Historic England

Public Bodies Infrastructure Fund (PBIF) and the Museum Estate and Development Fund (MEND)

Evaluation Framework

June 2022

Contents

1. Background

1.1 As part of its response to the Mendoza Review of Museums in England (2017), the Department for Digital, Culture, Media and Sport (DCMS) has announced twin government capital investment programmes known as the Public Bodies Infrastructure Fund (PBIF) and the Museum Estate and Development Fund (MEND) to address the essential maintenance backlogs of national and non-national accredited museums. PBIF21 is a fund of £60m in 2020-21 that was open to DCMS-sponsored cultural bodies including the fifteen sponsored museums, the British Library and the British Film Institute. Historic Royal Palaces and The Royal Parks were also eligible to apply for PBIF21. MEND was initially a one-year grant programme sitting within the wider Cultural Investment Fund administered by Arts Council England (ACE). £18.8m of capital funding was will be awarded in early 2022 to successful applicants from accredited, non-national museums in England. The 2021 Spending Review allocated a further £300m as part of the Public Bodies Infrastructure Fund (PBIF22) for distribution among the DCMS-Sponsored bodies, including the fifteen sponsored museums, the British Library and the British Film Institute (but not Historic Royal Palaces or The Royal Parks); and £63.4m from the Cultural Investment Fund has been allocated for MEND for 22/23 - 24/25. The evaluation plan therefore takes into account this extended timescale.

1.2 This report summarises the findings from the scoping and design phases, which have been delivered by Historic England on behalf of DCMS. The scoping was undertaken over the summer of 2021 and completed in time for inclusion of costs in the 2021 Spending Review submissions in early autumn. The design phase continued throughout the rest of 2021, building upon the initial scoping to establish a broad evaluation design that can be commissioned out to an external consultancy, who would be responsible for further refinement and operationalisation of the MEND/PBIF evaluation.

1.3 It is crucial that public funds are well spent, and that government intervention is well-targeted and effective. Evaluation is an important way of determining this and proportionate, fit-for-purpose evaluations are a requirement for any public funding.[1] In recent years, HM Treasury (HMT), National Audit Office (NAO), and Cabinet Office have increasingly focused on ensuring that evaluations are embedded within government policies and interventions. Assessing what works in relation to DCMS interventions is also a priority to address.

2. Evaluation Scoping and Design Method

2.1. Scoping Phase

2.1.1. Evaluation planning for MEND and PBIF was broken into two distinct phases, scoping and design.[2] HMT's *Magenta Book* describes evaluation scoping as an iterative process that involves:

[1] HM Treasury (2020) *The Magenta Book, Central Government guidance on evaluation*. p.9

[2] A Gantt chart detailing the scoping and design phases can be found in Appendix 1 of this report.

- Defining the intervention;
- Identifying the evaluation needs;
- Understanding the most appropriate evaluation approaches.[3]

2.1.2. Within a MEND/PBIF context, evaluation scoping involved the formation of a DCMS-led steering group with representation from ACE, Historic England, Science Museum, Imperial War Museums and Tate. This steering group met five times between May and December 2021 to discuss and feedback on the points outlined in 2.1.1. Concurrently, Historic England analysts undertook a desk review of DCMS and ACE documentation for both funds. This analysis was followed by one-to-one engagement with representatives of each of the organisations comprising the steering group to gather more detailed information on the respective funds and to establish their needs from the evaluation.

2.1.3. In parallel with stakeholder engagement, Historic England undertook a rapid evidence review and began the development of a logic model for both funds. The objective of the rapid evidence review was to gather and synthesise relevant academic and grey literature on the value of museum repair and maintenance. This evidence was then also combined with information gathered via stakeholder engagement to develop a high-level logic model that provides an explicit description and illustrations of how the outcomes and objectives of MEND and PBIF would be achieved. A final version of the logic model can be found in section 3.

2.1.4. The final step of the scoping phase was to establish a set of key evaluation questions that directly addressed the various needs from the evaluation for DCMS and other stakeholders comprising the steering group. These have been reviewed and confirmed by the steering group and can be found in section 4.

2.2. Design Phase

2.2.1. The evaluation design process is defined in the *Magenta Book* as drawing upon the conclusions of the scoping stage and establishing a design that outlines how the evaluation will be conducted. As with the scoping process, evaluation design is also iterative and 'with each iteration the design gets more detailed'.[4] This report represents the first iteration of the evaluation design for MEND and PBIF, highlighting areas where further detail will need to be added in future iterations.

2.2.2. In September 2021, Historic England shifted emphasis from scoping to evaluation design. In the first instance, this involved deriving a provisional set of outcome indicators from the outputs of the scoping phase. These monitoring and outcome indicators represent data and evidence that can be feasibly gathered and recorded by evaluation consultants in order to answer the key evaluation questions. A list of monitoring and outcome indicators can be found in section 5.

2.2.3. Proportionality and minimising the burden of data collection is an overarching principle guiding the design of this evaluation. The opportunity cost of allocating resource to gathering monitoring and evaluation data is investment in the intervention itself. Therefore, in practice, the final set of monitoring and evaluation indicators will be

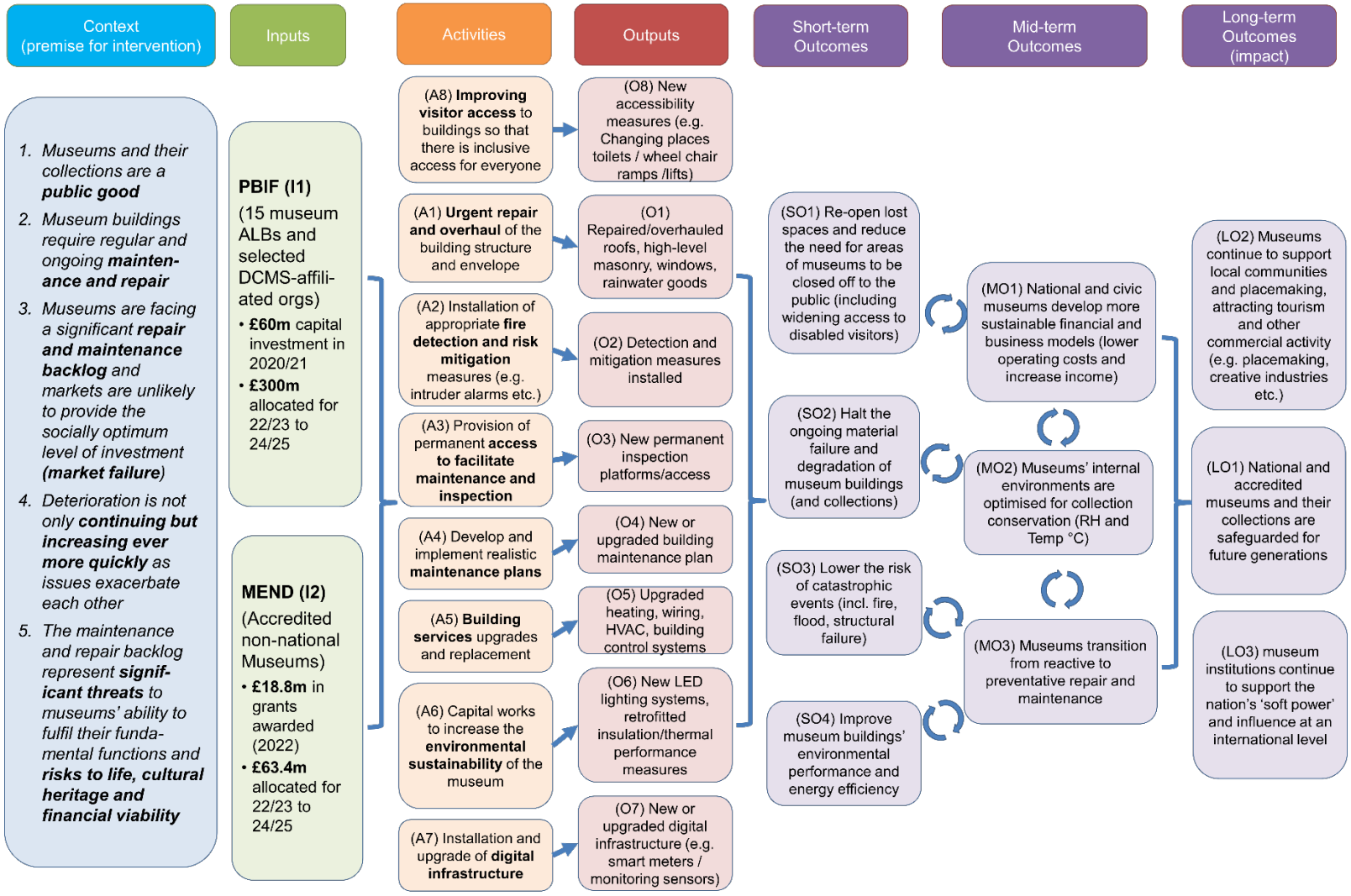
[3] Magenta Book (2020) p.21
[4] Ibid. p.38

bounded by the availability and feasibility of collecting these data. In November 2021, Mortice Consulting were commissioned by Historic England to assist with assessing the availability of and feasibility of monitoring and evaluation data. A more detailed discussion of this topic and a summary of Mortice's review is provided in sections 5 and 6. Mortice's comments are reproduced in full in Appendix 6.

2.2.4. The rest of this report is dedicated to summarising the outputs of the scoping and design phases as described here.

3. Logic Model

Figure 1. MEND/PBIF Logic Model



3.1 Context – Figure 1 provides a high-level logic model for the MEND and PBIF funds. It begins by outlining the overarching context for a public intervention in the repair and maintenance of museum buildings and estates. In summary, museums, including their buildings (often listed and historically important and the collections they house, are a public good (i.e. they generate wider societal benefits and other positive externalities that are non-rival and non-excludable). However, many museums across all sizes are facing a significant repair and maintenance backlog. The process of materials and systems degradation and failure are universal to all museums. Therefore, if left unaddressed, the repair and maintenance backlog will pose an increasing threat to their continuing existence and provision of societal benefits.

3.2 Inputs – The inputs represent the resources that are being allocated to addressing the repair and maintenance backlog. For PBIF21, this constitutes a £60m capital investment in 2021/22 that has been distributed among 20 museum ALBs/DCMS affiliated organisations. For MEND, this involved an initial £18m grant investment for accredited museums, ranging in size between £50,000 and £5m confirmed at SR20, with further funding of £63.3m confirmed at SR21. For 'PBIF22' this constitutes a £300 million investment in the 15 DCMS-sponsored museums and galleries, British Library and British Film Institute. For both PBIF and MEND grant recipients, funding allocation will be based on 'need' and 'urgency' of repairs and maintenance.

3.3 Activities – Figure 1 lists the categories of activities that will be undertaken by museums in receipt of PBIF or MEND funding to address their repair and maintenance backlogs.[5] A more detailed breakdown of these activities (A1-A8) can be found in the appendices of this report. The categories include repairs to the building envelope, replacement of building services, modifications aimed at enhancing thermal performance, installation of risk detection and mitigation measures, and improving disabled visitor access.

3.4 Outputs – All activities have directly associated outputs, which are also listed in detail in Appendix 2 (O1-O8). These outputs are derived from the associated activity, for instance, investment in improving disabled access to a museum will lead to a new chair lift, wheelchair ramp or similar. It is the combined effect of undertaking these activities and delivering the associated outputs that will theoretically lead to the intended outcomes of MEND and PBIF. The rationale and evidence for these assumptions are summarised in the associated Evidence Review accompanying this report.

3.5 Outcomes – The outcomes describe the intended benefits of intervening and investing in museum repair and maintenance, and link directly back to the key points outlined in the context section. Outcomes are broken down into the short-, mid- and long-term and, unlike the activities and outputs, have more complex relationships with one another (as represented by the feedback loops in the diagram). For example, outcomes that help to improve a museum's financial situation may also create opportunities for the museum to move from reactive to preventative repair and maintenance strategies, which in turn will reduce risks, etc. The supporting evidence underlying these assumed outcomes is

[5] Note that individual activities may be eligible in one fund but not both, so the final monitoring regimes will not be identical between MEND and PBIF.

again provided in the associated Evidence Review. However, it is the purpose of this evaluation to establish empirical evidence that the outcomes (and indeed the wider logic model) can be achieved.

4. Evaluation objectives and Key Evaluation Questions

4.0.1 Key Evaluation Questions (KEQs) are the overarching research questions that an evaluation is designed to answer. It is important that KEQs are clarified and agreed amongst the project stakeholders at the outset of the evaluation, in order to establish a common understanding of the purpose and objectives of the evaluation.

4.0.2 The following KEQs are grouped into 'impact', 'process' and 'economic' evaluation types. These three types of evaluation and the respective KEQs have been deemed necessary in order to satisfy the needs of steering group organisations and to fulfil the purpose of this evaluation, as set out in Section 1. As such, the following KEQs have been agreed by the MEND/PBIF Steering Group.

4.1. Impact KEQs (retrospective)

- Did MEND/PBIF produce the short- and mid-term outcomes as outlined in the Theory of Change?
- What timescales are required for long-term outcomes to be realised and can evidence be produced to demonstrate these?
- Did MEND/PBIF produce unintended outcomes (positive and negative)?
- To what extent can the observed outcomes/changes be attributed to the interventions funded by MEND/PBIF?
- Under what circumstances were the interventions successful or unsuccessful at delivering the intended outcomes? / What other critical factors led to the success/shortcomings of the intervention?

4.2. Process KEQs (concurrent)

- How is MEND/PBIF grant administration process being implemented? / Have the funds been disbursed as intended?
- Did MEND/PBIF reach the right museums/facilitate the most urgent repairs? (i.e. were the activities effectively allocated/prioritised?)
- Were the funds/repair activities sufficient for achieving the intended outcomes?

4.3. Economic KEQs (retrospective)

- How can the outcomes/benefits of MEND/PBIF be monetised and what innovative methods can be applied to facilitate this? (see section 7 - Culture and Heritage Capital Framework)
- Did the funds represent value for money of government spending, i.e. the optimal use of resources to achieve the intended outcomes? NAO assess this via three criteria:
    - *Economy* – were cost of resources minimised, while having regard to quality? (spending less)
    - *Efficiency* – were resources well used to deliver outputs from goods and services? (spending well)

- *Effectiveness* – did the intended outcomes and actual results justify public spending? (spending wisely)

5. Data collection strategy

5.0.1 The collection of monitoring and outcomes data is a critical factor that will ultimately determine the success of this evaluation. Without the appropriate qualitative and quantitative data, no analysis or evaluative conclusions can be drawn. Therefore, this section directly addresses what data are required prior to the next section, which concerns the overall evaluation approach and how these data might be used to answer the KEQs.

5.1. Monitoring data

5.1.1. The purpose of monitoring data is to allow stakeholders to track and record delivery of MEND and PBIF funds. In practice, this means the collection of data pertaining to:

- The identity and geographic distribution of successful and unsuccessful MEND grant applicants/allocation of PBIF funding;
- The number and value (£) of grants made;
- The types of 'activity' undertaken by grantees (as defined in the logic model/Appendix 1);
- Quantities of 'outputs' directly delivered via grant investment (as defined in the logic model/Appendix 1).

5.1.2. Collection of such data throughout the delivery of each fund will allow for a detailed picture of delivery and progress to be established. This will be essential both from a fund administration and management point of view, but also from an evaluation perspective, as it will allow consultants to assess how closely the actual delivery of each fund aligns with the logic model. Deviations and changes to the administration of the funds may be an explanatory factor in why certain outcomes have or have not been achieved. Therefore, these data will be essential for answering a number of the impact and process KEQs.

5.1.3. This framework does not explicitly outline a monitoring regime or data collection methods for MEND or PBIF. This is due to a number of complexities pertaining to the timings and stakeholders involved in the delivery of MEND and PBIF, which are being administered by DCMS and ACE respectively. Nonetheless, Historic England have been liaising with both organisations via the Steering Group to ensure that such data are being collected in a way that is consistent with this evaluation framework. It will be the role of the evaluation consultants to work with DCMS, ACE and participating museum institutions to formalise a monitoring regime and ensure that the requisite data are being collected in such a way that will facilitate a summative evaluation of each fund. Furthermore, monitoring dashboards should also be established to provide an efficient and transparent way of reporting progress as the funds are administered.

5.2. How outcomes of interest will be identified and measured

5.2.1. While monitoring data are essential for assessing how faithfully MEND and PBIF have been implemented according to initial plans (as outlined in the logic model), a set of outcome indicators will be essential for assessing the extent to which the funds have achieved their stated objectives.

5.2.2. A provisional set of outcome indicators have been derived from the Rapid Evidence Review and logic model (see Figure 2). In Autumn 2021, Mortice Consulting were commissioned by Historic England to assess the feasibility and proportionality of the proposed indicators and to 'soft test' these measures with a range of UK museum institutions of varying sizes. Their findings and comments on each outcome indicator are provided in Appendix 5.

5.2.3. It is important to note that the breadth and diversity of data types listed in Figure 2 highlights the diversity of specialist backgrounds needed to deliver a future evaluation. We anticipate that a consortium of consultants with a range of specialisms, including heritage and building science, will be required to deliver this evaluation.

Figure 2. MEND/PBIF Provisional Outcome Indicator List

Outcome ID	Outcome description	Potential Outcome Measure/Indicator	Vector/ Direction	Indicator Type	Direct Measure/ Proxy Indicator
SO1	Refurbish and re-open lost spaces and reduce the need for areas of museums to be closed off to the public	floorspace brought back into use (m^2)	increase	quantitative	direct
		days open to the public	increase	quantitative	direct
		annual visitor numbers	increase	quantitative	proxy
		no. ticketed events	increase	quantitative	proxy
		building survey/assessment	n/a	qualitative	direct
SO2	Halt the ongoing material failure and degradation of museum buildings (and collections)	insurance fees (£)/degradation rates (loss functions)	decrease	quantitative	proxy
SO3	Lower the risk of catastrophic events (incl. fire, flood, structural failure)	repair and maintenance backlog value (£)	decrease	quantitative	direct
		energy usage (kWh)	decrease	quantitative	direct
SO4	Improve museum buildings' environmental performance and energy efficiency	fuel usage (gas, electricity, renewables)	decrease	quantitative	direct
		epc rating	increase	ordinal	direct
MO1	Museums are more financially sustainable and develop stronger business models	admissions income (£)	increase	quantitative	direct
		total income and endowments (£)	increase	quantitative	direct
		reserves (£)	increase	quantitative	direct
		days open to the public	increase	quantitative	proxy
		annual visitor numbers	increase	quantitative	proxy
		visitor demographics (e.g. disability, ethnicity, socio-economic background)	n/a	quantitative	proxy
		no. ticketed events	increase	quantitative	proxy

Outcome ID	Outcome description	Potential Outcome Measure/Indicator	Vector/ Direction	Indicator Type	Direct Measure/ Proxy Indicator
MO2	Museum buildings' internal environments are optimised for collection preservation, storage and display	Relative Humidity (%) and Temperature (°C)	n/a	quantitative	direct
		PAS 198 / BS 5454:2000 compliance	n/a	binary (yes/no)	direct
		realistic maintenance plan in place	n/a	binary (yes/no)	direct
MO3	Museums transition from reactive to preventative repair and maintenance	repair and maintenance backlog value (£)	decrease	quantitative	direct
LO1	National and regional accredited museums' buildings and their collections are safeguarded for future generations	forward budgeting for reactive repair as % of total repair (£)	decrease	quantitative	proxy
LO2	Museums continue to support local communities and placemaking, attracting tourism and other commercial activity (e.g. placemaking, creative industries etc.)	inclusion in tourism/inward investment marketing plans	n/a	qualitative	proxy
LO3	Museum institutions continue to support the nation's 'soft power' and influence at an international level	international investment attracted (£) (for PBIF grantees only)	increase	quantitative	proxy

5.2.4. As outlined in Figure 2, Mortice consulting have identified a range of challenges associated with gathering appropriate outcome indicators presented in this first iteration of the MEND/PBIF evaluation framework. Further assessment and consultation with PBIF museums and MEND grantees will need to be undertaken by the MEND/PBIF evaluation consultants in order to establish a final set of outcome indicators and an accompanying strategy for gathering these from participating museums.

5.2.5. Although long-term outcomes will not be manifested within the lifetime of the evaluation, the evaluation consultants will be expected to give consideration to how early or indicative evidence of these outcomes could be captured as part of the evaluation such that a longer-term analysis may be undertaken more easily in the future.

5.2.6. In cases where grant recipients do not have the necessary equipment already, we recommended that consideration should be given to allowing some evaluation funding to be allocated towards supporting museums in receipt of MEND/PBIF grant funding with the collection of essential outcome data. For instance, where MEND recipients are undertaking activities to 'improve museum buildings' environmental performance and energy efficiency' (SO4), support may need to be provided to assist with the collection of relevant energy usage data (kWh). Similarly, where museums are undertaking activities to 'optimise internal environments for collection preservation, storage and display' (MO2), support with measuring internal environment conditions (relative humidity (%) and temperature (°C)) may need to be provided by the evaluation consultants. This may be in the form of provision and installation of data loggers or other relevant hardware, data collection tools and guidance/training to gather standardised data. Suppliers should be invited to suggest specific solutions.

5.2.7. We expect that only a small number of outcome indicators listed above will be relevant to any one museum. We do not anticipate that any museum will be required to gather all of the indicators listed above in order to evaluate the efficacy of the intervention. Instead, we anticipate that grant recipients will be clustered into relevant groups and a targeted approach to outcomes recording will be implemented by the evaluation consultancy (see Figure 3.). This will help to ensure an efficient and proportionate approach to data collection.

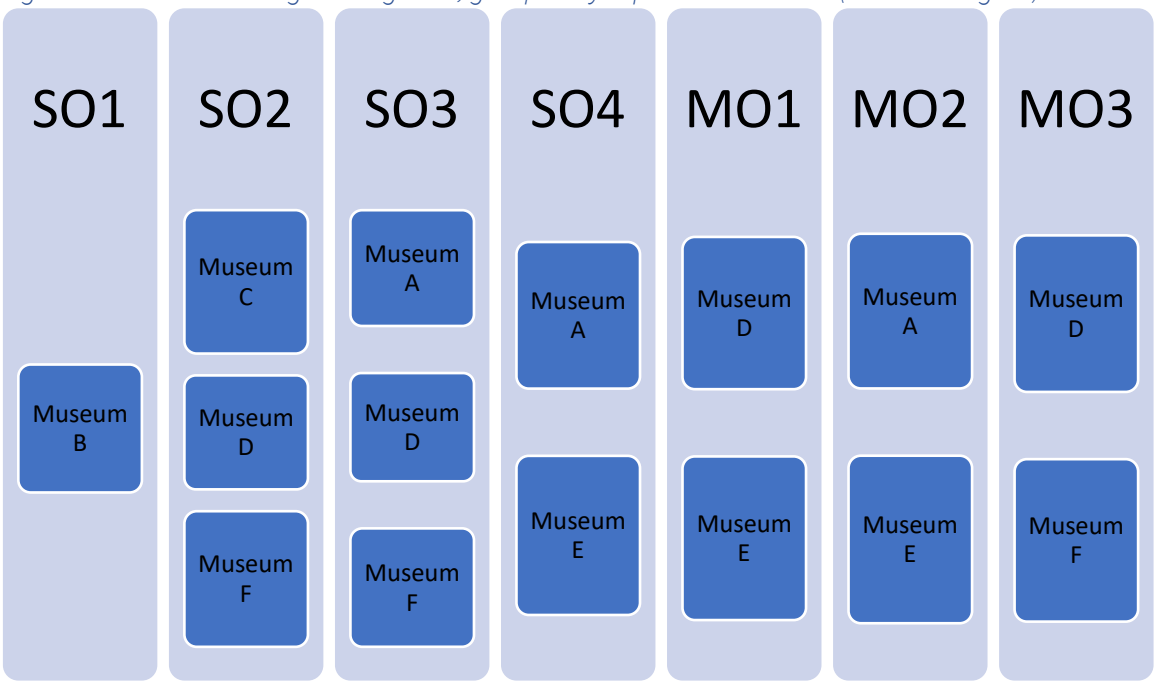
Figure 3. Example of Outcomes Grouping

Fig.3.1 Illustration of museum activities and expected outcomes

Grant Recipient	Planned Activity	Expected Outcome
Museum A	(A2) - Installation of risk mitigation measures (A6) – Works to improve environmental sustainability	(SO3) - Lower the risk of catastrophic events (SO4) - Improve museum buildings' environmental performance and energy efficiency (MO2) Museums' internal environments are optimised for collection conservation (RH and Temp °C)
Museum B	(A8) - Improving visitor access	(SO1) - Re-open lost spaces and reduce the need for areas of museums to be closed off to the public (including widening access to disabled visitors)
Museum C	(A1) - Urgent repair to building structure	(SO2) - Halt the ongoing material failure and degradation of museum buildings (and collections)

Grant Recipient	Planned Activity	Expected Outcome
Museum D	(A1) - Urgent repair to building structure (A3) - Access provision for maintenance and inspection	(SO2) - Halt the ongoing material failure and degradation of museum buildings (and collections) (SO3) - Lower the risk of catastrophic events (incl. fire, flood, structural failure) (MO1) National and civic museums develop more sustainable financial and business models (lower operating costs and increase income) (MO3) - Museums transition from reactive to preventative repair and maintenance
Museum E	(A5) - Building services replacement (A2) - Installation of risk mitigation measures	(SO4) Improve museum buildings' environmental performance and energy efficiency (MO1) National and civic museums develop more sustainable financial and business models (lower operating costs and increased income) (MO2) Museums' internal environments are optimised for collection conservation (RH and Temp °C)
Museum F	(A1) - Urgent repair to building	(SO2) Halt the ongoing material failure and degradation of museum buildings (SO3) Lower the risk of catastrophic events (incl. fire, flood, structural failure) (MO3) Museums transition from reactive to preventative repair and maintenance

Fig.3.2 Museums receiving MEND grants, grouped by expected outcomes (based on Fig 3.1)



5.2.8. The evaluation consultants will be expected to develop further iterations of both the indicator list presented here, as well as a detailed plan for monitoring and outcomes data collection. This will require close liaison with DCMS, ACE and MEND/PBIF recipients.

5.3 How unintended outcomes will be detected

5.3.1 Rigorous evaluations also take account of unintended consequences and outcomes from the intervention, as well as those anticipated at the outset. While the MEND/ PBIF logic model posits a virtuous process of improvement, in the real world it is also likely that other outcomes that have not been anticipated may occur. These may be positive or negative.

5.3.2 We expect that the final evaluation design and implementation will incorporate a thorough process for identifying these. This will likely be through a combination of analysis of the outcome measures listed above, as well as through qualitative feedback and engagement with museums.

6 Evaluation methods

6.0.1 This section considers the selection of analytical evaluation methods that best answer the Key Evaluation Questions set out in Section 4 (in contrast to the data collection methods described in Section 5). Selection of an appropriate analytical method is dependent on the KEQs, but also the proportionality of the resources required to answer them, the availability and quality of the data, and the timing of the decision points.

6.0.2 As explained in 5.2.5, timings will not allow for the long-term outcomes (LO1-LO3) identified in the logic model to be fully incorporated into the evaluation of MEND/PBIF. These high-level outcomes are also extremely challenging to gather data for and to robustly attribute to MEND/PBIF activities. Instead, this evaluation will focus on the short- and mid-term outcomes as discussed in Section 5.

6.0.3 The major challenge for any evaluation is rigorously to establish cause and effect between the intervention and observed outcomes. Given that MEND/PBIF represent a significant investment of public funds, it is essential that this evaluation strives to address this issue of causality and attribution as thoroughly as circumstances will allow.

6.0.4 MEND and PBIF represent complex interventions insofar as the intended outcomes for museums are wide-ranging, and the means to achieving them (the use of grant funding for museum repair, maintenance and upgrades) are equally diverse. Furthermore, buildings are complex systems in their own right and whilst the logic model in Figure 1 illustrates a largely linear process, the reality is likely to be more complex than presented. The success of the evaluation therefore requires that sound building and heritage science underpins the selection of evaluation methods where appropriate. This is explored in further detail in the accompanying MEND/PBIF Evidence Review.

6.1 Direct Observation

6.1.1 In spite of the complexity and dynamic nature of MEND and PBIF, a range of appropriate methods are feasible for this evaluation that will help to answer the KEQs with confidence. First and foremost, building repair and maintenance, and replacement of building services can be directly observed and the immediate outcomes, such as reducing the risk of catastrophic failure, are simply attributable to the intervention.

6.1.2 The monitoring regime outlined in section 5.2 will be crucial for achieving this direct observation of outcomes, as it will enable the evaluation consultants to identify what activities are taking place, where and when. This should be complemented with a qualitative baselining exercise involving a pre-intervention assessment by an architect or building surveyor, and photography of works.[6] This can then be repeated upon post-completion of the activities and delivery of the outputs, within each museum.

6.1.3 We anticipate that this direct observation approach will be relevant for almost all museums in receipt of MEND funding or the PBIF. Therefore, the evaluation consultancy must demonstrate an in-depth understanding and detailed design for successful delivery.

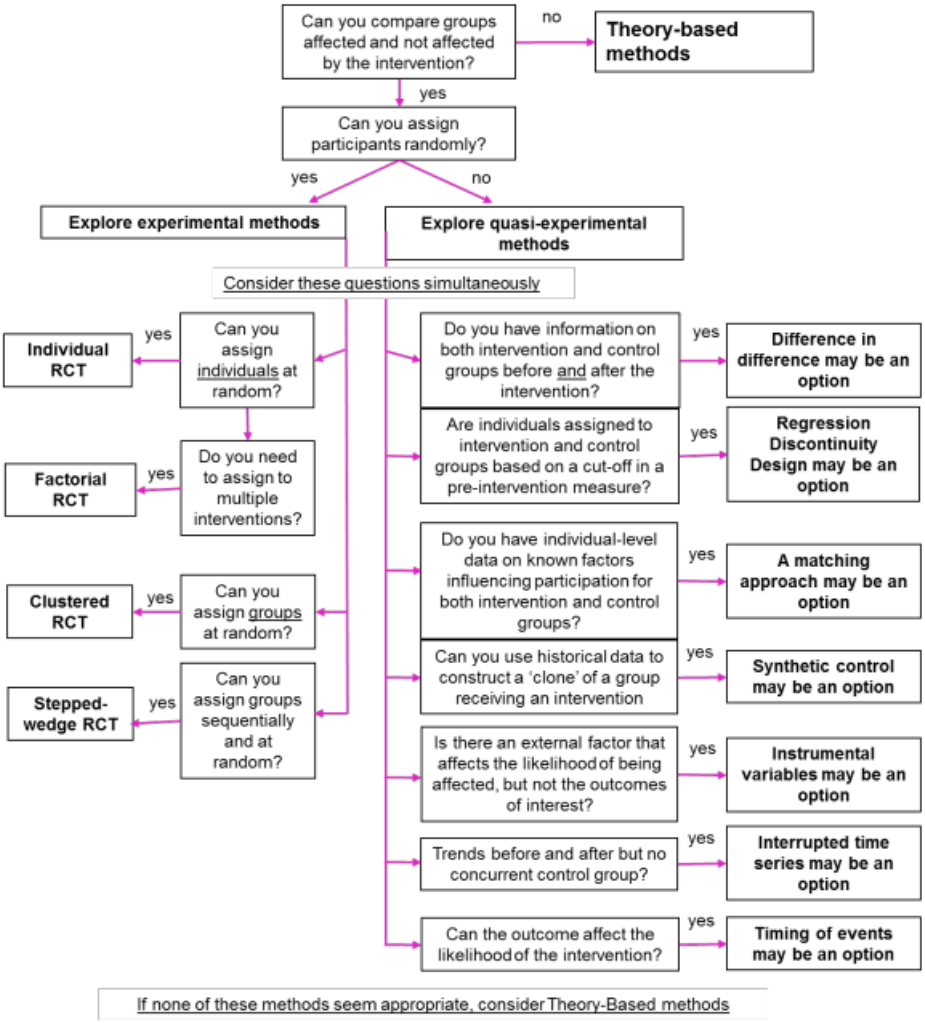
6.2 Quasi-Experimental Methods

6.2.1 Some of the short- and mid-term outcomes identified in Section 5 are not directly observed as a consequence of MEND and PBIF activities. Therefore, we propose that the final evaluation design goes beyond direct observation and attempts to incorporate quasi-experimental methods.

6.2.2 HMT's *Magenta Book* addresses the topic of evaluation methods in some depth and provides useful supplementary guidance on analytical methods as well as managing complexity. In this first iteration of an evaluation design, it is possible to determine that a quasi-experimental design may be possible for this evaluation. Figure 4. presents a decision-making algorithm from the *Magenta Book*, to assist with the selection of experimental/quasi-experimental methods.

[6] Historic England have been commissioned to provide architectural and building surveying services to support MEND and will be available to support this evaluation.

Figure 4. Magenta Book (p.47): Selecting experimental and quasi-experimental methods



6.2.3 It is possible to apply the decision-tree in Figure 4. to the MEND/PBIF evaluation:

- It is *not* possible to assign MEND/PBIF funds randomly – experimental methods are not possible;
- It *may* be possible to obtain information on the intervention group and a control group (unsuccessful applicants for MEND) before and after the intervention – difference-in-difference may be an option;
- It *may* be possible to establish trends before and after the intervention (but we may not be able to establish a concurrent control group) – interrupted time series may be an option.

6.2.4 Outcome indicators such as energy usage (kWh), internal environmental conditions (RH/T°C), visitor numbers lend themselves well to the type of quantitative analysis described here. However, these methods are highly dependent on data availability and are sensitive to the nature of the impact (e.g. non-linear relationships, small effect sizes and time period). We expect the evaluation consultants to thoroughly explore the feasibility of these methods which have the potential rigorously to answer several of the KEQs.

6.3 Theory-based approach

6.3.1 Planning for the evaluation of MEND and PBIF has involved a thorough and detailed approach to developing a well-defined logic model. Therefore, this evaluation is also well-positioned for a theory-based evaluation approach.

6.3.2 Theory-based impact evaluations 'draw conclusions about an intervention's impact through rigorous testing of whether the causal chains thought to bring about change are supported by sufficiently strong evidence and that alternative explanations can be ruled out.'[7] A wider range of evidence types can be used in theory-based evaluations, compared to quasi-experimental approaches which depend largely on continuous, interval/ratio data. This includes external literature, expert opinion, public feedback, modelling and more. Therefore, a theory-based approach is well-suited to the diversity and complexity inherent within MEND/PBIF and we recommend that this is a highly suitable method to be considered by the evaluation consultants for more complex outcomes.

6.3.3 The limitations of experimental/quasi-experimental approaches are that, even if executed perfectly, they provide no information as to how or why an outcome may have occurred. The advantages of such approaches, however, is that they are able to provide strong conclusions on the size of any effect. In contrast, theory-based impact evaluation can be highly revelatory about how and why effects have occurred but can be less effective at providing information about effect size.

6.3.4 The evaluation of MEND/PBIF, therefore, is likely to be most effectively delivered using a mixed-method approach that combines elements of direct observation, quasi-experimental and a theory-based approach. Further iterations of this evaluation design should continue to explore issues of proportionality, the logistics and availability of data. In doing so, further decisions regarding the feasibility and efficacy of evaluation methods can then also be made.

6.4 Differences in timing of Implementation between MEND, PBIF21 and PBIF22

6.4.1 We expect that by the time a final evaluation design has been confirmed and consultants are in place to begin implementation, PBIF21 activities will be advanced and nearing completion. Whereas activities for PBIF22 in some cases might not have even started and certainly not been completed. Meanwhile, implementation activities will have started only for the first round of MEND, but not for Rounds 2 to 4. Therefore, whilst this evaluation framework has largely treated MEND and PBIF equivalently, we expect that in practice, PBIF will have to be approached differently from MEND.

6.4.2 Instead, a more retrospective approach, working closely with the national museums to assess data that has been recorded over the period and to utilise a case study approach will likely be necessary. The focus may then subsequently be on preparing for and undertaking the evaluation grant settlements of PBIF in future years.

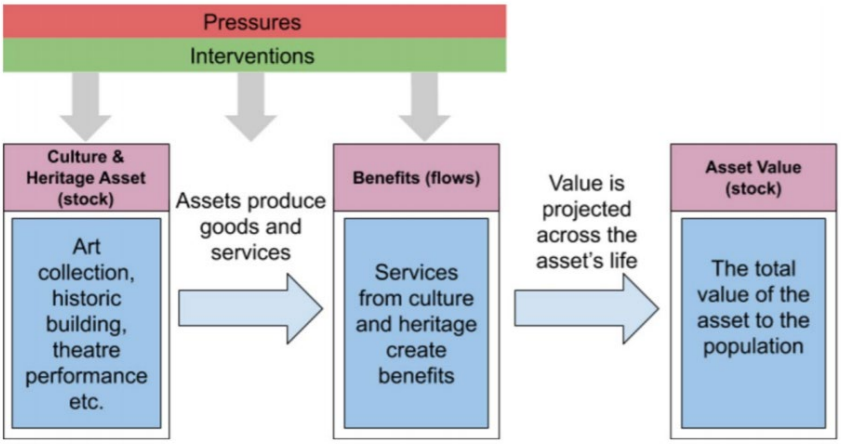
[7] *Magenta Book* (2020) p.36

7 Culture and Heritage Capital Framework

7.1 DCMS is currently developing a formal approach to valuing the benefits of culture and heritage assets to society, known as the Culture and Heritage Capital Framework (CHC). The valuation of benefits and costs plays an important role in deciding how the government should spend taxpayers' money. Sector specific guidance is already available to value the impact of interventions in crime, environment, health and transport. It is important that similar guidance is also available to help guide decisions on culture and heritage.

7.2 The evaluation of MEND and PBIF represent an opportunity to gather evidence and support the development of the Culture and Heritage Capital Framework. The evaluation consultants will be expected carefully to consider how CHC can be incorporated into the MEND/PBIF evaluation, and also how evaluation evidence can support the development of CHC.

Figure 5. The Culture and Heritage Capital Framework



7.3 The CHC framework offers a complementary view of the inputs, activities and outcomes set out in the logic model, i.e. to think about the total value of a museum and therefore the value of interventions such as repairs and maintenance.

7.4 A museum can be thought of as the "stock", while the services that create benefits to society are regarded as "flows". Background pressures such as environmental damage or unsustainable use can negatively affect the services provided by an asset and the demand for those services. Effective management interventions, additional inputs and effective policies can have a positive effect. Once monetary values are estimated for these flows, it is possible to estimate the value of the asset as a whole by forecasting these values over a period of time.

7.5 As outlined in the Culture and Heritage Capital Framework, research is underway that will bring economic methodology together with the work of heritage scientists, who are best placed to estimate the impact of conserving assets, and from this, rates of depreciation and irreversible loss. As the programme develops DCMS will make available the evidence and guidance to value the benefits from repairs and maintenance in monetary terms. This

will enable effective evaluation of repair and maintenance options by comparing the costs of a programme with the impacts on a consistent basis. CHC should therefore become a useful tool to assess the success of MEND/PBIF against its planned outcomes.

Appendix 1

List of MEND/PBIF activities and associated outputs

1. Activity	Linked Outputs
(A1) Urgent repair and overhaul of the building structure and envelope	(O1) E.g. functioning and overhauled: • Roofs and high-level masonry • Windows and fenestration • Rainwater disposal system
(A2) Installation of appropriate fire detection and mitigation measures	(O2) E.g. New fire detection and mitigation measures installed: new fire detection and intruder alarm systems, etc.
(A3) Provision of permanent access to facilitate maintenance and inspection	(O3) E.g. New permanent access provision, e.g. new roof inspection platform etc.
(A4) Upgrades to building services and systems	(O4) E.g. Upgraded or replaced: • heating, ventilation or HVAC systems • building control systems • energy supply systems • lift systems • wiring and electrical systems
(A5) Develop and implement realistic maintenance plans to ensure preventative measures continue to be undertaken	(O5) New or upgraded building maintenance plan, e.g. new maintenance check list and rota, quinquennial architectural/surveyor inspections etc.
(A6) Capital works to increase the environmental sustainability of the museum	(O6) Retrofitted sustainability measures, e.g.: solar panels, ground source heat pumps, new LED lighting, new or upgraded insulation/thermal performance measures (e.g. secondary glazing, wall insulation) etc.
(A7) Installation of digital infrastructure	(O7) New or upgraded digital infrastructure including new CRM database, online booking system etc. (not applicable for MEND)
(A8) Improving access to buildings so that there is inclusive access for everyone, including Changing Places toilets	(O8) New accessibility measures (e.g. Changing places toilets / wheelchair ramps /lifts)

Appendix 2

Elaboration of MEND/PBIF Outcomes

Overall Impact

The intended 'impact' of the PBIF and MEND interventions is to protect museum buildings, collections and participation for current and future generations, by tackling critical maintenance backlogs and improving core infrastructure that threaten their care and existence.

Short-term Outcomes

Through the inputs, activities and outputs outlined in previous sections, the following short-term outcomes are expected to be achieved:

(SO1) **Refurbish and re-open lost spaces and reduce the need for areas of museums to be closed off to the public.** This will also potentially:

- improve museums' ability to attract visitors and increase revenue in the mid-term, as well to increase non-profit making activities such as hosting community and school groups (link to MO1)

(SO2) **Halt the ongoing material failure and degradation of museum buildings (and collections).** This will also potentially:

- improve the internal environment within museums and lead to more stable conditions for the display and / or storage of collections (link to MO2)
- lower the risk of catastrophic events such as fire, flood, structural failure (link to SO3)
- improve the environmental performance and operational efficiency of museums (link to SO4)
- reduce the need for more costly repairs in the future and enable preventative rather than reactive repair and maintenance (link to MO1 and MO3)

(SO3) **Lower the risk of catastrophic events (incl. fire, flood, structural failure).** This will also potentially:

- make spaces within museums safer for visitors and collections (link to SO1)
- allow for more strategic maintenance and repair to be scheduled in and focus less on reactive measures (link to MO1 and MO3)
- ensure that valuable museum buildings and collections are not lost due to a catastrophic event (link to LO1)

(SO4) **Improve museum buildings' environmental performance and energy efficiency. This** will also potentially:

- reduce operational fixed costs for museums and support financial sustainability (link to MO1)
- enable museums to achieve better internal environmental conditions, optimising the display and storage of collections (link to MO2 and LO1)

Mid-term Outcomes

Through the inputs, activities and outputs outlined in previous sections, as well as short-term outcomes listed above, the following mid-term outcomes are expected to be achieved:

(MO1) **Museums are more financially sustainable and develop stronger business models**

(MO2) **Museum buildings' internal environments are optimised for collection preservation, storage and display**

(MO3) **Museums transition from reactive to preventative repair and maintenance**

Long-term Outcomes (impact)

By achieving the short- to mid-term outcomes, the following long-term outcomes (impacts) are expected to be achieved:

(LO1) **National and regional accredited museums' buildings and their collections are safeguarded for future generations**

(LO2) **Museums continue to support local communities and placemaking, attracting tourism and other commercial activity** (e.g. placemaking, levelling up, creative industries etc.)

(LO3) **Museum institutions continue to support the nation's 'soft power' and influence at an international level**

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Appendix 3

Steering Group Member List

Name	Organisation	Role
Harman Sagger (Chair)	DCMS	Head Economist for Arts, Heritage and Tourism (Chair)
Ellie Baggott	DCMS	Economic Advisor - Museums and Heritage (secretariat)
Gina Murphy	DCMS	Senior Policy Advisor, Museums
Lucien Smith/Rebecca Stockbridge	DCMS	Museums Sponsorship
Emma Foxall	Arts Council England	Senior Manager, Collaborative Funding
Liz Johnson	Arts Council England	Director, Museums and Collections
Andrew Mowlah	Arts Council England	Director, Research
Ian Morrison	Historic England	Director of Policy and Evidence
Paul Brooks	Imperial War Museum	Head of Estates
Shri Mukundagiri	Science Museum Group	Director of Corporate Services

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Appendix 4

Mortice response to MEND/PBIF Provisional Indicator List

Outcome ID	Outcome description	Potential Outcome Measure/Indicator	MORTICE COMMENTS	SOURCE	LIKELY AVAILABILITY NATIONAL MUSEUM	LIKELY AVAILABILITY REGIONAL/ LOCAL MUSEUM	SUPPORT/ INFORMATION	Vector/ Direction	Indicator Type	Direct Measure / Proxy indicator
SO1	Refurbish and re-open lost spaces and reduce the need for areas of museums to be closed off to the public	floorspace brought back into use (m^2)	Readily available	Project plans Measuring	Readily Available	Readily Available	Simple guidance on what would be in/out of scope to clarify how these areas could be calculated	increase	quantitative	direct
		days open to the public	is this for specific areas or whole institution?	Museum planning documents	Readily Available	Readily Available	Simple guidance on what would be in/out of scope	increase	quantitative	direct
		annual visitor numbers	is this for specific areas or whole institution?	Visitor counting systems, Ticketing System, Annual Report	Readily Available	Smaller institutions or those with free entry may only have estimated numbers. If required for only specific areas brought back in to use data unlikely to be readily available.	Simple guidance on what would be in/out of scope	increase	quantitative	proxy
		no. ticketed events	Is no. of events best measure? Would visitors to events be better measure? E.g. 1 large event could have facilitated more new visitors than multiple smaller events.	Ticketing System	Readily Available	Readily Available	Simple guidance on what would be in/out of scope	increase	quantitative	proxy

Outcome ID	Outcome description	Potential Outcome Measure/Indicator	MORTICE COMMENTS	SOURCE	LIKELY AVAILABILITY NATIONAL MUSEUM	LIKELY AVAILABILITY REGIONAL/ LOCAL MUSEUM	SUPPORT/ INFORMATION	Vector/ Direction	Indicator Type	Direct Measure / Proxy indicator
SO2	Halt the ongoing material failure and degradation of museum buildings (collections)	building survey/assessment	Challenging measure for small mid-size institutions who do not have this in place and would not have the resources to have surveys undertaken. For this to be a successful measure pre and post surveys would be needed.	Surveyor Reports, Reports by qualified staff members, Template reports by non-qualified staff members	May be available, more likely for the largest institutions but perhaps not for all areas of the buildings.	Some will have limited survey reports (more likely where heritage status of building requires it) many will have no reports in place and do not have the resources to have them undertaken. Evaluation would need to develop measures to assess deterioration to compare against a counterfactual.	May need to reference standard/simple guidance on assessing building condition which could be utilised by museums without the specialist in-house knowledge to be already undertaking this	n/a	qualitative	direct
SO3	Lower the risk of catastrophic events (incl. fire, flood, structural failure)	insurance fees (£)	No clear what this measure would tell you and feedback is that a number of factors would influence fees so hard to draw direct inference. Also, fees may only change on an annual basis therefore little immediate change.	Insurance reports/billing	Readily Available (but of questionable value)	Readily Available (but of questionable value)	If included guidance will be required to describe link to cost and rationale for changing insurance premiums	decrease	quantitative	proxy
		NEW: Risk Assessments	All institutions should hold institutional level risk assessments of which buildings and the associated measures should feature. An improvement in the evaluation risk of these events as part of a structured risk assessment process could be a useful and readily available measure. The larger	Risk Assessments	Readily Available	Readily Available (may need to support in how to assess and record building related risks.	Access to guidance/support for small/mid-size organisations on how to incorporate building risks into existing risk assessment processes			

Outcome ID	Outcome description	Potential Outcome Measure/Indicator	MORTICE COMMENTS	SOURCE	LIKELY AVAILABILITY NATIONAL MUSEUM	LIKELY AVAILABILITY REGIONAL/ LOCAL MUSEUM	SUPPORT/ INFORMATION	Vector/ Direction	Indicator Type	Direct Measure / Proxy indicator
			institutions will also have departmental/project risk assessments which will. be focussed on buildings/estates etc							
		repair and maintenance backlog value (£)	Similar to response to building survey/assessment. Large institutions will have data on this, but it may not be comprehensive. Many small/mid do not have fully surveyed andE13:H13 costed repair and maintenance plans.	Forward repair and maintenance plan Surveyor reports CAFM system	Readily Available (but may not be comprehensive)	Unlikely to be available and if so, will be far from comprehensive.	Institutions would benefit from support/guidance from professional surveyors and/or guidance that would support them to develop repair and maintenance plans with costs.	decrease	quantitative	direct
SO4	Improve museum buildings' environ-mental performance and energy efficiency	energy usage (kWh)	Readily available but guidance would be required to support for a number of institutions	Metering Data Sub-metering data Utility Bills	Readily Available	May not have access to reliable/accurate meter/billing data if they are in a shared building	Simple guidance on what would be in/out of scope	decrease	quantitative	direct
		fuel usage (gas, electricity, renewables)	Readily available but guidance would be required to support for a number of institutions	Metering Data Sub-metering data Utility Bills	Readily Available	May not have access to reliable/accurate meter/billing data if they are in a shared building	Simple guidance on what would be in/out of scope	decrease	quantitative	direct
		mean CO_{2e}	Readily available or calculable but guidance would be required to support for a number of institutions. The nationals are already reporting this data and many other too. May require to be more	Utility Bills	Readily Available	Core data (energy use or Co2) likely to be available but support will be required to define what is in/out of scope and how to calculate co2 including if	Simple guidance on what would be in/out of scope	decrease	quantitative	direct

Outcome ID	Outcome description	Potential Outcome Measure/Indicator	MORTICE COMMENTS	SOURCE	LIKELY AVAILABILITY NATIONAL MUSEUM	LIKELY AVAILABILITY REGIONAL/ LOCAL MUSEUM	SUPPORT/ INFORMATION	Vector/ Direction	Indicator Type	Direct Measure / Proxy indicator
			specific and for example say Scope 1 & 2 emissions relating to energy use for building operation.			standard conversion applied to ensure consistency across all participants.				
		epc rating	Available for those who it is relevant to.	EPC certificates	Readily Available	Readily available but may confusing without context to small institutions	Guidance may be needed for what this measure is to guide those institutions to not consider if it is not relevant	increase	ordinal	direct
		Embodied carbon of project/works	Starting to become available from projects for the larger institutions, may be a 'nice to have' at this time but will become a more meaningful measure going forward.	Project Reports	Partial, may require some development	Unlikely to be available at this time	Guidance on what this measure is and what to ask of project teams, contractors etc.	decrease	quantitative	direct
MO1	Museums are more financially sustainable and develop stronger business models	admissions income (£) [MEND only?]	No comment	Financial Reports	N/A unless including revenue from ticketed activity?	Readily Available	Simple guidance on what would be in/out of scope	increase	quantitative	direct
		total income and endowments (£)	No comment	Accounts	Readily Available	Readily Available	Simple guidance on what would be in/out of scope	increase	quantitative	direct
		reserves (£)	No comment	Accounts	Readily Available	Readily Available	Simple guidance on what would be in/out of scope	increase	quantitative	direct

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Outcome ID	Outcome description	Potential Outcome Measure/Indicator	MORTICE COMMENTS	SOURCE	LIKELY AVAILABILITY NATIONAL MUSEUM	LIKELY AVAILABILITY REGIONAL/ LOCAL MUSEUM	SUPPORT/ INFORMATION	Vector/ Direction	Indicator Type	Direct Measure / Proxy indicator
		days open to the public	No comment	Museum planning documents	Readily Available	Readily Available	Simple guidance on what would be in/out of scope	increase	quantitative	proxy
		annual visitor numbers	No comment	Visitor counting systems Ticketing System Annual Report	Readily Available	Smaller institutions or those with free entry may only have estimated numbers. If required for only specific areas brought back in to use data unlikely to be readily available.	Simple guidance on what would be in/out of scope	increase	quantitative	proxy
		no. ticketed events	Is no. of events best measure? Would visitors to events be better measure? E.g. 1 large event could have facilitated more new visitors than multiple smaller events.	Ticketing System	Readily Available	Readily Available	Simple guidance on what would be in/out of scope	increase	quantitative	proxy
MO2	Museum buildings' internal environments are optimised for collection preservation, storage and display	Relative Humidity (%) and Temperature (°C)	Is this for spaces? Or could it include showcases etc. Would a better measure be % of collection in appropriate conditions? Think this would be better linked to a measure	Collection Monitoring System BMS	Readily Available	Readily Available	Simple guidance on what would be in/out of scope	n/a	quantitative	direct

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Outcome ID	Outcome description	Potential Outcome Measure/Indicator	MORTICE COMMENTS	SOURCE	LIKELY AVAILABILITY NATIONAL MUSEUM	LIKELY AVAILABILITY REGIONAL/ LOCAL MUSEUM	SUPPORT/ INFORMATION	Vector/ Direction	Indicator Type	Direct Measure / Proxy indicator
		PAS 198 / BS 5454:2000 compliance	How is this assessed? Suggestion to link to museum accreditation criteria		Not always readily available	Not always readily available	If to be included access to the standard may need to be made available and/or description of equivalent acceptable standards.	n/a	binary (yes/no)	direct
		Alternative to above: Improved compliance against institutions Collection Care and Collection Management Policies, Plans and Risk Assessments	Based on feedback from institutions who generally do not directly map collection conditions (for their own collections) to external standards instead they map to internally agreed collection condition standards.	Collection Care Policies and Risk Assessments	Readily Available	Readily Available	Link back to guidance such as museum accreditation standards which will provide guidance on what is expected from these documents and therefore these measures.			
MO3	Museums transition from reactive to preventative repaid and maintenance	realistic maintenance plan in place	Would funding cover the development of this? Many small institutions will not have these plans in place?		Readily Available	Will be available for some but development of these to facilitate the measure will only be possible if this funding can be utilised to develop them	Support required to development maintenance planning	n/a	binary (yes/no)	direct
		repair and maintenance backlog value (£)	Similar to response to building survey/ assessment. Large institutions will have data on this, but it may not be comprehensive. Many small/mid do not have fully surveyed and E13:H13 costed repair and maintenance plans.	Forward repair and maintenance plan Surveyor reports CAFM system	Readily Available (but may not be comprehensive)	Unlikely to be available and if so, will be far from comprehensive.	Institutions would benefit from support/guidance from professional surveyors and/or guidance that would support them to develop repair and maintenance plans with costs.	decrease	quantitative	direct

Outcome ID	Outcome description	Potential Outcome Measure/Indicator	MORTICE COMMENTS	SOURCE	LIKELY AVAILABILITY NATIONAL MUSEUM	LIKELY AVAILABILITY REGIONAL/ LOCAL MUSEUM	SUPPORT/ INFORMATION	Vector/ Direction	Indicator Type	Direct Measure / Proxy indicator
LO1	national and regional accredited museums' buildings and their collections are safeguarded for future generations		No measure to comment against		No measure to comment against	No measure to comment against	No measure to comment against			
LO2	museums continue to support local communities and placemaking, attracting tourism and other commercial activity (e.g. placemaking, creative industries etc.)		No measure to comment against		No measure to comment against	No measure to comment against	No measure to comment against			
LO3	museum institutions continue to support the nation's 'soft power' and influence at an international level		How can this be linked to building repair and maintenance?		No measure to comment against	No measure to comment against	No measure to comment against			