites or stadia ? is more than just an intuitive navigation tool. If provided as a mobile app, it can help facilities managers to control assets and monitor resource usage, as well as encouraging compliance and greater efficiency by building users, saving on costs and improving business efficiency. Presenting complex data sets graphically in their geographic context also allows property managers to make practical insights from big data with ease.

As the workforce continues to go mobile, we are seeing an increase in the number of remote and freelance workers; co-working locations are popping up in all major cities, providing flexible office space to meet their requirements. Facilities managers have the opportunity to use mobile applications to visualise complex data and use devices to collect information. Engaging with building users and employees through an intuitive guide and utility application encourages compliance in resource booking and usage, reduces time spent finding those resources, and empowers users to report any facilities issues they might encounter quickly and directly.

Through a single portal, a facilities manager can identify usage trends to cut wastage and monitor office assets, while reception can operate a real-time booking system and users can better navigate the building.



**Figure 2: Example of outdoor 3D map**

Managers of property that contains retail space can realise fresh revenue streams thanks to the additional route this provides to communicate with customers. With the ability to layer social media feeds and proximity marketing services, the app becomes a hub for visitors to communicate with each other as well as retailers themselves. Geolocation advertising enhances the user experience by giving access to information tailored to their needs through personalised notifications.

We hear lots of hype around the term mobile, but 3D mapping in a mobile app is one way the property industry can cut through that hype and generate a clear return on investment. From the initial planning stage, through construction and sale to the management of property, such apps will not only reduce error and costs but also open potential revenue streams.

Ian Hetherington is CEO of software company [eeGeo](#)

### **Further information**

- Images ? eeGeo
- Related competencies include [GIS](#) , [Legal/regulatory compliance](#) , [Mapping](#)
- This feature is taken from the RICS *Land journal* (July/August 2016)