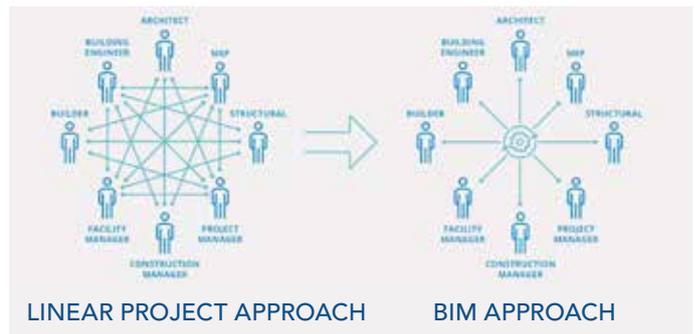


BUILDING A DIGITAL BLUEPRINT FOR DUBLIN CITY



Dublin City Council is making major strides to provide a digital footprint across the capital through the use of Building Information Modelling. And over the next decade there are now hopes to develop a fully-integrated digital twin of Dublin City (a replica of a physical entity in a 3D virtual world), according to DCC's Chief Quantity Surveyor Mark Bourke.

methodology in how to deliver projects with greater efficiency and certainty. It is probably the opportune time to replace the word 'modelling' with 'management' as this better describes the approach currently being adopted across the various sectors.



WHAT BIM IS DOING FOR DCC

Dublin City Council has made momentous strides in BIM but the benefits will not be fully realised for many years to come. Although not fully implemented BIM is being used in some very interesting ways by the Council, which hopes to develop a fully integrated digital twin of Dublin City, over the next decade. This will be simply a replica of a physical entity but in a 3D virtual world.

The digital age is well and truly upon us but how far have we really come? And now 28 years on from when the term 'Building Information Model' (BIM) was first coined advances have been made but the sentiment it still one of burden rather than opportunity.

Similar to Kodak and the digital camera it has taken decades for those first initial embers to catch fire and gain significant ground. The past five years has seen a significant shift in attitudes and adoption rates but the BIM project approach is still clouded in mystery and confusion to those outside its inner circle.

Commonly referred to as Building Information Modelling (BIM), this is fundamentally a centrally-shared digital space where a construction project can be effectively designed, recorded, monitored and stored for future use.

BIM has morphed from the simple model to an overall



DCC's Housing Team is piloting BIM on several projects with multiple benefits being generated.

All the characteristics of a building are surveyed and inputted providing a digital footprint that can be utilised in ways never contemplated before. A prime example is Dublin Fire Brigade's use of drone technology to map historical buildings such as Trinity College or St Patrick's Cathedral. The drone imagery is then converted into a model that is used to identify risks and enable the DFB to run emergency response scenarios.

The housing team is also piloting BIM on several projects with multiple benefits being generated. In a Covid world, finding ways to engage with communities is particularly to the fore and the use of 3D models is eliminating remote working barriers and supporting active liaison sessions with various stakeholders.

BIM models also provide greater certainty in design as clash detection software ensures services are co-ordinated, preventing re-work or changes downstream.

Human Resources and Corporate Services have also realised the benefits of BIM on interacting with numerous departments when planning the staff moves; staff are provided with a walk-through of the new space, desk positioning, lighting and facilities so both management and staff can have input into their new locations.

MAKING THINGS HAPPEN

The adoption of BIM is being spearheaded by DCC's SMART Dublin team, set against a backdrop of the government's National Digital Roadmap.

The Irish government recognises the importance of BIM and sees the benefit of how it brings together technology, process improvements and digital

information to radically improve project outcomes and asset operations.

The former Minister for Business, Enterprise and Innovation, Heather Humphreys, sees BIM as a strategic enabler for improving decision making and delivery for both buildings and public infrastructure assets across the whole lifecycle.

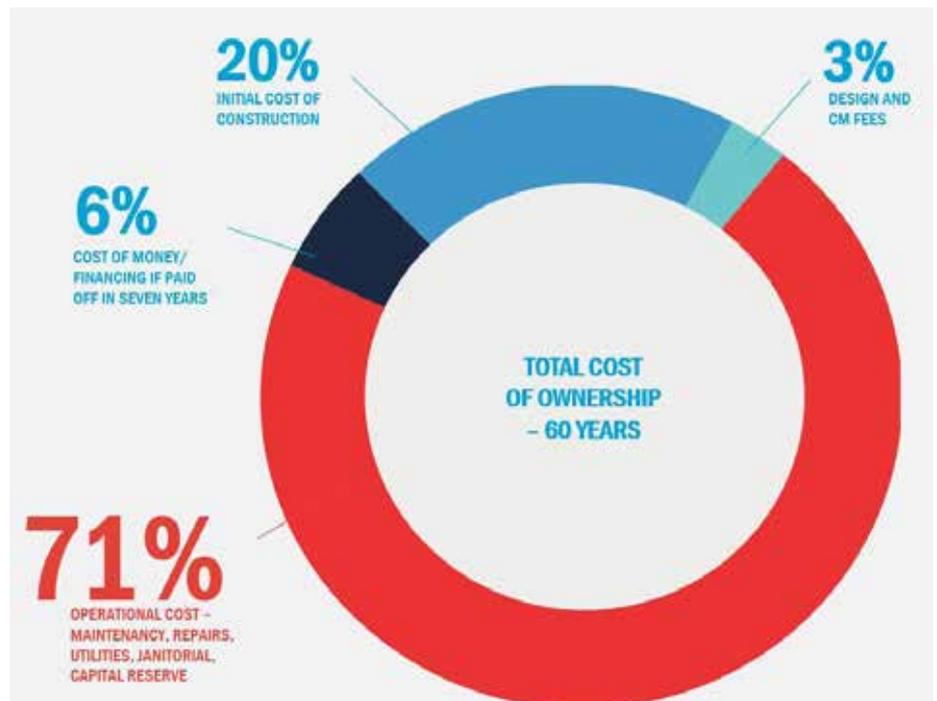
DCC is endeavoring to embed this digital philosophy into all elements of our business, not just the capital programme, recently adopting the strategic objective to be a 'smart council, within a smart city, within a smart government' as part of DCC Corporate Plan 2020-2024.

Sponsored by the Chief Executive, DCC's BIM strategy is helping to make smart happen, making sure 'the right people have the right information at the right time'.

THE WIDER BENEFITS

Many of the early adopters of BIM have realised and advocated the improvements achieved in cost, time and quality but few understand the wider benefits of BIM.

As touched on previously these wider benefits are not immediately established but are predominately achieved in the operational elements of a building's lifecycle.





*Mark Bourke, Chief
Quantity Surveyor
with Dublin City
Council.*



A total of 71% of the overall cost of a building is experienced during the operational phase with buildings accounting for 18% of global emissions, the equivalent of nine billion tonnes of CO₂ annually. BIM can have a real impact on slowing the rate of climate change through the reduction of waste during construction and making buildings increasingly energy efficient during their life span. From both the public and private sectors this has a significant impact on the bottom line.

When BIM is fully integrated into a business' operating environment, it can be demonstrated to save between 15-25% solely on the construction elements of a project. Financially, this would mean savings for Dublin City Council of up €200 million on our existing Capital Programme over the next three years.

BLOCKAGES TO BIM ADOPTION

Before everyone rushes out to adopt BIM and its principles there are some impediments that could explain Ireland's low adoption rates (50% less integration than our European counterparts).

Although the government's National Digital Roadmap is a step in the right direction it falls short of mandating the requirement for BIM on projects over a certain value. Our UK neighbours have mandated the use of BIM to level 2 (production of a model) on projects exceeding €5m in value since April 2016, with the Netherlands adopting BIM in 2012 and the USA

in 2008. Ireland is at a major disadvantage in this arena.

The myth that digital means faster with less inputs has damaged the implementation of BIM. BIM requires the same resources and initially more time to input design and upskill team members. For SMEs this financial and time commitment can be costly and usually takes strong leadership in the absence of a legislative obligation.

BENEFIT OF FUTURE GENERATIONS

There remains a significant skills shortage in the areas of architecture and engineering. Educational institutions are acutely aware of the shortages and are adopting new academic courses to meet the needs of industry for BIM managers and administrators but this will take several years before the shortage is resolved.

Humans are hardwired to seek instant rewards and the digital age has fueled the brain's desire for a quick fix. You would expect BIM to satisfy this need for instant gratification.

However, it does not for the simple reason that the vast majority of its rewards are not realised until an undefined point in the future and normally by those who have not inputted their energies into the initial stages. This said BIM is here to stay and should be embraced for the benefit of future generations.