



National Leadership Grants for Museums

Sample Application MG-20-14-0060-14
Project Category: Community Anchors

Museum of Science, Boston

Amount awarded by IMLS:	\$460,292
Amount of cost share:	\$503,358

Attached are the following components excerpted from the original application.

- Abstract
- Narrative
- Schedule of Completion

Please note that the instructions for preparing narratives for FY2017 applications differ from those that guided the preparation of previous applications. Be sure to use the narrative instructions in the FY2017 Notice of Funding Opportunity for the grant program and project category to which you are applying.

Museum of Science, Boston – Abstract

Collaboration for Ongoing Visitor Experience Studies (COVES) aims to unite science centers across the country in launching an effort to systematically collect, analyze, and report on visitor experience data. Current standalone data efforts are insufficient for informing the field of audience trends, do not allow for cross-organizational comparisons, and are inaccessible for museums lacking internal evaluation capacity. By creating the infrastructure for collaboration, this effort will enable science centers to become data-driven organizations focused on their audiences, and will allow museums to learn from one another.

This effort builds from and extends the work done through a prior IMLS-funded National Forum Grant, *Creating a Collaboration for Ongoing Visitor Experience Studies (C-COVES)* (LG-66-12-0634-12), which focused on convening a forum of experts to discuss the possibility of creating a collaboration like the one proposed in this grant. The new project, COVES, will be led by the Museum of Science, Boston with the Association of Science-Technology Centers (ASTC) as co-lead, in collaboration with five partner science centers (Center for Science and Industry, St Louis Science Center, New York Hall of Science, Science Museum of Minnesota, and Discovery Center Museum). These organizations all participated in the C-COVES forum.

The overarching premise behind COVES is that what prevents science museums from working together to conduct ongoing studies is the absence of an infrastructure to support such an effort. While a number of measures, indicators, and instruments exist for studying visitors in science museums, what is missing are: the policies that guide how science museums can share information across organizations; a mechanism for science museums to come together to agree upon what should be studied; shared information systems (such as agreed upon survey software and cloud servers) that enable cross-organizational data sharing; evaluation capacity within organizations, including the ability to systematically collect and interpret data; and standardized ways of gathering and reporting findings. It is the very need for this infrastructure that COVES will address.

The collaboration will be divided into several working groups: a Governing Body responsible for drafting core policies, establishing priorities and parameters for questions, decision-making, analysis, and planning for sustainability of the collaboration; a Research Team tasked with the study design and implementation, as well as creating and conducting trainings across sites; an Administrative Team to coordinate logistics and communication; and a group of Participating Institutions charged with piloting measurement protocols, instruments, and the reporting structure of the collaboration. Additionally, a group of Measurement Consultants will oversee the quality of the work, specifically advising on the rigor, reliability, and validity of the system.

The COVES project will take place from October 2014 through October 2017. Much of the decision-making work will occur during year 1, including refining the vision, creating policies and priorities of project work, and drafting a business plan for the sustainability of the system after grant funding ends. Data collection protocols and instruments will be created, and trainings will be developed and delivered to the nine Participating Institutions, where data collection will be piloted during the latter half of the year. In year 2, prototype reports – one for each Participating Institution and one for data aggregated across organizations – will be created from the pilot data collected in year 1, and ongoing data collection will continue at each site following revisions to the data collection protocols and instrument based on pilot feedback. Year 3 will be devoted to finalizing the collaboration's policies, processes, and procedures, while continuously supporting institutions to use data to drive decision-making.

COVES is designed to service the science center community and help each organization become a better community anchor by focusing on its visitors. By establishing a sustainable, responsive system designed to support science centers of all sizes across the country to engage collaboratively in ongoing visitor experience studies, museum professionals at participating institutions will build internal evaluation capacity, begin to incorporate visitor data in their institutional decision-making, and begin to challenge previously held assumptions about their institution not supported by the visitor data. The long-term impacts that are achievable through COVES will help transform each Participating Institution into a data-driven organization engaged in a process of continuous change through evaluative inquiry, focused on staying relevant to a changing audience. The sustained benefits of this project lie in the collaboration's potential to make the visitor experience more attractive and fulfilling at science centers individually and as a whole, and to increase the ability of science centers to meet community needs and therefore gain increased visitation and support.

Collaboration for Ongoing Visitor Experience Studies

The proposed *Collaboration for Ongoing Visitor Experience Studies* (COVES) is designed to unite science centers across the country in launching an effort to systematically collect, analyze, and report on visitor experience data. Current standalone data efforts are insufficient for informing the field of audience trends and do not allow for comparison across organizations, nor are these data initiatives accessible for many museums lacking internal evaluation capacity. By creating the infrastructure for collaboration, developing common instruments, and providing training on how to use these instruments and make sense of findings, a collaborative effort will enable science centers to become data-driven organizations focused on their audiences and will allow museums to learn from one another. COVES services the science center community and helps each organization become a better community anchor by focusing on its visitors.

This effort builds from and extends the work done through a prior IMLS-funded National Forum Grant, *Creating a Collaboration for Ongoing Visitor Experience Studies* (C-COVES) (LG-66-12-0634-12), which focused on convening a forum of experts to discuss the possibility of creating a collaboration like the one proposed in this grant. In August of 2013, the C-COVES team successfully brought together 27 museum professionals from 11 science centers ranging in size, community context, and evaluation capacity, as well as 3 consulting or industry organizations, to elaborate the various objectives, outcomes, and potential pitfalls of a collaborative endeavor such as this. Over two days, these individuals contributed thoughts informed by diverse experiences and expert opinions, and eventually reached the consensus that this type of collective data effort was worthwhile for participating institutions and necessary for the science center field as a whole. COVES moves this project forward, from collective thought to collective action.

1. Project Justification

This project seeks to achieve the following goals over the course of three grant-funded years:

- Establish a sustainable, responsive program to support science museums of all sizes across the country to engage collaboratively in ongoing visitor experience studies;
- Create a coalition of institutions focused on understanding and improving the visitor experience;
- Integrate visitor data collection and analysis across a diverse range of organizations in order to build field-wide knowledge and understanding of science museum audiences and their experiences;
- Build the evaluation capacity of science museums across the nation; and
- Increase and enhance the use of visitor data-based decision-making among museum professionals.

Spearheaded by the Association of Science-Technology Centers (ASTC), responsible for all administrative duties, and the Museum of Science, Boston (MOS) leading the research activities, this collaborative system will be comprised of several working teams from participating organizations tasked with establishing measures and data analysis plans, and a Governing Body, which will oversee these various working teams. A group of expert Measurement Consultants will serve as project advisors, helping to ensure that the data collection instruments are both valid and reliable, that the methods chosen to support the research are appropriate, and that the strategic vision is both ambitious and accomplishable in the time set out. Working together across organizations is a strategy that will expand the reach of the effort, capitalize on the capacity of diverse participants, and efficiently distribute the workload.

While a collaboration such as the one proposed does not yet exist for science museums, there are multiple examples from other sectors that demonstrate that organizations within a given educational sector can work together with data to improve and inform both the individual organization and contribute to the knowledge of their field. One example is the American Association for State and Local History's (AASLH) *Visitors Count!* program, which helps individual museums collect and analyze feedback from visitors in order to improve future decision-making and marketing, as well as improve visitor experiences at participating sites. Since its inception in 2000 with 10 pilot institutions, more than 180 history organizations have participated (AASLH, 2013). Another, the *Why Zoos and Aquariums Matter* study, was an Association of Zoos and Aquariums (AZA) endeavor that supported data collection across 12 zoos and aquariums to determine who was visiting and what impact these visits had, specifically in terms of visitors' feelings about conservation. Collectively, the inter-

organizational team was able to refine five instruments and produce the Toolkit for Increasing AZA-Accredited Zoo & Aquarium Contributions to Field Conservation (AZA, 2012); although the inter-organizational effort is not ongoing, the toolkit produced continues to inform practice for zoos and aquariums. Finally, the *National Survey of Student Engagement* (NSSE) is an annual study at colleges and universities throughout the U.S. focused on helping individual schools identify aspects of the undergraduate experience that can be improved through changes in policies and practices. In the 2013 academic year, 586 institutions took part in the study, and over 1,500 have done so since 2000 (NSSE, 2013). COVES builds from lessons learned through the implementation of these existing models and includes the core elements attributable their success: providing participants the opportunity to build a community of practice around shared data, distributing data analysis and meaning-making; and affording research flexibility (Wulf, 1993; Kinzie et al., 2006).

Although many science museums currently have audience-focused data efforts in place that are similar in their intentions, these efforts are isolated to individual organizations with limited capability for sharing findings across sites due to variations in question wording, sampling strategies, and analysis techniques. In addition, the science centers that conduct such studies tend to have higher annual budgets and attendance than those who do not (Luebke & Grajal, 2011). As smaller organizations constitute approximately 46% of the science center field, a large proportion of science museums may not have the opportunity to conduct and use visitor studies to improve their visitor experience, and existing measures are disparate (ASTC & Pollock, 2008). The inability to share data poses a problem for the science museum sector. The Cultural Data Project (CDP) recently conducted a study to identify factors that influence the way data are collected and utilized in cultural organizations such as museums and science centers. Preliminary findings indicate that the lack of accessibility and comparability of data limit the usefulness of existing data at a field-level, and capacity constraints hinder high-quality efforts at the organization-level (Lee & Linett, 2013). Among the recommended actions are coordinated leadership on data initiatives, a shift from data use as an accountability tool to that of a decision-making tool, and a cohesive, unified research agenda with built-in infrastructure for collection and analysis as well as resources for professional development – all of which are included in the COVES Project Work Plan detailed below. These recommendations stem from the realization that “the long-term health, sustainability, and effectiveness of cultural organizations depend critically on investment in and collective action around enhancing the field’s capacity for using data strategically and thoughtfully, to inform decision-making” (Lee & Linett, 2013).

Studying the visitor experience in science centers – who visits a particular museum, why they visit, what they experience during their visit, and how they react to different aspects of their experience – can help organizations learn about their visitors, make evidence-based decisions about services and programming, and respond to challenges, interests, and concerns in a visitor-centered manner (Luebke & Grajal, 2011). This type of monitoring allows organizations to grow and diversify by targeting particular audiences, and fosters a culture of responsiveness to museum guests (AASLH, 2013; McDonald, 1993). Measuring the visitor experience across organizations can further inform individual science centers and the larger museum field by providing visitor experience benchmarks that can help organizations interpret the experience and characteristics of their own visitors within the scope of other similar organizations (AASLH, 2013; IMLS, 2012). Cross-organizational assessment can also help build field-wide understanding of museum audiences and the factors related to the quality and character of their visits. This type of assessment can contribute to evidence-based understanding of the nature and impacts of museum experiences on visitors, and can help museums overall meet the needs of their many audiences (IMLS, 2012). Furthermore, *ongoing* studies enable museums to engage in a continuous learning process through which they can test out various strategies for attracting new audiences, encouraging repeat visitation, and strengthening the quality of the visitor experience to see how visitors respond through changes in the data over time. Despite the many benefits of cross-organizational studies examining the visitor experience, the science center field currently lacks strategies and structures to conduct such studies. The proposed collaboration would address this vital need.

These benefits have been clearly recognized and articulated by organizations both small and large through a number of different avenues during the project planning period. Of the 10 museums who served as partners on the previous grant, 8 are continuing partners: 5 self-selected to serve as Governing Body members for COVES (and are willing to contribute their own one-to-one cost share) and an additional 3 readily volunteered to pilot

the system as Participating Institutions (with no expectation that they will receive funding). These partners not only participated in the forum that solidified the need for COVES but have offered feedback on everything from the development of the proposed system to this narrative itself. In a post-forum survey, to which 81% of attendees responded, 13 of 21 individuals fully agreed that there was “a sense of urgency for this work for the field and their institution” and that “the collaboration could benefit their institution and the field”; the remaining 8 individuals moderately agreed (no one disagreed or minimally agreed). Furthermore, during a roundtable session at the ASTC Annual Conference in October, 2013, more than 20 session attendees asked to receive additional information and stay involved in the project development process, including Executive Directors and Visitor Services Directors spanning science centers from Orlando, FL to Vancouver, British Columbia.

In preparation for the C-COVES forum, museum and measurement professionals across the science center field were consulted to understand the affordances and challenges of a collaboration designed to study the visitor experience. National organizations including AAM, NSF, ASTC, and IMLS were contacted, as were many existing studies involving multiple organizations, such as the *Developing, Validating, and Implementing Situated Evaluation Instruments* project (DEVISE) (DRL-101-744) and the *Denver-area Evaluation Network* (DEN) (IMLS 21st Century Museum Professionals Program). Museums – including all four core partners instrumental in the planning work carried out by C-COVES, three of whom have signed on to COVES as Governing Body members – were asked about the types of audience data that are currently collected or *should* be collected to inform the planning and development of this collaboration, and several themes were prevalent across these conversations. Specifically, group composition and motivations for visitation are considered foundational in audience meaning-making in museums (Silverman, 1995). In addition to these and other demographic characteristics, perceptions of quality are also key in helping organizations understand their performance. In business, an individual’s likelihood to recommend to a friend or colleague has been used as a measure of quality and has been a powerful tool in predicting growth, providing “an effective measure of relationship quality” by accessing both rational and emotional dimensions (Reichheld & Markey, 2011). In these ways, data collection instruments can be built from what has already been established to be of interest and use to science centers, and pre-existing work can be capitalized on.

Further advantages of creating a collaborative system to study the visitor experience include the ongoing nature of this work, which provides the ability to measure and compare not just across institutions but over time. The system is designed to change the scope of questions asked based on the needs of participating science museums and learnings over time, providing the opportunity to expand the research agenda once the system is in place to include ambitious questions about the value of science centers or others that individual museums may have struggled to answer alone in the past. While C-COVES forum participants agreed that the Year 1 agenda should address who is coming to science museums through the collection of demographic data, they also discussed how in future years, collaborators could examine topics such as why people come to science museums and how that might change based on museum offerings (Falk, 2009), what they do and learn while there, and the perceived value of the museum to the community (Yocco, Heimlich, Meyer, & Edwards 2009). All of the topics explored will be aimed at helping museums become more responsive to their communities and enrich their roles as community anchors.

Strategic gathering and analysis of visitor data in an ongoing way can generate powerful new insights to inform and diversify programming, marketing, fundraising, and strategic initiatives within and across institutions. For example, analysis of data about visitor motivations, demographics, and group characteristics has enabled MOS to identify four distinct segments of walk-in visitors. Further analysis established that each visitor segment is attracted to different offerings and services. Used in an ongoing way within MOS, the data-based segments and their visitation patterns have informed decision-making across the institution. The Museum of Science decided to host the traveling exhibition *A Day in Pompeii* after analyses suggested that it would appeal to a segment of visitors primarily made up of experience-driven adult-only groups. The marketing department developed diverse outreach and advertising strategies, including some designed to appeal directly to this segment; the Visitor Services department worked with the Education department to select and develop additional programming and shows to meet the needs and interests of experience-driven adult groups, while augmenting services and programming in other areas to attend to the interests and concerns of other core

audience groups, like fun-loving local families with young children. Other museums conduct similar visitor studies, such as the Science Museum of Minnesota and St. Louis Science Center, and have identified similar segments through audience data analysis, suggesting that sharing and collaboration could yield new insights despite regional and contextual differences. Thus, the consistent measures and methods that will be developed through the COVES project will offer the opportunity for participating institutions to: develop more sophisticated understandings of their own audiences; identify and share successes and challenges in targeted marketing, programming, and educational efforts for different groups; and evaluate and improve how travelling exhibitions are packaged and marketed in different communities.

The overarching premise behind COVES is that what prevents science museums from working together to conduct ongoing studies is the absence of an infrastructure to support such an effort. While a number of measures, indicators and instruments exist for studying visitors in science museums, what is missing are: the policies that guide how science museums can share information across organizations; a mechanism for science museums to come together to agree upon what should be studied; shared information systems (such as agreed upon survey software and cloud servers) that enable cross-organizational data sharing; evaluation capacity within organizations, which includes the ability to systematically collect and interpret data; and standardized ways of gathering and reporting findings. It is the very need for this infrastructure that COVES will address.

The COVES project seeks to generate two main outputs: a scalable, sustainable system that will enable ongoing collection of visitor data across multiple science museums (this system will live on after the grant funding has ceased); and tools and resources that will be integral to the work of the collaboration and could, potentially, be used by other organizations looking to study the experience of their visitors. These tools and resources include valid measurement instruments with clear data collection protocols, training materials that guide science museums on valid data collection protocols, governing policies that establish terms for the use and protection of shared data, and a field-wide report that aggregates data across science centers. In addition, a series of individualized reports will be generated for each participating science museum as well as assistance and materials to support the interpretation and use of findings.

As a result of these outputs, a number of longer-term outcomes and impacts are anticipated. The first few years of collaboration will witness increased and enhanced use of visitor data-based decision-making as well as increased evaluation capacity among diverse institutions and museum professionals. Over time, participating science museums will engage in a process of continuous change through evaluative inquiry and will stay more relevant to changing audiences (Preskill & Torres, 1999). Each organization will become a better community anchor by focusing on its visitors. Within three years, this collaboration will build cross-organizational knowledge and understanding of science museum audiences and their experiences by integrating visitor data across institutions. In five years, after more science museums join the established network, COVES will generate field-wide knowledge – an ambitious yet achievable goal. As outlined below, the three-year project work plan articulates more fully how each piece of the system is integral in achieving the intended results.

2. Project Work Plan

The following work plan directly addresses the collective ideas shared during the August 2013 C-COVES forum. At this convening, participants outlined the parameters necessary for developing an effective visitor studies collaboration, specifying how decisions will be made within the context of the collaboration by:

- Developing a way of working together to collect and share visitor experience data,
- Developing tools that multiple sites can use to that end,
- Testing those tools in a pilot project at nine sites,
- Prototyping data aggregation and reporting processes,
- Training project participants in using the tools and the results for their own decision-making, and
- Establishing the governance, financial, and recruitment models to make this an ongoing and growing collaboration after the pilot project is complete.

The work of the collaboration must be directed, managed, and overseen on multiple levels in order to promote responsiveness, rigor, adaptability, and responsible use. It is critical that the decision-making processes and structures establish the system's trustworthiness and credibility both internally and externally, to institutions

and the museum sector. To that end, forum participants determined that the decision-making process must, first and foremost, be driven at all levels by a clear, shared vision and set of values. In addition, all decision-making must be informed and representative of geographically and contextually diverse institutions and stakeholders.

Forum participants suggested that COVES be divided into several working groups:

- The Governing Body, responsible for drafting core policies for the collaboration as a whole, establishing priorities and parameters for questions, decision-making, and analysis, and planning for sustainability,
- The Research Team led by MOS, responsible for study design and implementation,
- The Administrative Team led by ASTC, responsible for coordinating logistics and communication, and
- Participating Institutions, which will pilot measurement protocols, instruments, and reporting structures.

Additional decision-making support will be provided by a team of Measurement Consultants to help oversee the development of instruments and data collection protocols, and an Institutional Review Board (IRB) to ensure that adequate protections of human subjects are in place.

The role of the Governing Body:

The Governing Body will be primarily responsible for establishing and maintaining the project vision; drafting policies around data use and protection, instrumentation flexibility, and the rules of the collaborative structure; overseeing the Research and Administrative Teams by establishing and responsively revising priorities and project goals; defining and adapting a sustainable financial/business model for the project to ensure long-term growth and success; and promoting the project within and beyond their own institutions. Including a representative from ASTC and MOS as well as leaders from five science museums that vary in size, represent different regional and community contexts, and have varying evaluation capacities, Governing Body members were chosen based on the perspective their institution brings to the project, their participation in C-COVES, previous experience collecting museum visitor data, as well as their high interest and commitment to the proposed COVES project. Governing Body members (CVs appended) include:

Heather Calvin, Associate Vice President, Visitor Services and Membership, MOS,

Laura Huerta Migus, Director, Professional Development and Inclusion, ASTC,

Sarah Cohn, Evaluation and Research Manager, Science Museum of Minnesota,

Rita Deedrick, Senior Director for Planning, Evaluation, and Research, Center of Science and Industry,

Joe Heimlich, Senior Research Associate, Center of Science and Industry,

Elisa Israel, Associate Director, Research and Evaluation, Saint Louis Science Center,

Tania Tiburcio, Director of External Affairs and Community Engagement, New York Hall of Science, and

Sarah Wolf, Executive Director, Discovery Center Museum.

The role and qualifications of the Research Team:

Led by the Museum of Science, the scope of work of the Research Team includes study design and implementation, as well as training data collectors across sites. MOS staff will:

- Identify and refine rigorous measures and data collection protocols,
- Create IRB-approved methods to support rigorous and consistent data collection across sites,
- Identify a secure information technology infrastructure to allow for storage and limited access to institutional data,
- Train data collectors and oversee data collection,
- Conduct data analyses for individual institutions and the broader field,
- Share and disseminate findings to participant institutions and the broader field,
- Provide assistance and materials to support data interpretation and use, and
- Evaluate the activities in each year of the grant to determine how well the needs and expectations of collaborating institutions are being met.

The Museum of Science (MOS) is uniquely qualified to lead the study design and implementation of this collaboration. MOS has one of the largest internal museum evaluation departments in the world, with 10 full-time and 2 part-time staff members. In the past seven years, members of this department have made over 70 conference presentations, published over 25 journal articles, and have experience conducting national studies collaborating with other research and evaluation organizations. Additionally, the MOS Research and Evaluation

Department has an established history leading multi-institution evaluations, including the evaluation of the *NISE Network* (DRL 0532536, 0940143), a network of over 300 museums and universities that are working together to engage the public in learning about nanotechnology; *Creating Communities of Learners For Informal Cognitive Science Education* (DRL 1113648), a national collaboration of children's and science museums who are integrating cognitive science research into the educational experiences of museum visitors; *Taking Action Toward Inclusion* (LG-54-09-0053-09), a research study looking into the institutional conditions that encourage or impede museum professionals from taking action to include people with disabilities at three museums across the nation; and *Multi-site Museum Programmatic Accessibility Project* (LG-26-11-0223-11), leading the evaluation of a program being implemented at more than ten art museums and historical houses.

For many of these inter-organizational projects, MOS has experience building the evaluation capacity of other institutions. To expand the use of evaluative thinking across the *NISE Network*, leaders of the evaluation team, which includes several MOS Research and Evaluation Department members, designed an evaluation system where, in addition to the formal evaluations conducted by the evaluation team, non-evaluation professionals are also encouraged to conduct a team-based inquiry process, driving the questions of interest, data collection methods, data analysis, and interpretation. For the *Multi-site Museum Programmatic Accessibility Project*, MOS evaluators trained and provided resources to the participating sites on conducting focus groups and creating successful survey and interview instruments to evaluate the created programs. MOS also has established leadership in conducting innovative, ongoing visitor experience research through the *Visitor Experience Monitoring Project* (VXM). VXM, an online survey that has been completed by over 8,000 randomly-sampled MOS visitors since 2009, enables MOS to use visitor-centered evidence to inform institutional decision making and to be more responsive to visitors. VXM was a finalist for the Roy L. Shafer Leading Edge Award that recognizes ASTC members for their extraordinary accomplishments in visitor experience, business practice, and leadership in the field. *Christine Reich*, Director of Research and Evaluation, will be the lead Museum of Science staff member overseeing the Research Team (CV enclosed).

The role and qualifications of the Administrative Team:

Led by ASTC, the scope of work of the Administrative Team includes:

- Coordinating and planning meetings and other project logistics,
- Communicating with partner institutions,
- Overseeing recruitment and communication with new potential participant institutions,
- Coordinating dissemination, and
- Leading the development and initial implementation of the business plan to ensure the sustainability and independence of this project long-term.

ASTC is uniquely capable to co-lead the COVES project, overseeing all project administration. ASTC is an international organization with nearly 600 science centers dedicated to improving informal science learning, and to "linking its members worldwide and advancing their common goals" (ASTC, 2012). This organization is uniquely positioned to act as a third-party group that will serve the interests of all members of the collaboration as well as play an important role in recruiting institutions to join the collaboration.

The role of the Measurement Consultants:

Measurement Consultants will oversee the quality of the work throughout the project, specifically advising on the rigor, reliability, and validity of the developed system. These advisors were chosen based on their research expertise within and outside of the informal science field, and include: *Rena Dorph*, Ph.D., Director of Research, Evaluation, and Assessment, Lawrence Hall of Science; *John W. Jacobsen*, CEO, White Oak Institute; and *Larry Suter*, Ph.D., Independent Consultant and former NSF Program Director for the ISE program (see enclosed CVs for more information).

The role of the Participating Institutions:

Participating Institutions will act as sites that will engage in ongoing data collection. These institutions were chosen based on their participation in C-COVES, previous experience collecting museum visitor data, as well as their high interest and commitment to the proposed COVES project. All of the science centers represented by

the Governing Body are also Participating Institutions, and the nine organizations that have expressed their enthusiasm for the proposed collaboration and have committed to involvement are: *Museum of Science* (Boston, MA); *Science Museum of Minnesota* (St. Paul, MN); *Center of Science and Industry (COSI)* (Columbus, OH); *St. Louis Science Center* (St. Louis, MO); *New York Hall of Science* (Corona, NY); *Discovery Center Museum* (Rockford, IL); *Connecticut Science Center* (Hartford, CT); *Terry Lee Wells Nevada Discovery Museum* (Reno, NV); and *The Discovery Museums* (Acton, MA).

In order to create a financially independent and sustainable system, the project must establish the system's trustworthiness, credibility, and value to individual institutions and the broader museum sector. Following the priorities established during the C-COVES forum, the project teams will work together to:

- Thoughtfully and strategically identify **questions** to be addressed by the collaboration to inform individual institutions and the field, and build in methods for revisiting and revising these questions regularly;
- Develop **data collection** strategies and protocols that are clear, efficient, effective, and transferable across diverse contexts, preferably valid for cross-institutional analysis;
- Create **data analysis and reporting** strategies that are expedient, responsive, concise, and driven by the need to inform decisions and contribute to a broader understanding within the science museum field;
- Establish clear **guidelines and policies** to guide the work of the collaboration; and
- Build data collection and interpretation **capacity** at each of the Participating Institutions.

These strategic agenda activities will take place over the three-year life of the grant-funded project.

Timeline, Year 1

In order to lay the foundation for the ongoing collaboration, much of the initial decision-making work will occur during the first year of the grant. Activities during the first year of the project include:

- Refining the collective vision and defining a set of questions, priorities, and policies to guide and focus the work of the collaboration overall,
- Drafting a partnership plan and business model that will enable the project to be self-sustaining at the conclusion of the grant period,
- Creating a data collection protocol, sampling strategy, and single shared instrument, adopting validated strategies and measures from other relevant projects where possible,
- Developing and delivering training workshops and materials to support rigorous and consistent data collection across sites, including managing IRB materials and certifications,
- Beginning to pilot onsite data collection and measures at the nine Participating Institutions, and
- Developing or identifying necessary technical infrastructure.

During the first year of the project, the Governing Body members and Research and Administrative Teams will attend a 1-day in-person project kick-off meeting at the 2014 ASTC Annual Conference, coordinated by the Administrative Team. During this meeting, the group will refine and adopt a project vision to guide the work of the collaboration and will draft clear, well-articulated charges to guide the development of data collection protocols and methods, instruments and measures, and data analysis and reporting approaches. In addition, each Governing Body member will assume responsibility for one of the following documents, to be drafted by the Research Team during the first year and iteratively revised during the second year of the project:

- Policies and parameters to govern data use, sharing, and protection across organizations,
- Policies and procedures to support year-to-year and institution-to-institution consistency while enabling flexibility as necessary,
- A contract detailing expectations and terms of collaboration for new institutions that wish to join, and
- The business plan to support the sustainability of the collaboration over the long term.

The identification of the need for the above described documents stemmed directly from the C-COVES forum, during which the participating science museums expressed a strong desire for collaboratively-written policies that would guide the working of the collaboration.

After the kick-off meeting, the Administrative Team will coordinate with the Governing Body members to continue their monthly meetings in order to collaboratively review, revise, and oversee the work of the project.

Based on the charges drafted during the kick-off meeting, the Research Team will draft instruments, data collection protocols, and sampling strategies, drawing on the expertise of the Measurement Consultants and adopting existing validated measures and strategies when possible. Measures, sampling strategies, and protocols will be iteratively piloted at each of the Participating Institutions in order to ensure that the resulting products are efficient, clear, reliable, and valid across contexts. Once the system is ready for a full round of field testing, the Research Team will travel to each Participating Institution to conduct on-site data collection trainings.

The Research Team will evaluate Year 1 activities through written feedback, online surveys, and phone interviews with involved staff across the collaboration to assess the extent to which instruments, measures, and policy materials are responsive to the challenges, needs, and interests of Participating Institutions, and to ensure the data collection training materials are effective professional development resources.

Timeline, Year 2

Activities for Year 2 include:

- Field-testing the ongoing data collection strategy and instruments at each Participating Institution,
- Developing and reviewing prototype reports for each Participating Institution and across the broader field with findings from the first 6 months of data collection at each site,
- Supporting Participating Institutions to work independently and together to interpret and use findings from the data through continued trainings, workshops, and professional development materials, and
- Making iterative adjustments to the policies, procedures, and charges based on the feedback from participating institutions and the outcomes of the field testing experiences.

Throughout Year 2, all of the Participating Institutions will be engaged in ongoing data collection, committing approximately 100 staff hours of time towards these efforts. The Research Team, with guidance from the Measurement Consultants, will focus on refining the measures and data collection systems based on field testing outcomes, and will create prototype reports for each Participating Institution based on an analysis of the first six months of data gathered during Year 1. Using the guidelines on data use and sharing developed by the Governing Body, the Research Team will also draft a report of overall findings for the collective group of Participating Institutions and revise the data collection training materials based on the feedback received from the Year 1 trainings and piloting period. The aim for the reporting system is to allow individual organizations to make data-driven decisions specific to their visitor data as well as make comparisons across science centers, while keeping in mind the necessary contextual differences between organizations (e.g., certain demographic comparisons will be made to local census data rather than directly across museums).

The Governing Body will work in collaboration with the Administrative Team to revise the policies and documents established in Year 1 based on feedback from Participating Institutions and the outcomes of field-testing. In addition, the Administrative Team and Governing Body members will work to advertise the collaboration through presentations highlighting the collective work performed to date, in an effort to begin recruiting new participants for potential involvement.

The Research Team will evaluate the activities of Year 2 through written feedback, online surveys, and phone interviews with involved staff at Participating Institutions to assess the extent to which:

- Instruments, measures, and policy materials are responsive to the challenges, needs, and interests of Participating Institutions,
- Institutional participants feel part of a COVES-based community of practice focused on understanding and improving the visitor experience from diverse perspectives, and
- Participants are able to identify ways in which the visitor data will be used to inform decision-making among for at least two different aspects of museum operations and programming.

Timeline, Year 3

In the final year of the grant, the goals of the project will shift towards finalizing the collaboration's policies, processes, and procedures, and developing strategies to support organizational stakeholders to use the COVES data to drive decision-making.

Ongoing data collection will continue at each of the nine Participating Institutions. The Research Team will make revisions to the reporting strategy based on the feedback from the previous year's preliminary institutional and field wide reports, and will create nine new institutional reports and one new overall report based on the full year of data collected from each Participating Institution during Year 2.

Final versions of the policy documents (policies for data use, sharing, and protection, policies for instrument refinement and flexibility, and policies for partnership and collaboration) will be created by the Administrative Team, in collaboration with the Governing Body. Final versions of all data protocols (instruments and measures, data collection and sampling strategies) and training materials will be created by the Research Team, also under the guidance of the Governing Body. In addition, the Administrative and Research teams will work together to create "sample" organizational and field-wide reports for use in the recruitment of new science centers for participation in the collaboration beyond Year 3.

Budget & Cost Share

The total anticipated cost of the project is \$963,650, of which \$481,707 will be paid for through funding from IMLS. The 1:1 cost share required will be contributed by the Governing Body institutions, including both MOS and ASTC. MOS will contribute \$263,026 in the form of one Research Associate spending half of his/her time on the project, one Research Assistant spending 20% of his/her time on the project, for Christine Reich spending 5% of her time on the project, as well as for the participating Governing Board members' time. Also included in MOS cost share are the registration and travel costs for MOS staff to attend the initial meeting at the ASTC Annual Conference and half the cost of the survey software to be used in the project. ASTC will be contributing a total of \$102,764 for cost share to support portions of key administrative and Governing Body personnel salaries. The remaining five Governing Body organizations will be contributing varying cost share amounts due in part to the range of levels occupied by these individuals, but have each committed to covering 120 hours of staff time during the piloting period for a total remaining cost share contribution of \$116,153.

Evaluation Plan

The collaboration will seek to understand and improve its practice through a built-in evaluation plan. Formative evaluation techniques are embedded into the annual work of the collaboration to ensure that participants' needs are met. This system of ongoing communication, including written feedback, online surveys, and phone interviews, will address aspects relating to measurement, such as instrumentation and data collection protocols, those dealing with capacity-building and professional development to ensure adequate support is being provided, and those concerning meaning-making to facilitate actionable data collection. More anonymous feedback will also be collected regarding the performance of the Governing Body and the Administrative and Research Teams relative to the roles they play in the collaboration at large. This will help ensure that all aspects of the system are functioning cohesively.

While the above evaluation strategies will help COVES remain responsive to feedback and ensure that participants' voices are heard over the course of the grant, many internal checks are also designed to ensure that the collaboration remains responsive to the changing needs of the collaboration over time and the potential lessons-learned over each grant year. Specifically, the documents overseen by the Governing Body – focusing on data use, comparability, participation requirements, and the sustainable business plan – will be revisited each year, as will the research questions addressed by the collaboration. Finally, all protocols (instruments and measures, data collection and sampling strategies) and training materials will be iteratively constructed, such that the initial versions are revised several times before being finalized.

A summative evaluation will also study the extent to which the outcomes were achieved. Participants will be asked to articulate at least one strategy or decision their organization was able to make based on visitor data specific to their museum, and at least one strategy or decision their organization was able to make based on the collective data from the group that they did not know before COVES, to determine if Participating Institutions are actually becoming more data-driven. These participants will also be asked to articulate at least two aspects of evaluation methods that they learned from COVES to determine if capacity is being increased. This summative effort will examine overall satisfaction in the participation of the collaboration, and fittingly, the likelihood of Participating Institutions to recommend COVES to colleagues at other science centers.

Dissemination Plan

While much of the dissemination of project activities will occur naturally through the recruitment efforts of the Administrative Team, several conference presentations will also be planned during the course of the project as preliminary measurement instruments, data policies, and eventually results become available. Specifically, sessions at both the Visitor Studies Association (VSA) and ASTC Annual Conferences will highlight the products resulting from COVES, with emphasis on collaborative meaning-making, data-driven decision-making, and the potential for building field-wide knowledge for science centers. In Year 3, these same conferences will be targeted for sessions focusing on the institutional and field-wide reporting mechanism of the collaboration to showcase the COVES product, helping to solicit feedback from the field and recruit new organizations for involvement.

3. Project Results

COVES seeks to establish a sustainable, responsive system designed to support science centers of all sizes across the country to engage collaboratively in ongoing visitor experience studies. However, this outcome is itself the result of a number of smaller, more measurable outcomes stemming from the formation of this collaboration. Success can be gauged if the following results are observed:

- Organizations build internal evaluation capacity, which will occur through targeted training, the resources and measurement tools produced by the doers, and the developing community of practice;
- Participating Institutions begin to incorporate visitor data – both institution-specific data and field-wide data comparable across sites – in their institutional decision-making; and
- Institutions begin to challenge previously-held assumptions about themselves as they learn and continue to refine and rethink the questions the collaboration is able to pose.

If these results are realized, the collaboration will be able to aggregate audience data across institutions to begin building field-wide knowledge and understanding of the science museum audiences and their experiences.

In addition to the results articulated above, another appropriate measure of success for the collaboration is establishing a tangible value to the field. Through COVES, a multi-institutional system will be created and tools developed that will ideally entice new organizational involvement. The institutional and field-wide reports that are produced can serve as exemplars of both the value of collecting visitor data and the benefits of collaborative meaning-making. The collaboration itself will become financially self-sustaining through the development of a thoughtful business plan and the use of intelligent recruitment strategies. In short, project results will be successfully demonstrated if COVES becomes an attractive collaboration for museums not yet involved in the work to become a part of, and the value of collecting audience data becomes evident to more and more institutions over time – simply measured by the number of member institutions at the end of Year 3.

Sustainability

As one of the primary project goals of COVES is to become sustainable by grant's end, this aspect is built explicitly into the development of the collaboration. Although the financial model has not yet been developed, it is a top priority for Year 1. One potential model already under consideration is a fee-based system, where each participating organization contributes a fee to sustain the collaboration. Such a model is successfully used by *Visitors Count!* and NSSE. Its potential viability as an option is also evident in the willingness of each governing board member to contribute cost share to this initiative.

The long-term impacts that are achievable through COVES will help position science centers as anchors within their communities, transforming each Participating Institution into a data-driven organization, engaged in a process of continuous change through evaluative inquiry, focused on staying relevant to a changing audience. The sustained benefits of this project lie in the collaboration's potential to make the visitor experience more attractive and fulfilling at science centers individually and as a whole, and to increase the ability of science centers to meet community needs and therefore gain increased visitation and support.

Schedule of Completion

Year 1	2014			2015								
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Governing Body, Research and Administrative Teams attend kickoff meeting at ASTC Annual Conference	■											
Charges to guide the development of data collection protocols, instruments, measures, data analysis, and reporting approaches are drafted	■■■■											
Project vision is refined and adopted to guide the work	■■■■											
Governing Body drafts policies and parameters to govern data use, sharing, and protection across organizations			■	■	■	■	■					
Governing Body drafts policies and procedures to support consistency while enabling flexibility			■	■	■	■	■					
Governing Body drafts a participation contract for new institutions that wish to join the collaboration			■	■	■	■	■					
Governing Body drafts a business plan to support the sustainability of the collaboration			■	■	■	■	■					
Research team drafts instruments, data collection protocols, sampling strategies, and training materials				■	■	■	■					
Research team holds trainings at each institution							■	■	■			
Pilot testing at each institution									■	■	■	■

Year 2	2015			2016								
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Governing Body, Research and Administrative Teams attend ASTC Annual Conference to disseminate and recruit												
Refinements are made to the data collection protocol, instruments, and trainings by the research team												
Analysis of year 1 data and creation of individual reports as well as a report of findings for the broader set of institutions												
Strategies for support interpreting data and making use of findings are brainstormed and implemented												
Iterative adjustments are made to the policies, procedures, and charges by the Governing Board												
Ongoing data collection at all participating sites												

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Year 3	2016			2017								
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Governing Body, Research and Administrative team attend ASTC Annual Conference to disseminate and recruit	■											
Revisions to the reporting strategy are made by the Research Team	■■■■■■■■■■											
Analysis of year 2 data and creation of individual reports as well as a report of findings for the broader set of institutions		■■■■■■■■■■	■■■■■■■■■■	■■■■■■■■■■	■■■■■■■■■■							
Final versions of the data collection protocols and training materials are created along with a sample report template				■■■■■■■■■■	■■■■■■■■■■	■■■■■■■■■■	■■■■■■■■■■	■■■■■■■■■■	■■■■■■■■■■	■■■■■■■■■■	■■■■■■■■■■	■■■■■■■■■■
Policies, processes, and procedures for the collaboration are finalized	■■■■■■■■■■	■■■■■■■■■■	■■■■■■■■■■	■■■■■■■■■■	■■■■■■■■■■	■■■■■■■■■■	■■■■■■■■■■	■■■■■■■■■■	■■■■■■■■■■	■■■■■■■■■■	■■■■■■■■■■	■■■■■■■■■■
Ongoing data collection at all participating sites	■■■■■■■■■■	■■■■■■■■■■	■■■■■■■■■■	■■■■■■■■■■	■■■■■■■■■■	■■■■■■■■■■	■■■■■■■■■■	■■■■■■■■■■	■■■■■■■■■■	■■■■■■■■■■	■■■■■■■■■■	■■■■■■■■■■