

An Exploratory Study in Creating a Holistic Set of Key Performance Indicators for Museums Using the KBAC Matrix

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Abstract

Taking a management perspective, this article reports on an exploratory study to create a set of key performance indicators (KPIs). The study that is the focus of this article adopted an action research approach, and worked with six museums in England to investigate the practical application of the KBAC Matrix. The key performance indicators selected by the participating museums are listed, and the paper reflects upon the challenges and purposes of performance indicators in this sector.

Key words: performance; indicators; museums; measurement; non-profit, KBAC, KPIs

Introduction

Key Performance Indicators (KPIs) are widely used to measure performance in museums but how effective they are in managing and improving museum activities is debatable. This paper reviews the origins of their use in museums, and discusses their application before reporting on an action research project involving six museums in England. The research project was designed to explore the practicality of using a matrix based on the main functions of all museums, i.e. knowledge, business, audiences and collections or KBAC as a planning tool to create a balanced and meaningful set of performance indicators. The KPIs selected by the six museums are presented and the findings are discussed. The study adopted a management perspective and was primarily concerned with the use of KPIs to monitor the efficiency and effectiveness of activities in specific museums. This article considers other uses of KPIs before concluding with suggestions for further research.

Theoretical background

The introduction of New Public Management thinking during the 1990s, with its emphasis on accountability and economic rationality (Bogt et al. 2010; Speklé and Verbeeten 2014), resulted in greater attention being given to the assessment of public sector organisations, including museums. At the time, the debate was framed as a division between those who valued museums for their instrumental outputs and outcomes versus those who recognized museums for their intrinsic merits, with measurement of performance being legitimate among the former and resisted by the latter (Hewison 2012, 2014). Today there remains a lack of consensus on what should be measured and how. The number of onsite visitors is the only metric that comes close to being a common indicator for all museums (Zorloni 2010; Poll 2018), and while counting the number of people who come through the door is relatively straightforward and demonstrates the popularity of the venue, it is a blunt instrument in terms of capturing the impact of the museum experience, or monitoring how well resources are being used. Plus, in a world where services are increasingly delivered online, this metric is weaker than it was in the past.

The challenges of measuring and monitoring the work of museums are well known, and various attempts have been made to devise mechanisms to measure what museums do. Some efforts have considered performance indicators across a range of museum activities

(Ames 1990; Weil 2007; Paulus 2007; Zorloni 2010; Haldma and Lääts 2012), while others have focused on specific aspects, for example, social wellbeing (Ander et al. 2011; Thomson and Chatterjee 2015; Falk 2022;), learning (Hooper-Greenhill 2004; Dodd 2023), and social impact.¹ Others have explored the concept of value, in both museums specifically (Scott 2009 and 2016; Falk 2022), as well as in public sector organisations more generally (Moore 1995; Moore and Kennedy 2007). A range of approaches have been used, including quantitative (Basso et al. 2018), anthropological (Walmsley 2018), and economic (Throsby 2003; Tohmo 2004; Wright and Eppink 2016). Despite this work the creation and use of meaningful performance indicators in museums continues to be a matter of debate with a range of views on both what museums should measure and how it should be done. The challenges of establishing good performance indicators for museums means that there is a risk of using criteria that are ill-suited and, as Stephen Weil (2007) writes: 'a museum might be better off with no system in place for gauging its impact than with a bad one that uses an inappropriate set of measures'.

In practice there is a patchwork approach, with museums using a variety of KPIs for a range of purposes. The absence of standardized indicators means that individual museums may create their own KPIs as well as collect data to report against indicators defined by their funders. In the UK the national museums that are funded by the Department for Digital, Culture, Media and Sport (DCMS) are required to report on a set of 11 performance indicators designed to monitor access, audience profile, learning and outreach, visitor satisfaction, income generation, and regional engagement.² These indicators only apply to the 15 museum groups funded by DCMS and, while these are mostly large museums, they represent a fraction of the museums in England, of which there are approximately 2,600 (Mendoza 2017). Arts Council England (ACE) supports a wider range of museums, and require those that they fund as National Portfolio Organizations (NPOs) to complete an annual data survey. The 2022/23 version includes 148 data points divided into eight areas: workforce, finance, activity, audience, learning and participation, touring and international sector support and bridges, and COVID-19. ACE uses this data as 'evidence of the use of our funding, for reporting to Government and other key stakeholders...and to support our understanding of the National Portfolio as a whole'.³ Another set of indicators has been gathered by Historic England through the annual Heritage Counts survey.⁴ The questions asked in the survey are linked to the strategic aims of Historic England. National and regional museum networks also collect data for comparison and advocacy purposes, for example in the Annual Museums Survey East of England 2022–23 (SHARE 2023). These datasets may be effective as performance indicators for these arm's-length bodies, and allow for benchmarking between the museums included in the datasets. However, the usefulness of this data for individual museums in terms of managing activities and reporting against their own strategic aims is limited.

The KBAC Matrix

The KBAC Matrix was developed for museum practitioners as part of a piece of commissioned research (Davies 2023). It was inspired by the Balanced Scorecard (Kaplan and Norton 1992), which in its original form consisted of four perspectives, i.e., financial, customer, internal process, and learning and innovation. Since its introduction 30 years ago, the Balanced Scorecard has been adopted and adapted by museums and the wider heritage sector (Ling Wei et al. 2008; Haldma and Lääts 2012; Tanner 2012; Zorloni 2012; Sibel and Bilgin 2021; Ilie 2022), as well as other non-profit, public, and third-sector organisations. One reason for the popularity of the Balanced Scorecard among non-profit organisations may be the emphasis it puts on intangible assets, such as the skills and knowledge of staff. One of the most significant adaptations for museums was the replacement of financial perspective with the concept of public value (Moore 1995; Moore and Kennedy 2007). This created a more suitable tool for public sector organisations, and added another kind of non-financial value to the management discourse.

The KBAC Matrix was designed specifically for museums and replaces the original perspectives of the Balanced Scorecard with four core functions of museums, i.e. the creation and sharing of knowledge, the business of running the museum, use by audiences, and the stewardship of collections. These activities are common across all museums, although not

in equal amounts. Some museums will be more active in certain areas and the nature of their activity will differ. For instance, a large university museum is more likely to be involved in academic research than a small volunteer-run museum, but both will use their collections to create and share knowledge. The KBAC Matrix was developed as an analytic framework, and it is not prescriptive about the nature or proportion of activities that should take place in each quadrant.

<u>Collections</u> Activities to expand and care for the objects, e.g., cataloguing, conservation, and acquisition.	<u>Audience</u> Visitors, participants, and potential users of the museum, e.g., demographic data and feedback on their experience of the museum.
<u>Knowledge</u> Activities to create and share knowledge, e.g., research, publication, public events, and exhibitions.	<u>Business</u> The operation of the museum, e.g., finance, health and safety, personnel, commercial activities, and fundraising.

Figure 1: The KBAC Matrix

Methodology and sample

The aim of the study was to explore the extent to which the KBAC Matrix assisted with the selection of indicators across the range of museum activities. The research question being explored was: can the KBAC Matrix help museums to create a holistic set of key performance indicators? Taking a management perspective, the study focused on KPIs with a management function, i.e. those that assisted with the efficient and effective running of the organisation. To investigate the practicality of using the KBAC Matrix as a planning tool, an action-research approach was adopted (De Brún et al. 2016; Taber 2013; Altrichter et al. 2002). Personnel from the participating museums worked with the author to identify indicators suitable for their organisation in an iterative process. The participating museums were recruited using a convenience sampling approach with help from the regional network, SHARE Museums East and local Museum Development Officers. A prerequisite for participating in the research was that the museum had agreed strategic aims in place, because performance indicators work best as management tools when objectives are clear and unambiguous (Speklé and Verbeeten 2014). A second requirement was that at least one member of staff or volunteer with responsibility for KPIs would be willing to discuss their use of performance indicators in two online meetings. After the first meeting the participants were sent a spreadsheet based on the KBAC framework and populated with KPIs designed to respond to the museum's priorities. At the second meeting data was gathered from the participants about the process. The research was designed to improve the use of performance indicators but there was no obligation for the participants to use the dashboard created for them after the research project ended. The study obtained ethical approval from the University of Hertfordshire protocol BUS/SF/UH/05838.

Representatives from six museums volunteered, and over four weeks the KBAC Matrix was used to create a set of performance indicators for each museum. All of the museums were based in England, and one has a venue overseas. There was considerable variation between the museums in terms of their size, governance, and operational model. Four were run as charitable foundations, one by a local authority, and one by a university. Three were small museums, predominately staffed by volunteers and attracting fewer than 10,000 visitors a year. One was a medium-sized museum run by a local authority with a paid staff team that attracted approximately 70,000 visitors a year. One was a medium-sized heritage organisation which ran a museum that was open for only part of the year. Museum E was the largest museum, attracting over 300,000 visitors a year.

Museum Identifier	Description
A	Volunteer-run steam railway museum. Charity. Fewer than 10,000 visitors a year.
B	Local history museum with one paid member of staff. Charity. Fewer than 10,000 visitors a year.
C	Volunteer-run museum focused on the history of a uniformed youth organisation. Charity. Fewer than 10,000 visitors a year.
D	A local authority-funded local history museum and art gallery. Approximately 70,000 visitors a year
E	A university museum of art and antiquities. Over 300,000 visitors a year.
F	A heritage organisation with a seasonal museum and a focus on digital delivery. Charity. Fewer than 20,000 visitors a year.

Figure 2: An anonymised list of the participating museums

During the first meeting the strategic aims of the museum were discussed along with details of any current targets, priorities, and performance monitoring. The discussions included practical management issues such as the ease of collecting data, and the benefits of using the same indicators as other museums to allow for comparisons. The KBAC Matrix was introduced to the museum representatives along with a template dashboard. The dashboard consisted of a Microsoft Excel spreadsheet made up of a series of tabs, with graphs for each KPI, and a monthly summary report. It was designed to help with monitoring progress towards targets and monthly reporting. Following the first meeting the author used the KBAC Matrix to classify each museum's strategic aims and then created a long list of possible KPIs that might be used to monitor the specific strategic aims. This list was reduced to a maximum of 12, and these possible KPIs were used to populate the dashboard. The individual draft dashboards were shared with each museum prior to a second online meeting.

	A	B	C	D	E	F							
	Report for MAY 2023	This month's target	This month actual	Annual target	% of annual target achieved								
1													
2	KNOWLEDGE												
3	KPI 1 - Hours open to the public	20	40	240	30%								
4	KPI 2 - Session hours (onsite, online and outreach)	10	9	109	8%								
5	BUSINESS												
6	KPI 3 - Volunteer hours on site	250	230	3,000	8%								
7	KPI 4 - Volunteer hours off site	300	100	3,600	3%								
8	KPI 5 - Donations & earned income	£600	£178	£9,220	2%								
9	AUDIENCES												
10	KPI 6 - Total onsite visitors	200	150	2,400	6%								
11	KPI 7 - Audience accessing offsite	220	175	2,640	7%								
12	KPI 8 - Virtual participants	25	28	300	9%								
13	KPI 9 - Participants at onsite events from target postcode	20	20	240	8%								
14	KPI 10 - Resources downloaded from website	20	19	240	8%								
15	COLLECTIONS												
16	KPI 11 - New catalogued records in MODES	150	150	1,800	8%								
17	KPI 12 - Number of digitised images	25	20	300	7%								
18													
	May Monthly report	KPI 1	KPI 2	KPI 3	KPI 4	KPI 5	KPI 6	KPI 7	KPI 8	KPI 9	KPI 10	KPI 11	KPI 12

Figure 3: A screen shot from one of the dashboards showing the monthly report and tabs for each individual KPI

The second online meeting covered technical queries about the dashboard, a review of the proposed KPIs, and a discussion about the feasibility of using them. Adjustments were made in response to the museums' requirements, which included changing KPIs and refining the definitions. In some cases, changes were made to opt for indicators that were already in use, either by the participating museum or by other museums. A revised version of the dashboard was sent to each museum.

Results and discussion

This section concentrates on the processes, outputs, and potential practical application of the exploratory study. The first part examines the use of the KBAC Matrix to classify the strategic aims of the participating museums and the selected KPIs. The second part discusses the issues that the participants faced in selecting the KPIs, and sets this in the context of relevant academic literature.

As an analytic framework the KBAC Matrix was effective in classifying the strategic aims of the participating museums. The balance varied but the strategic aims of five museums fitted comfortably into the four quadrants of the KBAC Matrix. The exception was Museum A's strategic plan, which contained no aims related to visitors. The lack of aims related to audiences in Museum A's strategic plan appeared to reflect their priorities as a relatively young organisation with a focus on preservation. When this was discussed, the museum representative was keen to include KPIs related to their audiences. The KBAC Matrix was also helpful in directing the attention of the participating museums to the range of the museums' activities. The responsive tailored approach resulted in a variety of KPIs being adopted. Figure 4 lists the 31 KPIs selected by the six museums. These are listed under the KBAC headings, i.e. knowledge, business, audience, and collections. Under each heading they are arranged in order of popularity. Each museum selected a set of between nine and 12 KPIs. A smaller number of KPIs might have been more realistic but given the time available it was not possible to refine the selection.

Key Performance Indicators (KPIs)		KPIs selected by Museums					
Knowledge	K1. Hours open to the public	✓	✓	✓	✓	x	x
	K2. All learning & engagement events ¹	x	x	✓	✓	x	✓
	K3. Targeted engagement events ²	x	x	x	x	x	✓
	K4. Digital publications	x	x	x	x	x	✓
	K5. % of labels & interpretation boards that meet the accessibility policy standards	x	x	x	x	✓	x
	K6. Number of collaborative / coproduced publications	x	x	x	x	✓	x

¹ Includes onsite, online and outreach. Formal education and informal learning. Adults and children.

² Includes all events designed to attract a particular audience regardless of how the event is delivered, includes onsite, online and outreach.

Business	B1. Donations & earned income	✓	✓	✓	✓	✓	✓
	B2. Volunteer hours	✓	✓	✓	X	X	X
	B3. Average spend per visitor	X	✓	X	✓	X	X
	B4. Carbon footprint - tons of CO2	X	X	X	X	✓	✓
	B5. Economic impact ³	X	X	X	✓	✓	X
	B6. Active volunteers ⁴	✓	X	X	X	X	X
	B7. Ticket sales (not fundraising events)	✓	X	X	X	X	X
Audiences	A1. Total onsite visitors	✓	✓	✓	✓	✓	X
	A2. Total unique website users	✓	✓	X	✓	✓	✓
	A3. Onsite visitors or participants from a defined target audience	X	X	✓	✓	✓	X
	A4. % of visitors who'd recommend a visit	✓	✓	X	✓	X	X
	A5. % of visitors & participants who report and improvement in their understanding of the target message	X	X	X	X	✓	✓
	A6. Digital downloads (resources downloaded from the website)	X	X	✓	X	X	✓
	A7. % of visitors who'd make a return visit	✓	X	X	X	X	X
	A8. % of partners (coproducers) with who rated the experience inclusive & enjoyable	X	X	X	✓	X	X
	A9. % of participants at engagement events who are from the target audience	X	X	X	X	X	✓
	A10. Participants at onsite informal learning events	X	✓	X	X	X	X
	A11. Members (Friends)	X	X	X	X	X	✓
Collections	C1. New catalogue records created	X	✓	✓	✓	X	X
	C2. Hours caring for the historic collection	✓	X	X	X	X	✓
	C3. Number of outgoing loans	X	X	X	X	✓	X
	C4. Items digitised	X	X	✓	X	X	X
	C5. Targeted acquisitions	X	X	X	X	✓	X
	C6. New collection objects on display	X	X	X	✓	X	X
	C7. % of the collection discoverable via the website	X	X	X	X	✓	X
Total number of selected KPIs		10	9	9	12	12	11

Figure 4: The KPIs selected by the six museums using the KBAC Matrix

³ Using Association of Independent Museums' toolkit (AIM, 2019)

⁴ Given at least six hours volunteering time during the month.

Range of indicators

The study indicated that when given the opportunity to develop performance indicators linked to their strategic aims, the participating museums selected a variety of indicators. Figure 3 shows that only one indicator (*B1. donations and earned income*) was selected by all six of the museums. Two indicators (*A1. Total onsite visitors* and *A2. Total unique website visitors*) were selected by five of the museums. The lack of overlap may be explained by the small sample size and the disparate nature of the museums. Within the sample there did appear to be more commonality among museums of a similar size and operating model. For example, it is noticeable that the three smaller museums (A, B, and C) all selected *B2. Volunteer hours* while none of the museums with a predominately paid workforce did. The most likely explanation for this is that the operating model of the smaller museums relied on volunteers to a greater extent than the other museums in the sample.

Some of the indicators are similar but because of the way that the individual museums chose to define their activities, they are not identical. This was particularly noticeable around the classification of events and audiences. Each museum had preferences in terms of how activities were grouped. For instance, *K2. All learning and engagement events*, was selected by three museums (C, D, and F) but two of them were only comfortable with this as a KPI once a way to log different types of events on the dashboard had been developed. These museums wanted to be able to monitor specific types of events as well as the combined total. Four museums wanted to monitor activity related to their target audiences (C, D, E, and F) and chose to do so using different indicators. Three (C, D, and E) decided to use *A3. Onsite visitors or participants from a defined target audience*. The exclusion of digital delivery from this indicator made it unsuitable for Museum E, which opted instead for *A9. Percentage of participants at engagement events who are from the target audience*. Most of the KPIs related to outputs or outcomes. However, *C2. Hours spent caring for the historic collections* monitors an input. Monitoring the amount of effort put in was seen as a better indicator than one that counted the number of collection items processed because of the nature of this museum's collection, particularly their large working objects. The disparity between the choices made by the six museums was primarily a result of the study's focus on linking performance indicators to organisational objectives. The range and variety of museums means that what makes sense for one type of museum was not the best choice for another. For instance, monitoring the number of outgoing loans was appropriate for the largest museum in this study but not for the others.

Quantifying subjective outcomes

All of the KPIs identified by the participants were quantitative, although the units being counted varied and included time, events, publications, carbon dioxide, people (visitors, participants, volunteers, and members), museum objects, and loans made. Converting the experience of visiting an exhibition or participating in an event into something that can be counted, is challenging because these experiences are elusive. It is difficult, for example, to measure the sense of belonging a resident may have after learning about the history of their town, the way that seeing objects proves that the past was real, or the pleasure derived from looking at original works of art. Nevertheless, some of the museums in this study chose indicators designed to measure subjective outcomes by asking the users for feedback and monitoring the proportion of those who gave feedback. Three of these dealt with the quality of visitor or participant experience (*A4. percentage of visitors who'd recommend a visit*, *A7. percentage of visitors who'd make a return visit*, and *A8. percentage of partners (coproducers) with who rated the experience inclusive & enjoyable*). A fourth was designed to measure the extent to which visitors and participants receive the museums' intended message (*A5. percentage of visitors & participants who report an improvement in their understanding of the target message*). Both of the museums which opted for this KPI (E and F) had a well-defined idea of what they wanted people to learn from their interaction(s) with the museum.

Financial and economic indicators

Three indicators used money as the unit of measurement (*B1. Donations & earned income*, *B3. Average spend per visitor*, and *B5. Economic impact*). The first was selected by all museums and was understood as central to their survival. Average spend per visitor was selected by two museums as a useful metric for their retail operations. Monitoring the economic impact of the museum on the local area (*B5. Economic impact*) was chosen by two museums, and it was proposed to use instruments from AIM's Economic Impact Toolkit.⁵ The two options that were discussed with the museums included the overall visitor impact, which is based on how much visitors spend in the local area, and the overall gross impact, which combines visitor spending as well as the impact of employing staff and the museum's spending on goods and services. The two museums that chose this KPI (D and E) were conscious of this being a figure that their funders (and potential funders) would appreciate. They were aware of the advocacy value of being able to report on the financial benefit brought to the community by the museum. This chimes with recent literature and policy initiatives promoting the use of financial valuation methods to help funders assess their return on investment and encourage ongoing support (Falk 2022; Sagger et al. 2021). Given this advocacy advantage it may appear strange that more museums in the sample did not select it. There are several potential explanations for this. To those unfamiliar with the method, the calculations appear complicated, and not all of the museums in this sample had the required data on, for example, the proportion of their visitors who were day trippers versus those who made overnight stays. For most museums in this study the effort required to collect and calculate the economic impact was not worth the value of having it.

Ease of data collection

In this study the participants were conscious of the practicalities of collecting the necessary information. There was an understanding that to be effective the effort of monitoring the indicators needed to be in proportion to its usefulness, which ruled out some kinds of performance indicators. There was little appetite for including indicators that require substantial resources or time. This is a challenge when some of the most valuable outcomes of museums can only be assessed with significant effort. Weil (2003), for instance, writes about a memorable account of an illustrious palaeontologist and science writer who credits his career to a childhood visit to a museum. The longitudinal research needed to evidence the impact of inspirational moments in museums would require more time and effort than most museums have available. The subjective outcomes of museum activity can be gathered, assessed and, if required, converted into quantitative measurements. However, the effort required to do so is prohibitive (Moore and Kennedy 2007), which makes focusing on activities that are easier to measure, such as the number of visitors, retail income, and the number of followers on social media, attractive. These may be useful indicators, but they do not reflect the full breath or impact of museum activities. KPIs that are easy to collect should be welcomed. Ease of collection does not make a bad indicator, but it does not necessarily make it a good one either.

The purpose and use of KPIs

The study was primarily concerned with the use of KPIs as management tools and it focused on KPIs that could be used to help each museum achieve its objectives by focusing effort upon monitoring delivery, motivating the workforce, celebrating success, and providing evidence of impact. However, KPIs have multiple purposes, including accountability and control. This contributes to the complexity of creating a meaningful set of KPIs since what makes a good KPI depends on its intended purpose. For example, a KPI that is helpful in making comparisons between museums may not be the best indicator to motivate those working on a project. Discussions with the participants indicated an awareness that museum stakeholders expected different things from KPIs. For instance, in selecting the KPIs, consideration was given to KPIs that would resonate well with trustees or funders, and these were not always the same as the KPIs that might help to motivate those working in the museum. The multiple

purposes of KPIs are recognized in the literature (Speklé and Verbeeten 2014; Lewis 2019), and it is possible that it would help if these purposes were made more explicit among museum management practitioners.

Conclusion

The exploratory nature of the research design and the small sample size makes it impossible to draw any definitive conclusions about the generalized use of the KBAC as a planning tool in museums. However, it worked well in the study and there appears to be potential for wider application. The research was successful in guiding the six museums to create a set of KPIs that spanned the breadth of the museums' activities, and linked to their strategic priorities. The study demonstrated that the KBAC Matrix can help in the development of a holistic set of KPIs by reminding those involved of the full range of museum activities, and by providing a structure to discuss strategic priorities with stakeholders. The participants were under no obligation to use either the KPIs or the tailored dashboard at the end of the exercise, although at the end of the research project, half of the participants expressed their intention to start using them both, and a year on, two museums continued to use the dashboard. The study confirmed many of the known challenges museums face in developing meaningful performance indicators, including a lack of agreement about what should be monitored and the challenge of quantifying subjective experiences, as well as concerns over having enough resources to gather the necessary data. The participants in the study recognised these barriers and the complexity of measuring performance in museums, but were committed to trying to create meaningful KPIs for their organization.

Based on the findings of this study there are two potential strands for further research. One is to continue to investigate the application of the KBAC Matrix as a management tool as it appears to be a useful conceptual framework and may have application in other areas of museum management, for instance in strategic and forward planning. It might also be worth exploring its use in other non-profit cultural heritage organisations such as archives, art galleries, archaeological sites, and historic houses. In addition, since this study was restricted to the UK, it may be instructive to explore the use of the KBAC Matrix as a management tool in other countries. The second strand of potential future research relates to performance management in museums. A significant body of literature already exists on this topic but there is scope to make additional contributions in underdeveloped areas, and to conduct research in the museum context specifically. The perception of the purpose(s) of KPIs in museums would be a fruitful area since there appear to be differences between what stakeholders expect from KPIs that have not been fully articulated. How KPIs are used in museums is another area that could be usefully investigated as there appear to be a spectrum of approaches.

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Notes

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