

## **Beneficios de BIM son cuantificados por primera vez**

### ***Oportunidades de negocio para el sector de agua, saneamiento e infraestructura:***

*La consultora [PwC](#) publicó recientemente un reporte sobre el ahorro de USD 537 millones (£ 400 millones) por año que podría obtener el Gobierno de Reino Unido al utilizar el nivel 2 de la metodología colaborativa BIM (Building Information Modelling) para el diseño y construcción de dos proyectos para el Departamento de Salud y Departamento de Ambiente.*

*Los beneficios totales de BIM representan entre un 1,5% y 3% del gasto durante todo el ciclo de vida de los dos proyectos evaluados.*

*La consultora PwC ha desarrollado una metodología para medir los beneficios directos en las fases de diseño, construcción y puesta en operación, así como también para las fases de planificación y ejecución de mantenimiento de las infraestructuras durante la vida útil de los activos.*

*Entre los beneficios que fueron cuantificados en el reporte están: ahorro en costos potenciales futuros, ahorro en tiempo en diseño, construcción y puesta en operación y otros ahorros obtenidos de información proveniente de partes interesadas que colaboran usando BIM.*

*La adopción de la [metodología BIM](#) permitirá a las empresas de agua, saneamiento e infraestructura desarrollar ventajas competitivas para un mejor posicionamiento estratégico de sus negocios y ofrecer a sus clientes finales beneficios directos apalancados en una mayor transparencia y colaboración entre los equipos de diseño, construcción y mantenimiento de un proyecto de construcción.*

The application of BIM Level 2 could save the government £400m a year according to a report by PwC, which has developed a methodology quantifying the financial benefits of BIM for the first time.

The consultant has used the sophisticated methodology to work out savings on two projects, for the Department of Health and the Department of the Environment, and have used the results to extrapolate across the government's capital spending programme.

PwC is also trialling the Benefits Measurement Methodology (BMM) on projects for the Ministry of Justice.

The report says: “Interpreting quantified benefit estimates across our two projects/assets – Foss Barrier Upgrade and the 39 Victoria Street Office Refurbishment – the gross total quantified benefits estimated were 1.5% and 3% of whole of life expenditure, respectively.

“We believe that this is a lower bound estimate as we were unable to estimate all benefits. These are gross estimates since our analyses have not considered the costs of implementing BIM Level 2.

“Across the design, build and commission, and handover phases, our quantified estimates were 0.7% and 1.4% of capital expenditure respectively. If this level of saving could be achieved across the National Infrastructure Commission’s projected public sector funded infrastructure spend of £31.7bn in 2018/19, this would imply savings to UK taxpayers of £226m-£429m (in 2017 prices).”

For the Department of Health refurbishment of [39 Victoria Street](#) for example (pictured above), the report calculated that BIM-enabled savings accounted for £676,907. Of this, £42,366 was in design, £141,872 in construction and an expected £492,669 in operation over 12 years.

A lack of tangible measurable financial benefits is often cited as one of the reasons clients have been reluctant to invest in BIM, and its uptake has been particularly slow for FM.

The PwC team also applied the methodology to estimate possible future benefits that could be realised in the operational phase in maintenance planning and execution. They calculated potential savings for the Environment Agency’s Foss Barrier Upgrade, which resulted in a present value total lifecycle benefit estimate of £367,693, which is equivalent to 1.5% savings in total (against the without BIM cost).

“This includes discounting at 3.5% per annum real discount rate across an appraisal period incorporating 25 full years of operations, beginning at completion of the handover phase.”

The report includes a complete breakdown of this benefit estimate by lifecycle stage and benefit category.

Four benefit estimates were quantified:

- Potential future cost savings in asset maintenance are the largest benefit item (over three fifths of total benefits estimated).
- Time savings in design are the second largest benefit, estimated as 5% of total design cost based on assumptions provided of possible efficiencies due to using BIM in design.
- Smaller benefit estimates were also quantified for time savings in build and commission.
- Cost savings in clash detection based on inputs obtained from stakeholders.

The authors of the report say that setting up measurement processes at the outset could support more and easier quantification of project benefits. “This would encourage greater focus on both the importance of realising savings from the use of BIM and help to increase understanding of how and what data and evidence needs to be collected to support benefits measurement.

“Furthermore, this approach could be applied to target the generation and measurement of specific benefits. Integrating concepts from the BMM (for example instructions on how to consider impacts

against an appropriate counterfactual) into already existing efficiency reporting processes, practices, and documentation used by public sector construction clients and asset owners would be a useful first step.

“A potential further extension could be to incorporate guidance and requirements for measuring the benefits of BIM into project initiation and stage gate processes, such as the Office of Government Commerce (OGC) Gateway14 process, or into a new PAS standard.”

### What PwC set out to do

- PricewaterhouseCoopers LLP (PwC) was commissioned by Innovate UK to develop a Benefits Measurement Methodology (BMM) to measure the potential benefits from applying BIM Level 2 to public sector infrastructure/capital assets in April 2017 and write a subsequent benefits report on the application of this BMM to public sector capital assets, detailing the estimated project/asset level benefits arising from the application of BIM Level 2.

The report describes the process and results of applying the BMM to estimate the benefits from use of BIM Level 2 on two public sector capital assets.

It tests whether the methodology can be applied to estimate economic benefits that may be realised across the asset lifecycle. It includes application of the BMM to two assets of different types:

1. The Department of Health (DoH) headquarters, an office building at 39 Victoria Street, London: where a refurbishment was carried out in 2016-17 using highly mature BIM Level 2 processes, with elements of BIM used in design, and carried through to operation.
2. The Environment Agency's Foss Flood Barrier, York: where emergency and then permanent upgrade works were undertaken between 2016 and 2018) on the flood barrier and pumping site, using some elements of BIM Level 2 in the design and build and commission phases, to a level of moderate BIM maturity. Once handover is complete, Environment Agency also plans to collect detailed as-built asset data for the Barrier, to be used in the operations phase.

The full savings analysis can be found [here](#).

**Fuente:** Portal [BIM Plus de Reino Unido](#), 07-junio-2018.