

Delivering built asset operational excellence

Insight and tips from construction clients and supply chains

Foreword

Built assets are typically the largest investments made by both public and private sector clients. In the past Constructing Excellence has made a priority of examining how outcome-value can be locked into the briefing, design, construction and commissioning of buildings and infrastructure.¹ In this report we summarise an approach to delivering more value during the operational phase of buildings, based on lessons learnt, insights and tips shared by major construction clients and Constructing Excellence members.

We started in October 2012 with an 'Asset Management Summit', hosted by HM Treasury and attended by nine major users of built assets, to debate how Constructing Excellence and its membership could add value to their asset management challenges. These clients agreed that defining the right balance between capital and operational cost investment in their built assets was extremely challenging. Most felt they knew what project excellence looked like, but not operational excellence.

The asset management group set out to answer how clients and their supply chains could deliver operational excellence. This was done in the form of sector specific workshops where major clients and contractors shared their learning based on their experience and specific projects. These presentations and a summary of the specific learning from each workshop are available on the asset management section of the Constructing Excellence website.²

In this short report we distil the lessons shared from these workshops into a model for delivering operational excellence. We suggest actions that clients and their supply chains can take to achieve improvements during the operational phases of their built assets. We conclude our report by detailing areas that need further research; these areas will be explored by Constructing Excellence's asset management group over the next two years and will result in further guidance on how to improve operational excellence from our public and private sector built assets.



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¹ See Richard Saxon, 'Be Valuable – A Guide to Creating Value in the Built Environment', 1 January 2005, <http://constructingexcellence.org.uk/resources/be-valuable-a-guide-to-creating-value-in-the-built-environment>. Accessed June 2016.

² 'Asset Management', <http://constructingexcellence.org.uk/asset-management>. Accessed June 2016.

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1. Introduction

In 2012 we set out to refocus the Constructing Excellence asset management theme group. Our aim was to help Constructing Excellence members and construction clients make a greater impact by defining how to acquire and operate built-environment assets that more effectively support their organisations. In this report we summarise our insight and tips from the last three years and outline Constructing Excellence's asset management issues to be addressed over the next few years.

The asset management landscape

Buildings are expensive assets to acquire, manage and operate. In the current economic climate there is a renewed emphasis from UK plc and the Government to ensure buildings perform as specified and are resource efficient.

Under the direction of Peter Hansford, Government Chief Construction Adviser (2012 - 2015), the UK Government has focused its activity and spend through its Industrial Strategy on reducing the cost of acquiring building assets by 20% and whole life costs by 33%.³ The Government has a Facilities Management team in place which has created recommended approaches for soft landings, post occupancy evaluation⁴ and other methodologies. These are becoming standard approaches for demonstrating building performance, and are likely to become contractually linked, in some form, to construction performance in the future.

This means that, for the supply chain, validating and improving building performance pre and post practical completion is of increasing importance, as is support for clients to improve their operational use of built assets.

There has been much written about the performance gap of built assets between that envisaged during design and what is actually achieved in operation. The Edge Commission Report on the Future of Professionalism⁵ once again noted that there is no more deserving cross industry improvement challenge than tackling the performance gap between what is promised and what is delivered, taking responsibility for the whole life of projects, developing common metrics and committing to measurement, evaluation and the dissemination of findings.

³ Department for Business, Innovation and Skills, 'Construction 2025: Strategy', 1 July 2013, <https://www.gov.uk/government/publications/construction-2025-strategy>. Accessed June 2016.

⁴ Government Soft Landings (GSL), <http://www.bimtaskgroup.org/gsl>. Accessed June 2016.

⁵ Paul Morrell, 'Collaboration for Change: The Edge Commission Report on the Future of Professionalism', available for download at http://www.edgedebate.com/?page_id=2829. Accessed June 2016.

Our group's objectives

No one party yet has the solution or sole responsibility for closing the building performance gap; all stakeholders have a duty and a commercial opportunity to identify and take action to close and remove that gap. Constructing Excellence has a membership which brings together all parts of the construction industry, client and supply side alike. This means Constructing Excellence is in a unique position to add value by bringing together a group that understands the critical challenges, and identifying actions for each element from different perspectives.

The objective of the asset management group is to deliver the following benefits to Constructing Excellence and its membership:

- Create a group that is relevant, leading and contributing to the whole life performance debate
- Inform and educate the Constructing Excellence membership, and share best practice
- Engage Government in a dialogue to understand its requirements; influence the direction of policy and regulation
- Engage the Constructing Excellence client group and support its effective use of buildings
- Create thought leadership collateral for Constructing Excellence, its membership and the wider industry, to help improve built-asset outcomes.

Our workgroup methodology

Over the last few years we have invested in working with major construction clients and the Constructing Excellence membership to capture lessons learnt and tips from industry to deliver more effective and better value built assets. These tips offer clients and their supply chain insights into how to brief, design, construct and operate built assets for the organisations and their stakeholders, which commission and pay for these assets.

Our approach was to start with a roundtable discussion with HM Treasury, Constructing Excellence's Construction Clients' Group and nine major construction clients who procure and use billions of pounds of construction assets on an annual basis, to define their biggest challenges in management and delivering operational excellence from their built assets. We then held a series of sector specific workshops with leading players from each sector sharing their approach, lessons learnt and tips in response to the challenges identified by this initial meeting.

Table 1 – Overview of our asset management workshops

Sector	Who presented	Outcome
Operational excellence summit	FM and asset management group roundtable event with major built asset clients and HM Treasury FM team	Define how Constructing Excellence can support clients and its members to improve built asset outcomes
Retail sector	Westfield HM Treasury	How to deliver operational excellence in the retail sector
Education sector	University of Reading Nottingham Trent University RLB	How to deliver operational excellence in the education sector
Health sector	Department of Health Integrated Health Projects Aecom Sir Robert McAlpine	How to deliver operational excellence in the health sector
Industrial sector	BAE Systems Royal Mail Waterman	How to deliver operational excellence in the industrial sector
Planes, trains and automobiles – infrastructure sector	Crossrail Highways Agency Heathrow Airport	How to deliver operational excellence in the infrastructure sector
Commercial sector	Land Securities Argent	How to deliver operational excellence in the commercial sector

2. Why is operational excellence important for clients and construction supply chains?

In 1998, the Royal Academy of Engineering published an annex to a report on the long-term cost of owning and using buildings which suggested that for each £1 of a building's capital cost, its building maintenance and operation-related costs could be £5, and the occupying business's operating costs could be £200 (the latter both over twenty years). It was suggested that this ratio 1:5:200 should encourage building owners to focus on the long-term costs of ownership rather than just its initial capital cost.⁶

The ratio has been the subject of academic dispute⁷ but it is at least likely for many organisations to be in the range 1:4:10–30. This means that the long-term cost of operating any built asset will significantly outweigh its original capital cost and, importantly, a specific ratio can be derived for any particular client at the outset of a possible investment.

Built assets can deliver significant additional value during their operational phase by improving organisational outcomes and competitiveness and by reducing their operational cost and any limiting impact placed on the flexibility, adaptability and productivity of an organisation and its workforce. Thus a fourth number can be added to the ratio – that of added value, being greater than the business costs by 10%–100%, or more, depending on the nature and profitability of the occupying business. Most organisations reviewed by Constructing Excellence could define today's requirements but find it extremely difficult to predict tomorrow's requirements. Being able to do this would help future proof their investments. We argue that clients and supply chains who can procure or deliver built assets that deliver more value in their operational phase will be more successful than those who cannot or do not.

What challenges have major clients stated they have in delivering operational excellence?

- Clients need to proactively manage and make significant investment in their supply chains if they're to get the asset performance they require
- Across all sectors clients suggested they find it very difficult to analyse and determine the best allocation of capital investment (CapEx) and operational investment (OpEx) to optimise whole life performance of their built assets
- Clients also articulated that they feel the construction industry and supply chains underserve them in helping to focus on and deliver operational excellence
- There are not many proven and widely understood models to help them define and deliver operational excellence for their organisations from their investment in building and running built assets.

Context - Generic Feedback

- Clients recognise the need to dramatically improve capability to better define, procure and assess 'performance in use'.
- Performance gap in asset performance - user satisfaction, space utilisation, performance in use'.
- Structural disconnect - between procurers, constructors, operators and users.



⁶ See Evans, R., Haryott, R., Haste, N. and Jones, A. (1998) The Long Term Costs of Owning and Using Buildings, London, Royal Academy of Engineering.

⁷ See Hughes, W.P.; Ancell, D; Gruneberg, S; Hirst, L (2004). "Exposing the myth of the 1:5:200 ratio relating initial cost, maintenance and staffing costs of office buildings". Proceedings of the 20th Annual ARCOM Conference (Heriot-Watt University): 373–381. Retrieved 7 November 2013.

3. How do you deliver operational excellence in built assets?

Key lesson 1: Invest in an estates, or built asset, strategy

Invest the time and resource needed to create an estates or built asset strategy for your organisation which articulates how your buildings and other built assets will be operated to support your organisational strategy and aims. Work with the key organisational stakeholders, such as senior management, staff and customers, to identify what value is to be delivered during the operational phase for new assets and what can be improved for existing assets. Agree how this value can be measured and tracked over time quantify your own 1:5:200 ratio.

Taking this step encourages the right conversations to take place, ensuring objectives are set, compromises agreed where necessary and specific agreement reached on built assets' purpose within your organisation. These can then be written down and agreed in the estates strategy to align all involved.

Key lesson 2: Become an intelligent client

Once you have created your estates strategy you can identify the skills and resources that are required to deliver it successfully. You can then identify which of these skills and resources you will need in your organisation or within your supply chain. This will allow you to become an intelligent client in a way that supports your strategy.

Key lesson 3: Future proof any capital investment

When investing in new assets or upgrading existing assets it is important to identify those functional areas which are most likely to change as a consequence of your marketplace, organisational

strategy or changes in technologies. Once these areas are identified techniques such as scenario planning and forecasting can be used to understand how the asset can be configured to allow maximum future flexibility and adaptability. This simple step can significantly help future-proof an investment and optimise its whole life value. For example, a key risk to the long term operation of built assets is the impact of a warming climate, which may affect building conditions, energy use and outage due to flooding and other climate change related incidents.

Key lesson 4: Simplify user interfaces, commission assets and train users

User interfaces for buildings and built assets should be simplified and tested on a cross section of users, rather than being designed by experts without user input, a much more common practice. This will mean that assets are more likely to respond to users, rather than users adapt their behaviour as a consequence of the interfaces being too complex or not sufficiently intuitive.

In many construction or refurbishment projects, commissioning periods get compressed to make up for project overrun. Invariably this leads to reduced user satisfaction and poorer long term operational performance. Assets should be properly commissioned, and proven and structured methodologies, such as Soft Landings, seasonal commissioning, full equipment performance validation (e.g. Building Management and other control systems) or post occupancy evaluation, should be used to prove and fine-tune asset performance and improve user satisfaction after the completion of the project.

Key lesson 5: Structure, manage and review your asset information

Operational performance is generally only as good as the quality of the asset information on which you base your decisions. Typically, good quality asset information is produced during the construction or refurbishment cycle to meet the needs of the project. This should be captured and structured for the operational phase to allow asset performance to be easily tracked, which will enhance operational and investment decisions.

Organisational information requirements and asset information requirements can be used to structure project-specific employer's information requirements using standard methodologies such as PAS 1192 Part 2.⁸

Key lesson 6: Benchmark your operational performance against peers and your estates strategy

It is recommended that you benchmark your operational performance against peer organisations to identify areas for improvement. Also, continue to track the asset performance against that set out in the estates strategy on an ongoing basis. This will allow you to track asset performance and react to improve performance when required, optimising whole life investment.

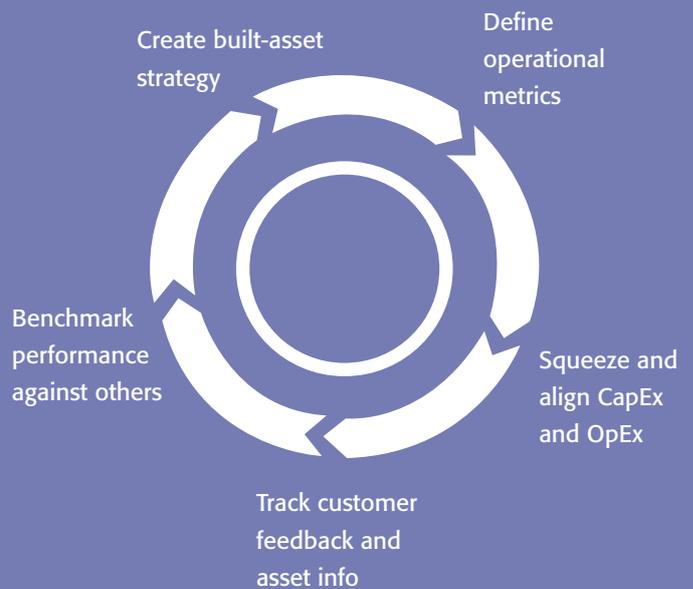
Key lesson 7: Listen to your customers, ask for feedback and act on it

In addition to looking for areas of continuous improvement by benchmarking performance against peers and your estates strategy it is strongly recommended to seek regular feedback from stakeholders such as customers, users, staff, senior management and your supply chain, to identify further, less obvious, areas for improving operational excellence.

Based on the challenge set by the clients in our first meeting and the experience shared by our industry colleagues over the last three years we suggest the following definition of operational excellence and model for delivering operational excellence in the procurement, construction and operational phases of built assets and infrastructure.

"Built asset operational excellence occurs when an organisation systemically aligns the function, flexibility and adaptability of its built assets with its corporate strategy and objectives, allowing it to optimise CapEx and OpEx investment over the life of the asset."

Delivering operational excellence



⁸ Specification for information management for the capital/delivery phase of construction projects: Building Information Modelling Task Group, 'PAS 1192 2 – Overview', <http://www.bimtaskgroup.org/pas11922-overview>. Accessed June 2016.

4. Conclusions and next steps

This report provides Constructing Excellence members and construction clients with a model of operational excellence and recommendations to help deliver better outcomes from their investments in built assets based on experience shared by major clients and Constructing Excellences members.

A number of questions have consistently run through our work, answers to which will offer Constructing Excellence members and clients the opportunity to innovate and differentiate their services further. These questions include:

- a) How should organisations agree and define with their stakeholders what value they want from their built assets?
- b) How do organisations align their built asset briefs with their current and future organisational requirements?
- c) How can CapEx vs OpEx benefit analysis be conducted and optimised for projects?
- d) How should organisations procure their assets, and align and incentivise their supply chains to deliver whole-life performance?
- e) How can end user clients use tools such as Building Information Models to deliver standardisation of outcomes and better value in both the construction and operational phases?
- f) What data should be captured to track built-asset operational performance?
- g) What does world class operational performance really look like and how can it be measured?

Over the next two years we are proposing to use funding secured by Constructing Excellence⁹ as part of the Whole Life Performance Plus¹⁰ project consortium supported by the UK's innovation agency, Innovate UK, and Engineering and Physical Sciences Research Council to build on the work detailed in this report. This will be a structured programme to share and disseminate how built assets can be more productive for organisations, and to work towards answering the questions raised in this report.

For further information please see the asset management tab on the Constructing Excellence website, or contact the group chair John O'Brien at john@lcmb.co.uk or Colm Quinn, Constructing Excellence, at Colm.Quinn@constructingexcellence.org.uk.

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⁹ See Colm Quinn, 'Constructing Excellence Supports New Work to Provide Healthier Happier Offices', 26 February 2016, <http://constructingexcellence.org.uk/constructing-excellence-supports-new-work-to-provide-healthier-happier-offices>. Accessed June 2016.

¹⁰ Whole Life Performance Plus, www.wlppplus.com. Accessed June 2016.



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