

TOWARDS UNDERSTANDING OF BENEFITS REALISATION MANAGEMENT THROUGH THE IMPLEMENTATION OF DIGITAL-ENABLED FACILITIES AND BUILT ASSET MANAGEMENT IN UNIVERSITY CAMPUS: CASE STUDY UNIVERSITY COLLEGE LONDON

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ABSTRACT

Digital technologies have transformed facilities and built asset management on university campuses, offering opportunities to enhance efficiency, sustainability, and user satisfaction. This study examines the role of Benefits Realisation Management (BRM) during the implementation of a digital-enabled facilities and asset management system at University College London (UCL). Focused on adopting an Integrated Workplace Management System (IWMS), the project aimed to establish a unified source of reliable data, streamline operations, and address inefficiencies in managing a complex estate. Using a qualitative case study approach, the research explores how BRM principles were applied to identify, track, and adapt benefits in response to challenges such as fragmented legacy data, evolving priorities, and the need for iterative planning. Key findings highlight the importance of structured metrics, stakeholder engagement, and balancing tangible and intangible outcomes. The study offers actionable insights for educational institutions undertaking digital transformation and optimising benefits realisation in complex organisational environments.

Keywords: Benefits Realisation Management (BRM) , Digital Transformation, Integrated Workplace Management System (IWMS), Facilities and Built Asset Management, University Campus

INTRODUCTION

University campuses accommodate a diverse group of users with varying needs, where ensuring comfort and efficiency is crucial for fostering learning, research, and collaboration with the community (Hassanain & Mudhei, 2006). Maximising the effectiveness of these environments can benefit both the users and the institutions (Riley et al., 2010). However, the increasing presence of international students introduces variability in student numbers and leads to more diverse demands for campus facilities and services while investment decisions are becoming more complex due to significant shifts in educational technology, learning methods, and students' expectations (JISC, 2006; SFC, 2006). Additionally, many campuses, especially in Europe and the United States, comprise aging buildings that require renovation or reinvestment (Den Heijer & Tzovlas, 2014; Kadamus, 2013). These factors complicate strategic decision-making in campus management, particularly as institutions face the challenge of monitoring building performance and optimising the use of assets within their real estate portfolios.

In recent years, the interest in utilising new technologies and strategies to enhance campus facilities management has significantly increased (Ouertani, Parlikad, & McFarlane, 2008). A variety of tools and systems have been introduced to improve operations and maintenance management, including Computerised Maintenance Management Systems (CMMS), Computer-Aided Facility Management (CAFM) systems, Building Automation Systems (BAS), and Integrated Workplace Management Systems (IWMS). Wetzal, E. M. & Thabet, W. Y. (2015) Despite these advancements, there remains an absence of a unified platform capable of managing data dispersed across multiple databases and supporting various tasks throughout the Operation & Maintenance phases (Lu et al., 2020).

Recently, University College London (UCL) have implemented the tailored IWMS solution aim to provide a single truth of asset data to enable the UCL estates to deliver its core objectives through increased digital

capability, improve efficiency and campus experiences for all staff and students. This study explores the development of Benefits Realisation Management (BRM) during the implementation of a digital facilities and asset management system at University College London (UCL).

In this paper, it opens with a brief overview of the IWMS implementation at UCL and addresses the benefits realisation plans in practice. This is followed by a description of the research methodology, outlining the qualitative case study approach and data sources used. The paper then overviews the development of Benefits Realisation Management (BRM) through the literature and discusses an adaptation of benefits realisation planning in the implementation of digital-enabled facilities and built asset management, drawing insights from the UCL case study. Finally, this paper concludes with final remarks and areas for future research.

METHODOLOGY

This study adopts a qualitative case study approach to explore the application of Benefits Realisation Management (BRM) in the implementation of an Integrated Workplace Management System (IWMS) at University College London (UCL). An empirical gap in the literature has been identified regarding the application of BRM in complex environments such as university campuses, which are characterised by diverse user needs and dynamic operational priorities. As educational institutions grow in scale and complexity, the demand for efficient facilities and asset management systems has increased. This research uses UCL's IWMS implementation as a case study to examine how digital capabilities can be aligned with strategic goals to achieve measurable and sustainable benefits.

Data collection relied on reviewing project documentation, including the business case, implementation plans, progress reports, and internal communications provided by UCL Estates. These sources offered detailed insights into how benefits were initially defined, categorised, and adjusted during the implementation process. Observations of the ongoing implementation further contextualised these findings by capturing key challenges and opportunities encountered in practice. While interviews with stakeholders were not conducted, this decision was made to prioritise the analysis of institutional data and documented practices. However, future research could benefit from incorporating stakeholder interviews to provide deeper insights into individual perspectives, particularly regarding the impact of BRM on diverse user groups.

The analysis focuses on four key aspects of benefits realisation. First, it examines how benefits were identified during the planning phases, including both tangible outcomes, such as operational efficiencies, and intangible outcomes, such as improved user experiences. Second, it investigates how benefits were categorised and prioritised during the project to reflect evolving goals and address challenges, such as data gaps and shifting organisational priorities. Third, it evaluates the process of measuring benefits, highlighting the role of metrics in tracking progress and identifying how legacy data storage methods limited the ability to measure certain outcomes. Finally, it explores stakeholder engagement, assessing how diverse perspectives were incorporated into benefit planning and implementation strategies to ensure alignment with institutional objectives.

This research contributes to addressing the empirical gap in understanding BRM in educational facilities by offering practical insights into how benefits realisation is managed in a complex, multi-user environment. By analysing UCL's IWMS implementation, the study highlights how BRM can be used to align financial, operational, and strategic goals while ensuring that both tangible and intangible benefits are effectively captured and made sustainable for long-term planning.

Several limitations of this study are acknowledged. As the IWMS implementation is ongoing, the findings represent an interim snapshot rather than a comprehensive evaluation of the project's outcomes. Additionally, the reliance on documentation and observations without direct stakeholder interviews may limit the depth of insight into individual perspectives. Future research could address this gap by incorporating interviews to explore stakeholder perceptions of intangible benefits, such as campus sustainability and enhanced user experiences. This would provide a richer understanding of how BRM principles impact diverse user groups and operational practices. Despite these limitations, this study offers valuable insights into the practical application of BRM within educational institutions and provides a foundation for future research and implementation strategies.

THE OVERVIEW OF BENEFITS REALISATION MANAGEMENT

Benefits realisation management (BRM) is an approach that focuses on delivering and maximizing project business benefits, originating in the Information Technology (IT) systems programs during the early 1990s (Reiss et al., 2006). Bradley (2006) defines benefit as an outcome of change which is perceived as positive by a stakeholder. The Project Management Institute (PMI) (2019) defines Benefits Realisation as "the integration of gains resulting from the use of outputs from portfolios, programs, and projects for the intended beneficiaries." Additionally, BRM itself is characterised as "the day-to-day organisation and management of efforts to achieve and sustain potential benefits arising from investments in portfolios, programs, and projects" (PMI, 2019). Benefits realisation management (BRM) aims to ensure that the planned benefits of each project are fully achieved and delivered. (Pereira et al., 2021) Shifting focus from traditional metrics like cost and time to value generation, BRM focuses on identifying, monitoring, and managing benefits throughout a project's lifecycle (Yates et al., 2009). BRM can be helpful, particularly in helping to align agendas and in bridging the gap between strategic and implementation considerations in business settings. (Cresswell et al., 2022) However, there are different definitions and interpretations of benefits and a lack of agreement on BRM approaches (Wilson, M. & Howcroft, D., 2005).

Benefits realisation Management framework have gained attention in project management and various sectors, including healthcare and information technology (Sapountzis et al., 2008; McLoughlin et al., 2014), to focus on delivering business benefits beyond traditional metrics (Tillmann et al., 2010). BRM frameworks aim to enhance stakeholder awareness, maximize benefits, and drive successful projects. It is seen as a crucial process for managing the entire project lifecycle, promoting continuous improvement, and organizational learning (Sapountzis et al., 2008). Research suggests that implementing BRM practices, such as identifying and structuring benefits, planning realization, and continuous management during project execution, can positively impact project outcomes (Holgeid et al., 2021).

However, many projects fail to deliver the expected benefits (Zwikael et al., 2018). Challenges remain in implementing these frameworks effectively, necessitating further research to develop comprehensive models that can be applied across different sectors (McLoughlin et al., 2014; Ghildyal & Chang, 2017). To address these challenges, researchers have proposed frameworks and tools to facilitate BRM implementation, emphasizing the need for a benefits-driven culture in organizations (Sapountzis et al., 2008; Pereira et al., 2021).

Various models have been proposed, including the Cranfield Model for ITSM contexts (McLoughlin et al., 2014) and novel approaches using defuzzification and stratification (Ghildyal & Chang, 2017). The Cranfield model is fundamental as it emphasises a systematic approach to realising benefits from technology-enabled change (Peppard & Ward, 2007). The BeReal methodology has been developed to facilitate BRM implementation in healthcare infrastructure projects, by enabling holistic value understanding and stakeholder dialogue and utilizing ICT tools and collaborative environments (Yates et al., 2009; Tillmann et al., 2012).

In the Architecture, Engineering, and Construction Operation sector (AECO sector), recent research has explored BRM in various contexts, including construction and university-industry collaborations. Critical factors for successful benefits realisation include strategic, inter-relational, and cultural aspects (Fernandes et al., 2020). In the design and construction phase, Front-end design (FED) plays a vital role in project lifecycle and delivery, with requirements management being crucial for effective benefits realisation. Serugga et al., (2020) has explored BRM in the context of front-end design (FED), identifying 36 requirements across nine categories that influence design decision-making. However, there is limited evidence of integrated requirements management practices supporting design decisions in FED, with current literature biased towards technical, economic, governance, and environmental requirements and challenges remain in fully adopting BRM processes (Serugga et al., 2020). Moreover, there is a case that the implementation of Building Information Modelling (BIM) across asset lifecycles can be enhanced through BRM, providing a framework for realising value (Månsson & Lindahl, 2016). However, in the operation and maintenance phase there are still lack of practical case studies.

CASE STUDY: UNIVERSITY COLLEGE LONDON CAMPUS

The University College London Estates (UCL Estates) manages an extensive property portfolio of approximately 250 buildings across 21 locations, supporting a community of 59,000 people. The total estate

covers 730,000 square metres and costs £249 million annually to operate, with a net cost of £166 million after accounting for £83 million in income. UCL Estates plays a crucial role in maintaining the university's infrastructure, including heritage buildings, while ensuring sustainability and efficiency in building operations. This diverse and historic estate requires significant investment and careful management to balance operational efficiency with the demands of modernisation and continued growth.

To address inefficiencies caused by its fragmented digital infrastructure of 65 systems, UCL Estates embarked on implementing an Integrated Workplace Management System (IWMS). The UCL Campus Experience & Infrastructure and Development currently manages the estate's digital infrastructure, which is fragmented across 65 IT systems developed organically over time to address immediate operational needs. This has resulted in a complex and inefficient digital landscape that is costly to maintain and difficult to integrate with evolving business processes. Addressing these inefficiencies is essential for achieving UCL's long-term strategic vision of a sustainable, knowledge-driven campus. Prior to this implementation, UCL relied on two separate Computer-Aided Facility Management (CAFM) systems, in addition to several specialist applications. However, these systems were underutilised, lacked integration, and failed to provide the comprehensive insights needed to manage such a complex estate effectively. The limitations of these systems underscored the need for a unified platform capable of meeting both operational and strategic requirements.

The implementation of the IWMS not only aimed to address these challenges but was also designed to achieve specific strategic goals. Benefits Realisation Management (BRM) provides a useful lens for understanding how benefits are identified, tracked, and adapted in response to evolving circumstances during the implementation. Observations from this case study emphasise the importance of iterative adjustments to benefit planning, especially given the challenges of fragmented data collection and evolving project priorities. Alongside these challenges, the IWMS was expected to deliver significant financial savings, including £9.5 million overall and £4.5 million over five years. These cost reductions represent one of the key measurable benefits outlined in the business case, helping to demonstrate the return on investment to decision-makers.

The IWMS also sought to enhance operational workflows and functionality through targeted strategic objectives. One major focus was reactive maintenance, which involved the introduction of mobile applications, enhanced resource planning tools, and contractor portals to improve response times and compliance with Service Level Agreements (SLAs). These tools were designed to reduce costs, increase first-time fix rates, and strengthen contractor alignment.

Optimising space utilisation emerged as another key objective. By deploying technologies such as occupancy sensors and dashboards, the IWMS enabled data-driven insights that improved planning, reduced leasing costs, and ensured more effective use of the estate's resources. These tools illustrate how the system supports evidence-based decision-making for long-term space management.

Strengthening data governance was an equally critical goal. Consolidating disparate systems into a unified platform significantly improved reporting accuracy, reduced data retrieval time, and enhanced decision-making capabilities. Despite these advancements, legacy system inconsistencies remain an ongoing challenge, underscoring the importance of continual improvements in data governance practices to maximise the IWMS's potential.

Enhancing the campus experience was also a central priority of the IWMS. Self-service portals, QR codes for repairs, and real-time service updates were introduced to improve transparency, engagement, and user satisfaction. These tools demonstrate how aligning digital solutions with the needs of stakeholders, including staff, students, and contractors, creates a more user-centred campus environment.

To maximise the potential of technology and ensure a strong return on investment, UCL Estates has prioritised the realisation of intended benefits from the IWMS implementation. While business cases often focus on financial or monetary gains, this case also highlights the importance of capturing intangible benefits. These include improved campus sustainability through efficient resource use, enhanced quality of life for staff and students via user-centred systems, and broader societal value through operational transparency and engagement. While the ongoing nature of the project has limited the ability to draw definitive conclusions, this evolving process provides valuable insights into the complexities of benefits realisation within a university campus setting.

The findings from this case study highlight the significance of benefits realisation planning, stakeholder engagement, and effective benefit measurement throughout the implementation process. Categorisation of benefits has become increasingly granular as the project has progressed, revealing the importance of

distinguishing between measurable and intangible outcomes. Challenges, such as fragmented legacy data and evolving project priorities, underscore the need for systematic adjustments during the implementation to ensure that benefits are accurately assessed and effectively communicated.

AN ADAPTATION OF BENEFITS REALISATION PLANNING IN THE IMPLEMENTATION OF DIGITAL-ENABLED FACILITIES AND BUILT ASSET MANAGEMENT FROM THE CASE STUDY

The project employed the Cranfield model to ensure that all technological impacts were aligned with the organisation's business changes and objectives. This model was applied through five key steps. First, benefits were identified and structured to map the relationships between technological effects, business changes, and overarching business objectives. Second, a benefits realisation plan was developed to assign responsibilities and delivery tasks to various stakeholders. Third, the benefits realisation plan was implemented, involving data collection and the capture of benefits. Fourth, the results were evaluated and reviewed to assess progress. Finally, the potential for further benefits was continuously monitored.

During the preliminary studies conducted prior to implementation, the expected benefits were outlined on a module-by-module basis (see Appendix 1). These benefits were subsequently categorised into two groups: monetary and non-monetary. This classification was based on the assumption that financially related benefits are measurable and provide a clear demonstration of project success (see Appendix 2).

Traditionally, the benefits realisation planning process has involved setting baselines, defining measurement methods, and devising plans for realising benefits. However, during the benefits planning phase, when stakeholders convened to determine which benefits could be quantified and to assign responsibility for their measurement, several challenges surfaced. It became evident that many of the identified benefits were impractical to measure. Moreover, an additional complexity arose in data collection, as it required information from both the new and legacy systems. In certain instances, establishing a baseline was not possible due to the lack of historical data from the legacy system, which impeded the ability to accurately assess improvements.

As the benefits planning process progressed, the categories of benefits were refined into four distinct types: Financial-Cashable, Financial-Non-Cashable, Non-Cashable, and Non-Financial. Financial-Cashable refers to benefits that can be directly translated into monetary terms, resulting in tangible cash savings or increased revenue for the organisation, such as cost savings and return on investment (ROI). Financial-Non-Cashable refers to benefits with a financial impact that do not immediately convert into cash savings or revenue, including improved asset value, reduced financial risk, and enhanced employee productivity. Non-Cashable refers to benefits that are intangible and qualitative, not directly convertible into monetary value, such as increased customer satisfaction, innovation, and environmental or social impacts. Finally, Non-Financial refers to benefits unrelated to financial gains, focusing on qualitative improvements such as enhanced quality of life, personal development, and community engagement.

According to Cresswell (2022), obtaining reliable evidence can be resource-intensive, making it essential to carefully determine which benefit realisation measures are worth tracking and adequately supporting their collection. Due to limited resources available for executing the benefits realisation tasks, it is crucial to effectively categorise and prioritise benefits while assigning appropriate responsibilities to the relevant stakeholders. To achieve this, a more nuanced approach is required, considering various perspectives in the classification of benefits. These classifications can include the importance of the benefits, such as intended, unintended, and unknown benefits; the project focus, including project-guided, out-of-scope, questioned, or endangered benefits (Balta et al., 2015) and the aspect of impact, encompassing sustainability and environmental, economic, social, operational, and technological impacts. Additionally, benefits can be organised based on business impact levels, ranging from strategic, speculative, key operational, to support level. The involvement of stakeholders—such as decision-makers, management, operational staff, students, and other users—must also be considered, along with the financial implications and other critical characteristics that could influence the prioritisation and success of the project's outcomes. By incorporating these diverse perspectives, a more structured and efficient allocation of resources and responsibilities can be achieved, ensuring the optimisation of benefits realisation in alignment with organisational objectives.

CONCLUSION AND FUTURE RESEARCH

This study highlights the critical importance of Benefits Realisation Management (BRM) in aligning institutional goals with measurable and sustainable outcomes during the implementation of an Integrated Workplace Management System (IWMS) at University College London (UCL). The evolving nature of benefits planning throughout the project underscores the need for iterative adjustments to effectively capture both tangible and intangible benefits. The categorisation and prioritisation of benefits became increasingly granular, emphasising the necessity of structured metrics that address the diverse perspectives of stakeholders.

The findings have significant implications for property management in complex university estates. The implementation of digital tools like IWMS not only enhances operational efficiency but also supports data-driven decision-making for space utilisation, maintenance strategies, and long-term asset sustainability. By integrating BRM principles, institutions can optimise the value of their property portfolios through improved planning and utilisation of resources. Furthermore, intangible benefits such as enhanced user satisfaction and sustainability can elevate the overall quality and functionality of the built environment, aligning property management practices with broader institutional goals.

While this study provides valuable insights, some limitations should be acknowledged. The reliance on project documentation and observations without conducting stakeholder interviews may limit the depth of understanding regarding individual perceptions, particularly about intangible benefits like user experiences and sustainability. Future research could address these gaps by incorporating stakeholder interviews to provide richer qualitative data and complement the findings of this study. Additionally, longitudinal studies could evaluate the long-term outcomes of IWMS implementation, refining benefit measurement frameworks and exploring how digital transformation impacts property management over time.

This case study contributes to the growing discourse on BRM by demonstrating its practical application in educational institutions. By focusing on an ongoing project, it highlights the dynamic interplay between planning, implementation, and benefits realisation. These insights provide actionable guidance for institutions navigating similar digital transformation initiatives, particularly in managing diverse and complex property portfolios.

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Appendix 1.

Objective	Benefit	Service Area	Measures
1. Improved efficiency	- Decrease processing & execution costs	Reactive maintenance	<ul style="list-style-type: none"> - Cost of internal maintenance reduced - Increase in first-time fix rate - Reduce number of visits - Increase in repairs fixed within SLAs - Increase in quality of work; customer satisfaction - Reduced waiting time/delays - H&S compliance met - Hazards compliance met (asbestos)
	- Increase contractor' performance	Reactive maintenance	<ul style="list-style-type: none"> - Reduced contractors' cost - Reduce callout fees - Increase in first-time fix rate - Increase in repairs fixed within SLAs - Increase in customer satisfaction
	- Decrease processing & execution costs	Helpdesk	<ul style="list-style-type: none"> - Number of duplicated calls reduced - Number of calls manually logged by Helpdesk reduced - Number of calls raised by self-service increased - Reduction of calls volume; due to use of FAQs (many calls are for information purpose)
2. Better use of space	- Improved space planning - Improved space availability	Space Management	<ul style="list-style-type: none"> - Better utilisation of spaces - Better space planning - Improved rate of space request fulfilment
	- Lease cost reduced	Lease management	<ul style="list-style-type: none"> - Reduction in lease costs - Reduction in time to find information - Reduced admin effort - Quicker decisions; reduced delays - Reduced time to update Property register

Objective	Benefit	Service Area	Measures
3. Improved data	<ul style="list-style-type: none"> - Quicker access to data - Enable decision-making processes - Better planning 	All Estates	<ul style="list-style-type: none"> - Time to get data is reduced - Reporting availability - Data is trusted and relied upon - Data is integrated with other UCL systems
4. Improve campus experience	-Improved working, teaching and study environment	Reactive maintenance	<ul style="list-style-type: none"> - Increase in first-time fixes rate - Increase in the quality of work carried out - Reduced time to track progress; access to information - Reduction of duplicated work orders - Increased customer satisfaction
	<ul style="list-style-type: none"> - Availability of space when required - Availability of the right type of space - Ability to plan ahead 	Space management	<ul style="list-style-type: none"> - Increase rate of space fulfilment request - Reduction in duplication of effort - Increase in data accuracy

Appendix 2.

Business Case		
Objectives	Monetary benefits examples	Other benefits examples
1. Improved understanding and use of the Estate	<ul style="list-style-type: none"> - Eliminate space and associated costs by improving occupancy and use. - Reduce operating costs by cancelling non-performing contracts and suppliers. - Reduce maintenance costs by better forecasting, planning, and execution of maintenance. 	<ul style="list-style-type: none"> - Maximise contribution to core business continuity. - Ensure compliance with legislation and reduce corresponding risks. - Maximise flexibility and agility in case of organisational change, mergers or acquisitions.
2. Improved efficiency	<ul style="list-style-type: none"> - Decrease processing and execution costs by planning and control. - Reduce failures and associated repair costs by standardisation and workflow. - Reduce processing complexity and communication effort by simplification and automation. 	<ul style="list-style-type: none"> - Increase speed of processing and delivery. - Improve quality of service and customer satisfaction. - Become more flexible in sourcing and contracting.
3. Enabling workplace optimisation	<ul style="list-style-type: none"> - Reduce space and workplace volumes and corresponding costs through better use. - Eliminate unused and nonperforming facilities and their operating costs. - Increase collaboration and business productivity with fit-for-purpose workplaces. 	<ul style="list-style-type: none"> - Reduce chaos in daily operations by better planning and control. - Increase customer satisfaction by offering easy to access workplaces and facilities. - Use occupancy statistics and behaviour analytics to constantly improve your workplace offering.
4. Better planning	<ul style="list-style-type: none"> - Avoid any spend that is not in line with your mid and long term organisational strategy. - Reduce costs by planning, analysing and selecting scenarios that deliver best value for money. - Manage and report on budgets and actual costs to reduce financial risks. 	<ul style="list-style-type: none"> - Increase financial transparency and continuously identify cost efficiency opportunities. - Benchmark performances over time both internally and with peer organisations. - Bring FM and RE to a strategic level by measurably contributing to the core business.
5. Students and staff connection with self-service	<ul style="list-style-type: none"> - Reduce or reallocate front office resources and associated costs. - Reduce processing times and purchasing costs by standardisation and workflow management. - Increase employee productivity with easy access to services. 	<ul style="list-style-type: none"> - Connect suppliers to the process chain and shorten delivery times. - Monitor demand, supply, costs and perceived services quality. - Easily align your services offering with changing needs.