EVALUATING WEB TECHNOLOGY:
THE USE AND MEASUREMENT OF
WEB INITIATIVES IN PUBLIC
HORTICULTURE INSTITUTIONS

by

Aubree Cherié Pack

A thesis submitted to the Faculty of the University of Delaware in partial fulfillment of the requirements for the degree of Master of Science in Public Horticulture

Spring 2012

© 2012 Aubree C. Pack
All Rights Reserved
EVALUATING WEB TECHNOLOGY:
THE USE AND MEASUREMENT OF
WEB INITIATIVES IN PUBLIC
HORTICULTURE INSTITUTIONS

by

Aubree Chérié Pack

Approved: _________________________________________
Dr. Robert Lyons, Ph.D.
Professor in charge of thesis on behalf of the Advisory Committee

Approved: _________________________________________
Dr. Blake Meyers, Ph.D.
Chairperson of the Department of Plant and Soil Science

Approved: _________________________________________
Dr. Robin Morgan, Ph.D.
Dean of the College of Agriculture and Natural Resources

Approved: _________________________________________
Charles G. Riordan, Ph.D.
Vice Provost for Graduate and Professional Education
ACKNOWLEDGMENTS

I offer my thanks and continued gratitude to Robert Lyons, Ph.D., Rosemary Krill, and John Page for their assistance and guidance throughout this thesis research and writing process.

A special thanks also goes to my family and dear friends, whose loving support sustained me through this endeavor.

Above all, I praise God for His mercies in providing me with an opportunity to do this work and to pursue what I enjoy.
TABLE OF CONTENTS

LIST OF TABLES ........................................................................................................................ vii
LIST OF FIGURES...................................................................................................................... viii
ABSTRACT .................................................................................................................................... x

Chapter

1 INTRODUCTION ..................................................................................................................... 1
   Purpose and Justification ..................................................................................................... 1

2 LITERATURE REVIEW .......................................................................................................... 5
   The Importance of Website Evaluation in Non-profit Institutions ................................ 5
   Creating a Culture of Web Evaluation .............................................................................. 8
   Understanding Web Evaluation ...................................................................................... 10
   Existing Web Analytics Models .................................................................................... 12
       The ZAAZ Web Analytics Model ........................................................................ 12
       The Google Analytics Measurement Model ......................................................... 14
   Summary of Preliminary Findings ................................................................................... 16

3 MATERIALS AND METHODS .......................................................................................... 17
   Survey ............................................................................................................................ 17
       Purpose, Objectives, and Format ........................................................................ 17
       Audience ................................................................................................................ 18
   Case Studies ................................................................................................................... 18
       Audience ................................................................................................................ 18
       Data Collection ...................................................................................................... 19

4 RESULTS OF SURVEY ...................................................................................................... 20
   Survey Participant Characteristics .............................................................................. 20
       Types of Institutions ............................................................................................... 20
       Budgets .................................................................................................................... 21
       Admission Fee ......................................................................................................... 23
5 RESULTS OF CASE STUDIES

Case Study Site Selection .................................................................................. 47
Case Study 1: Bartram’s Garden........................................................................ 47
    Description and Mission ............................................................................. 47
    Response to Technology Change .................................................................. 48
    Current Purpose and Future Goals of Website ............................................ 49
    Institution’s Current Website and Evaluation Practices............................. 51

Case Study 2: Mt. Cuba Center.......................................................................... 54
    Description and Mission ............................................................................. 54
    Response to Technology Change .................................................................. 54
    Current Purpose and Future Goals of Website ............................................ 55
    Current Website and Evaluation Practices............................................... 57

Case Study 3: Longwood Gardens ................................................................... 60
    Description and Mission ............................................................................. 60
    Response to Technology Change .................................................................. 60
    Current Purpose and Future Goals of Website ............................................ 61
# LIST OF TABLES

<table>
<thead>
<tr>
<th>Table</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Selected Case Study Institutions</td>
<td>47</td>
</tr>
<tr>
<td>2</td>
<td>Bartram’s Garden’s Current Website Purpose</td>
<td>50</td>
</tr>
<tr>
<td>3</td>
<td>Bartram’s Garden’s Future Website Goals</td>
<td>51</td>
</tr>
<tr>
<td>4</td>
<td>Bartram’s Garden’s Website Elements</td>
<td>52</td>
</tr>
<tr>
<td>5</td>
<td>Bartram’s Garden’s Website Features</td>
<td>53</td>
</tr>
<tr>
<td>6</td>
<td>Mt. Cuba Center’s Current Website Purpose</td>
<td>56</td>
</tr>
<tr>
<td>7</td>
<td>Mt. Cuba Center’s Future Website Goals</td>
<td>57</td>
</tr>
<tr>
<td>8</td>
<td>Mt. Cuba Center’s Garden’s Website Elements</td>
<td>58</td>
</tr>
<tr>
<td>9</td>
<td>Mt. Cuba Center’s Website Features</td>
<td>59</td>
</tr>
<tr>
<td>10</td>
<td>Longwood Gardens Current Website Purpose</td>
<td>62</td>
</tr>
<tr>
<td>11</td>
<td>Longwood Gardens Future Website Goals</td>
<td>63</td>
</tr>
<tr>
<td>12</td>
<td>Longwood Gardens Website Elements</td>
<td>64</td>
</tr>
<tr>
<td>13</td>
<td>Longwood Gardens Website Features</td>
<td>66</td>
</tr>
<tr>
<td>14</td>
<td>Type of website and associated success methods</td>
<td>78</td>
</tr>
</tbody>
</table>
LIST OF FIGURES

Figure 1:   Web Analytics Model by ZAAZ.................................................................13
Figure 2:   Categories of Participating Institutions....................................................21
Figure 3:   Institutions Average Annual Budget........................................................22
Figure 4:   Institutions Participating in Evaluation by Annual Operating Budget ...23
Figure 5:   Free Entry versus Fee for Entry .................................................................24
Figure 6:   Range of Fees charged ..............................................................................24
Figure 7:   Institution’s Location ..................................................................................25
Figure 8:   Institutions Participating in Evaluation by Geographical Location........26
Figure 9:   All Staff Types at Institutions .....................................................................27
Figure 10:  Institutions Participating in Evaluation by Full Time Staff Size .............28
Figure 11:  Years with Online Presence .......................................................................29
Figure 12:  Content-driven Elements of Institution Websites.................................30
Figure 13:  Social Media ...............................................................................................31
Figure 14:  Features and Back-end Functionalities ......................................................32
Figure 15:  Website as a Factor in Organization’s Success.........................................33
Figure 16:  Reasons for the Website being a Success Factor ....................................34
Figure 17:  Website Purpose .........................................................................................35
Figure 18:  Future Goals for Website ...........................................................................36
Figure 19:  Content Management Systems .................................................................37
Figure 20:  Parties Responsible for Content Management System Moderation and Website Initiatives .........................................................................................38
Figure 21:  Parties Responsible for Developing Web Content ....................................39
Figure 22:  Positions Responsible for Developing Web Content ................................39
Figure 23:  Frequency of Content Updates ..................................................................40
ABSTRACT

Websites provide an additional channel of communication between an organization and external audiences. Understanding how audiences are curating their own experience, and how to make content work accordingly, is best monitored by continual evaluation of online practices; both of the institution internally and the external user audience. For-profit website values are typically determined by some form of e-commerce, but most non-profit institutions must include an investigation of mission-based return on investment (ROI), because they exist for more than just maintaining a revenue stream.

The objectives of this thesis were to 1) investigate the premise that evaluation is a necessary element of a successful website, 2) research the current status of web technologies within public horticulture institutions so as to provide a record of peer activity for benchmarking opportunities, and 3) provide a framework from which diverse institutions could build an evaluation strategy, in order to determine the value of their websites and make informed improvements.

This study included both quantitative and qualitative methodology. A survey was implemented to identify current web initiatives and existing web evaluation practices; case studies were conducted that applied survey questions on a more detailed level with three institutions.

Results indicated that formal, decision-making evaluation is not commonly performed in public horticulture institutions. Although 65% of survey participants indicated they utilized some form of website evaluation, their methods varied. Of formal methods, such as online analytics software, actionable data proved to be under-utilized. This indicated that many institutions are not making informed decisions from their data,
but instead, using generalizations to support plans for reasons other than what their data has shown.

In light of findings, subsequent recommendations focus on providing institutions with justification for website analysis and an understanding of how metrics can be used for website improvements, to make business decisions, and to better understand users.
Chapter 1

INTRODUCTION

Like many other cultural and non-profit organizations, public horticulture institutions must make hard decisions while under difficult financial pressures. Ultimately, staying in operation is a key focus.

Enter digital. Digital platforms offer the opportunity for non-profit institutions to conduct their required activities (marketing, operations, education, etc.) more efficiently and with fewer financial resources. Right? Not necessarily. Careful evaluation of methodologies and practices is crucial in using digital opportunities effectively. Effective evaluation is just one tool that can aid institutions in making critical decisions to support their organizational goals. Evaluation of digital opportunities is simply a piece of the puzzle.

Purpose and Justification

Website evaluation in non-profit institutions is important because it can justify, or demonstrate, the benefits of the institution’s online endeavors to stakeholders (Stevens 1989). Internally, evaluation can sometimes be seen as unnecessary, especially when funds are not easy to come by. But planning to include evaluation at the onset can save valuable resources if remedial actions become necessary (Beckmann 2000). Museums and other cultural institutions will benefit from having a plan for evaluation, primarily to compare the different technology opportunities available to them, but to also prioritize institutional needs (Din and Hecht 2007). When a technology does not return the desired results, it is typically because of poor process design or the inability to
leverage functionalities; not always because the technology itself failed. Evaluation can help to prevent these failures (Axson 2011). Because cultural institutions are normally not for profit-based and look at a mission-related return on investment (ROI), they typically are not able to measure their success or failure in simple monetary terms (Overton 2002). They must consider other factors, such as information quality or rate of response, in order to better determine success (Park 2007). Success factors should reflect the organizations overall website objectives, as evaluation is of little use if results are not interpreted in the context of specific goals (Park 2007).

One of the most effective methods of determining website success is to embed continual self examination into the internal culture of the institution, in essence, creating a culture of web evaluation (Uglow 2007). The absence of a strategy in website development is a critical omission; if you do not know where you are going, it does not really matter which direction you choose (Loveday 2008). Having an adjusted institutional mindset to envelop digital is important. The message is still the same, whether it is through an interaction at the front desk or through an application on an iPad (Uglow 2011). Understanding how your audience is curating its own attention, and how to make your content work in these new patterns, is vitally important. This is best monitored by continual evaluation of both your institution and your external audiences (Locke 2011).

Understanding web evaluation can be as easy as understanding that for every action, there is an opportunity for an intelligent reaction (Burby 2007). Web analytics, at its core, is the study of online behavior in order to improve that behavior, for both the user and administrator’s benefit (Koberg 2010). It must be evident to an institution that evaluation is potentially useless without interpretation (Koberg 2010), so it is their own responsibility to use the analytical tools that are so freely available, such as Google Analytics (Hongery 2011). In order to proceed with a website evaluation strategy and have actionable outcomes, goals need to be clearly outlined (Koberg 2010). Some
working methodologies currently exist to do so, particularly for the for-profit world, such as the ZAAZ Web Analytics Model\(^1\) and the Google Analytics Measurement Model (Tonkins 2010).

Published data, regarding website evaluation within public horticulture institutions, was found to be relatively non-existent or not readily available to the field at large. From general inquiry, it was extremely difficult to determine the status of website evaluation within public horticulture institutions, which prompted further exploration as initiated within this thesis.

Many reasons may account for the unavailability of this information. This research sought to determine if the reasons were lack of publication and/or lack of evaluation. What ARE public horticulture institutions doing to evaluate their websites? Are they evaluating at all? To answer these broad questions, the researcher approached the study to uncover specific findings. The questions that were presented in this research asked:

- What is the current state of websites, online technologies, and/or applications at public horticulture and related institutions?
- Are the web technologies in use achieving institutional goals?
- Are institutions seeking professional aid for evaluation or are they evaluating the website themselves, in the case of evaluation having been implemented?
- Why would institutions choose NOT to implement web evaluation?
- Outside the field of public horticulture, what are other institutions methods for evaluating websites, online initiatives, and applications?
- Do institutions find their web initiatives to be successful? If so, how have they measured their success?

\(^1\) http://www.zaaz.com/default.aspx
What are the current best practices for institutions in both the non-profit sector and organizations in the for-profit world?

This thesis research addressed the anecdotal claim that evaluation is a necessary element of a successful website, and that public horticulture institutions will be more successful if they implement evaluation practices, regardless of available funds to do so. Another objective was to research the current status of web and online technologies within public horticulture institutions, and provide institutions with a record of peer activity for benchmarking opportunities.
Chapter 2

LITERATURE REVIEW

The Importance of Website Evaluation in Non-profit Institutions

Why is evaluation of web sites and online initiatives so important for non-profit institutions? Evaluation of new technology tools within cultural institutions is not, in itself, new (Ellin 1969), but challenging times can create the need for increased accountability, enhanced awareness, greater competitiveness, and a need to demonstrate economic return; consequently changing the way evaluation is perceived and carried out (Stevens 1989). Evaluation can be used by educators, interpreters, and program managers to their own advantage, specifically by showing the benefits or return on investment to the community, the gardens, visitors, and other stakeholders (Sutherland 1997).

Evaluation seeks to answer many different questions for an institution, including “What about ...?”, “What would happen if ...?” , “Would this work?”, “How can we make this better?”, and “Did it work?” (Beckmann 2000). In spite of knowing this, institutions may choose to view formal evaluation as unnecessary or as a rare event. Planning to include evaluation costs in the beginning of a project’s implementation may lead to overall savings, especially if remedial evaluation becomes necessary (Beckmann 2000). Evaluation, and establishing a baseline from which to work, is crucial when organizations find themselves in a new territory, which website development may be for many.

Values, mission, and goals need to be at the forefront of any innovations, as web initiatives tend to stem from non-digital initiatives (Patton 2011), such as supporting your institutions mission. In the AAM book, The Digital Museum: A Think Guide (Din...
and Hecht 2007), the authors discuss the frustrations museums have with recognizing the benefits of various technologies but lacking the resources to implement those technologies. Although the authors do not discredit the ideas, insight, or common sense of individual institutions for deciding on the use of a technology tool, they agree museums benefit by having a plan for evaluation, including comparisons of various technology opportunities as well as thinking through and prioritizing institutional needs. This is very applicable to web development, as funds may not be available for such an initiative, but it is becoming a necessity for organizations to stay relevant. It can not be denied that even the simplest website is an asset to nonprofit organizations (Pakroo 2005).

Evaluation ties into this mindset directly because if an organization develops a site without careful initial thought and planning, it will likely miss the opportunity to tailor the site to meeting real needs of the institution (Pakroo 2005). It is important to note that many technology investments have failed to deliver the expected returns, not because of technology failures but because of poor process design or the inability to leverage functionalities (Axson 2011). Sound evaluation allows for educated and calculated decision making, which can help to prevent these failures (Axson 2011). As it was defined by the Northwest Educational Technology Consortium in 2005, evaluation is ‘the systematic investigation of a project or program to determine its worth or merit’. It is essential to provide projected impact data as well as to illustrate user benefits, creating buy-in for those who will be supporting the continuation of initiatives, financially or otherwise.

For cultural institutions, return on investment (ROI), the total value gained after a program has been deployed, looks at a mission-related return as equally important as financial return (NETC 2005). In a museum, or public horticulture institution, ROI determines if the cost and efforts invested in a project will be worth the financial benefits and the benefits associated with the mission (Din and Hecht 2007). However, measuring
the mission does create some challenges. A nonprofit organization generally cannot measure success or failure of its mission in simple monetary terms (Overton 2002). There are many worthy offerings within nonprofits that are so mission rich so as to be money poor (Brinkerhoff 2000). However, if you focus too much on money and not enough on mission, you resemble a business (Brinkerhoff 2000).

Existing literature has outlined limitations and recommendations for successful implementation and evaluation using technology. From Return on Investment In Information Technology: A Guide for Managers, evaluation of a technology’s worth can be resource intensive (Cresswell 2005). In other words, it will be costly to perform an evaluation, be it in-house in the form of valuable staff time, or as a direct cost represented by work contracted outside the institution. This should be taken into consideration in the early stages of the planning process. Cresswell (2005) strongly recommends engaging in pre-evaluation and implementation rather than view technology integration as a ‘top down’ process. Standardized tests seldom measure the variables that web technologies can enhance, such as creativity, problem solving, or critical thinking (NETC 2005). In many cases, program managers plan to spend their budget, for example, on their staff, infrastructure, and development, but not on evaluation. Planning for at least ten percent of a project’s budget allotted to evaluation alone is recommended (NETC 2005).

In a study to determine success factors for tourism marketing web sites, a unified framework of commonly used success factors emerged. Factors determined as most important to website success included, in order of importance, 1) information quality, 2) ease of use, 3) security/privacy, 4) responsiveness, 5) customer service, and 6) interactivity. Other factors included accessibility, navigation, visual appearance, personalization, trust, brand/reputation, and incentive (Park 2007). These factors provide an important basis for practical web evaluation implementation and can simultaneously serve as useful input for the research of web evaluation (Park 2007). The research also points out that as consumers’ needs, technologies, and other factors change, web
evaluation efforts are likely to change as well. It is important to remember that these factors are a starting point and not a fixed framework. Factors to be included should also reflect goals that the organization established for its web site, since evaluation is of little use if results are not interpreted within the context of specific goals (Park 2007).

**Creating a Culture of Web Evaluation**

A website is simply another avenue by which public horticulture institutions can come to better know and serve their user groups/audiences. With that in mind, however, the absence of an evaluation strategy is a critical omission. If you do not know where you are going, it does not really matter which direction you choose. The moment you have a clear goal and communicate a well-defined strategy, everyone can rally around the cause and find ways to contribute (Loveday 2008).

According to Matt Locke, former Head of Multiplatform Commissioning at Channel 4 and Head of Innovation for BBC News Media and now principal of Storythings.com, understanding how your audience is curating their own attention, and how to make your content work in these new patterns, is the most important decision you can make when launching a new project. Consider feedback loops throughout history, ranging from an audience clapping during a live performance or the rating system of television. We have recently been in a “Golden Age” of mass media, but in many cases had very little useful user data. For example, measuring behaviors from a television set did not prove altogether successful. With new digital technologies, we have moved into feedback gathering that allows for detailed and more effective metrics and measurement. However, there is no agreement on what measurements work best now. Nothing will ever be simple again. Understanding digital behaviors is more complex than any model used in the past. We must now design for the new attention patterns of society. There are new
questions to ask. Regarding content, what time of day is it accessed? Is it accessed alone or with others? For a short time or a long time? Is it used at home or is it mobile? Synchronous or asynchronous? All in all, each institution must examine what feedback loop works for them. Is it applause, charts, ratings, points? Or is it something no one has invented yet? These were questions posed by Matt Locke, as a challenge to cultural institutions, during his presentation to the 2011 Let’s Get Real Conference: How to Evaluate Online Success (Locke 2011).

In many ways, this new digital age involves unknowns and murky water. In a recent presentation, “The Role of Digital in UK Cultural Institutions,” Google Creative Lab director Tom Uglow addressed the importance of a new institutional mindset. With the analogy of his life story, he described what he called an adaptive, or emergent, strategy. In this age of rapidly changing digital opportunities, failure can be seen as a learning mechanism. It is not that you try something and simply fail, but that you try something and learn how to do it better next time. With digital technologies changing so rapidly, this may be one of the best methods for staying on top (Uglow 2011).

He continued to say that cultural institutions today are essentially looking at whether it is possible to write a second version of the story they already share, but a digitally enabled version. A key point is that there is no such thing as a digital strategy for your organization. There is an organization wide visitor relationship strategy, it is the first place your visitors visit, it is the entrance hall, the coat check, the reception desk; it is the number one touch point for your organization. Mobile phones, tablets, laptops, etc are completely ubiquitous in our contemporary daily life, and they are not going to become less so. The cultural sector has to find ways to engage and deliver on the same promises offered before, but now using digital tools. It is a required cognitive shift. This either will be planned or unexpected and sudden. He continued with a convincing argument, “there is a strong need to move digital up the agenda, from being ‘the website’; from more than just marketing to being a key driver for the organization.” (Uglow 2011)
It is important to understand the vision of your own organization and know how digital tools can help deliver it, and create user-oriented experiences. Most people recognize that society has reached a point where digital technology, and the Internet, have become ubiquitous, and so fundamental to our lives that we simply expect that institutions and organizations will deliver the highest quality experience and level of access. If Generation Y, and even many within Generation X and the Baby Boomers, does not feel that this is their birthright, we can be sure that the generations below will (Uglow 2011).

Analytics, or metrics, can answer the “what” question, but it’s unable to answer “why” questions, which is left to analysts (Koberg 2010). According to Uglow, metrics can be hard to define. He says that if you can prove it with numbers, you can do it. He also says, if you cannot prove it, but you passionately believe it, then you do it quietly until you can prove it. He suggests starting with the core of your organization, your mission. Use it to guide what you want to happen. Uglow says, “we don’t always know what is going to happen, but we should know what we want to happen. When we talk about success metrics, analytics, user numbers, and participation rates, the numbers are not terribly relevant if you do not know what you wanted to happen in the first place” (Uglow 2011).

**Understanding Web Evaluation**

“For every action, there is an opportunity for an intelligent reaction.” This is what the authors of *Actionable Web Analytics* say regarding web evaluation (Burby 2007). The reason for working with web analytics is simple; it is the study of online behavior in order to improve that behavior (Koberg 2010).
Once an institution realizes that an evaluation strategy for their website is needed, it is also important to note how to move forward because it can be a daunting task (Tonkin 2010). Goals need to be clearly outlined when approaching analytics because without them you have nothing more than a fancy hit counter, which gives the website owner nothing actionable with which to work (Koberg 2010). Although a non-profit organizations’ website may not exist for e-commerce, evaluation will still be heavily reliant on tracking goal conversions. A conversion is a completion of a goal or transaction, and can be virtually anything that the website manager has outlined (Tonkin 2010).

Looking specifically at the web, many free tools are available for evaluation and many are already built into the back-end functionality of a web site or host. Hosting companies have web analytics embedded, but there are also multiple add-on programs that are very user-friendly, such as Google Analytics, Clicky Analytics, GoingUp Analytics, AWStats Analytics, and many more (Hongry 2011). However, the presence of analytical tools does not directly relate to whether institutions are actually evaluating their websites; in fact, many administrators within nonprofit organizations believe it is not their responsibility to use analytics data (Schwartz 2010). Furthermore, institutions that ARE evaluating their websites may not be using the information in an actionable way. An example that emphasizes the point is thinking of your website as a human being and your analytics as an x-ray machine. The x-ray machine can give you all the facts about the body, but only a trained professional can interpret what the facts mean and determine methods of action. The same goes for any website evaluation system such as Google Analytics; it is essentially useless without interpretation (Koberg 2010).
Existing Web Analytics models

Once the institution has the tools, developing an evaluation strategy should follow. Some examples currently exist.

The ZAAZ Web Analytics Model

According to many professionals in the field, you need a comprehensive and well-defined methodology for using data in order to produce a blueprint for collecting pertinent information for tangible business results (Burby 2007). To help see analytics via the big picture, here is a step-by-step process for web analytics provided by ZAAZ2, a global web development company that focuses all of their efforts on creating experiences to engage users. This model revolves around an analytics platform and is intended as a cyclical process focused on delivering results (Fig 1). As discussed by Burby and Atchison (Burby 2007) the process is something you likely already do naturally or, at the very least, is easily grasped. They explain the steps in parallel to planning a party. You first send out 50 invitations using Evite, which is a social-planning website for creating, sending, and managing online invitations. You have identified that 40 of those individuals would need to attend in order for the party to be a success (this is your business metric). One week later, you view the responses and see that 38 accepted, 7 declined, and 5 had not replied (this is your report). Next, you analyze. Two of the non-responsive 5 individuals are not close friends; you do not think they will come. But the other three are good friends who you know are busy and likely have not had a chance to see the invitation yet. So, what do you do? You call them individually and invite them to the party (this is the action). Because of your personal contact, two of them decide to come. In line with your business metric, your party will be a success! Without even thinking about it, you have gone through every step of the analytics methodology: set up

2 http://www.zaaaz.com/default.aspx
a metrics for success, received a report on them, analyzed the report, and taken action to improve turnout at your party (Burby 2007).

Naturally, in the world of business, web analytics can get much more complicated than the provided example. See the details below for a deeper understanding of each step.

Figure 1: Web Analytics Model by ZAAZ

The first step in this model is to identify goals, or business metrics, what you would typically call your key performance indicators (KPIs). To get these, examine your website within the context of your overall business strategy and start defining the desirable user behaviors for your website, as determined by your institution. This may be simple, such as movement of customers from your homepage to a specific initiative, or it

http://www.zaaz.com/default.aspx
may be more complex. Once these desired behaviors are identified, they should be monetized; in other words, their values should be determined (Burby 2007).

The second step in this model is to configure tools, or reports, by first determining what data supports your defined business metrics. It is important to keep in mind that there are external factors external to your web analytics that will also support these reports, such as direct marketing or information from your competitors (Burby 2007).

Opportunity identification is the third step in this model, which is done by analysis. Reporting merely indicates what people are doing on your site. It will not provide an understanding for people’s behaviors...that is accomplished via analysis (Burby 2007).

The last step in this cyclical model is to optimize the website, via action and general optimization opportunities. This is where the previous work will pay off, although many companies do not complete this step. A plan must be in place in order to act on the results of findings. This usually leads to changes in website design, information architecture, the structure of promotions, etc. (Burby 2007).

When the last step is completed, start over again! This should be an ongoing process. On the second or third time through the above process, goals are revisited and changes are made to the configuration of the tool to capture data related to site change or updated goals. During the analysis phase, the impacts of the changes made the last time through are measured (Burby 2007).

The Google Analytics Measurement Model

Another successful model is provided by way of the book, Performance Marketing with Google Analytics, written by veterans of Google Analytics (Tonkin 2010). The authors say five elements consistently come up when they work with a new
company eager to start with analytics. It is a great way to assess where organizations currently stand. It is a process for defining a measurement strategy, with the acronym GETUP (Tonkin 2010).

**Goals and Strategy.** Organizations that already have clear business goals do best with this step. In many cases, this means having managers that listen to their team and conduct research rather than impose individual ideas.

**Expertise.** The more knowledge of analytics that exists within an organization, the better the process will be. At a minimum, someone in the organization should ‘own’ the analytics, even if the initial work is done by a consultant. This likely includes some serious self-examination in the available resources an institution has, such as the funds to support a consultant, or the staff time to maintain the account.

**Tools.** It is important to not only have an analytics tool in place for the organization, but there should also be proper validated implementation. This is to ensure everything is working properly and that the tools include all websites, subdomains, or third party sites that are of interest to the institution.

**Unified Data.** For typical for-profit businesses, direct revenue can be tracked because of e-commerce opportunities. When this is not an option, such as with many non-profits, another measure of success is building trust in the data, which can come through clean measurement standards and audits.

**Process Integration.** This is where it all comes together, by using the data and analysis found previously to begin information strategic and tactical decision-making. Companies that are highly successful in this have an attitude of continuous improvement and do not see “failures” but “learning experiences” to better inform future steps (Tonkin 2010).
Summary of Preliminary Findings

Web evaluation is the study of online behavior in order to improve that behavior. In evaluation, goals are essential and should be developed in the context of organizational mission and the complex situations of real life.

Website evaluation was found to be important because it can provide justification for online initiatives, as well as show the benefits, or return on investment (ROI), to the community, the staff, the board, visitors, and other stakeholders. Having a system for website evaluation in place helps to establish a baseline, provides benchmarks, and establishes the mechanism for definitive goal development. It should not be overlooked.

For non-profit organizations, evaluation is sometimes seen as unnecessary, due to cost. Alternatively, it can be seen as necessary but is not always available, also due to cost or other resources. Non-profit organizations understand that measuring a mission focused ROI is more difficult than only considering the bottom line ROI. Although there is a strong desire to stay relevant with audiences, non-profit organizations find this in competition with efforts to maintain daily operations. Many are frustrated with the lack of knowledge within their institutions, for leveraging technology opportunities.

Organizations should move from having a digital strategy to an overall strategy, which includes digital throughout. Websites should no longer be viewed as a marketing tool, but a key driver for the organizations’ communications, much like the front desk in the visitor center.

Some website evaluation models already exist. Although the models typically allow for defining organization objectives, this is what can easily be overlooked. It is easy to have evaluation tools set up because many are free, but using them properly can be the bigger challenge. Even if evaluation is performed, it may not be done effectively or in an actionable way. The software is useless without interpretation.
Chapter 3

MATERIALS AND METHODS

This research used both qualitative and quantitative methodology, including a survey, interviews, and case studies. All questions were submitted for prior review to the University of Delaware Human Subjects Review Board, which subsequently deemed them all exempt (Appendix A).

Survey

Purpose, Objectives, and Format

The survey was constructed to benchmark current web initiatives at public horticulture institutions as well as to identify existing web evaluation practices, if any. The survey was also to identify potential case study sites.

The survey was designed for completion within 15 minutes and consisted of questions organized into three sections: the first focused on current website practices, as well as on the website’s features/content elements; the second section focused on the perceived value of the institution’s websites, how value was determined, and an exploration of evaluation practices; and the third section queried the respondent’s organizational information (e.g. annual operating budget, staff size, type of institution, etc.). Survey questions are in Appendix B. The survey was created in and administered through Qualtrics under a University of Delaware student license.
Audience

The survey was distributed electronically to all members of the American Public Gardens Association, whose mission states a commitment to innovation.

The survey was also sent electronically to selected members of the Association of Zoos and Aquariums (AZA); LinkedIn groups, including Museums and the Web, American Association for Museums (AAM), AAM Media and Technology, Museums in the Digital Age, and the Association of Nature Center Administrators (ANCA); the Association of Academic Museums and Galleries list serve, the Museum-L list serve, and the ANCA list serve.

Other non-profit cultural institutions were included among the public horticulture institutions to determine if significant differences existed; preliminary analysis indicated no such differences existed. The data was analyzed using descriptive statistics and Univariate analysis.

Case Studies

Survey results led to the development of more detailed questions that were organized into semi-structured interview sessions. The interviews were open, which fostered an atmosphere of topics exploration throughout the case study conversations. See Appendix C for Case Study questions.

Audience

Each case study site was selected for this research only if it was a public horticulture institution whose staff expressed an interest in participation via the electronic survey, located within the Philadelphia region. Selected sites needed to be demographically different from each other in some form, such as annual budgets, varying admission fees, and differential staff sizes.
The three selected sites for this research were Bartram’s Garden, Mt. Cuba Center, and Longwood Gardens.

**Data Collection**

Case study primary contacts included, among others, Executive Directors, Directors of Development, and New Media Strategists. Each was contacted via phone prior to the visit to discuss case study logistics. Other case study participants included, among others, marketing directors and program managers.

Each case study visit consisted of a two hour semi-structured interview with any website stakeholders identified by the institution. Immediately following the interviews, the researcher met one-on-one with a staff member who uses/ed Google Analytics. Interviews were digitally recorded to supplement hand written notes.
This research considered user groups to be public horticulture institutions, zoos, museums, nature centers and other related cultural institutions. The initial analysis of survey data indicated no significant differences between public horticulture institutions and other non-profit institutions. Therefore, all participating audience groups were included in analysis of the data.

**Survey Participant Characteristics**

**Types of Institutions**

The survey included organizations defined as Public Horticulture Institutions, Zoos, Museums, Nature Centers, and Other, where “Other” was primarily composed of professional organizations, historic sites, universities that did not have an associated arboretum or garden, or education sites that did not consider themselves to fit within the provided categories. Some participants who selected ‘Other’ were subsequently moved to specific categories by the researcher in light of additional information provided. For example, one participant selected “Other” but also noted that they were an Arboretum, which is clearly a Public Horticulture Institution. The majority of survey responses (53%) were Public Horticulture Institutions (Fig. 2).
Figure 2: Categories of Participating Institutions

Budgets

Nearly 15% of respondents chose not to share budget information, however, a wide range of institutions with varying budget sizes was represented in the survey results (Fig. 3).
Figure 3: Institutions Average Annual Budget

The following chart shows whether a responding institution participated in evaluation, according to annual operating budget (Fig 4).
Admission Fee

The survey indicated that institutions requiring fees and those who did not were almost equally represented by the respondents (Fig. 5). Figure 6 lists a more detailed description of admission fee structures.
Figure 5: Free Entry versus Fee for Entry

Figure 6: Range of Fees charged
Geographical Location

Survey participant locations varied (Fig. 7). The choice “Other” consisted of responses such as a university community, seasonal tourist area, rural pocket in a suburban area, and, most commonly that there were multiple sites per organization.

![Figure 7: Institution’s Location](image)

Results were compiled to show if institutions participating in evaluation varied by geographical location (Fig. 8).
Figure 8: Institutions Participating in Evaluation by Geographical Location

**Institution Staff Type**

For the purpose of representing the varying staff sizes of responding institutions, various degrees of staff types were explored; complete respondent data presented in Figure 9.
Results were compiled to show if institutions participating in evaluation varied by full time staff employed (Fig. 10).
Figure 10: Institutions Participating in Evaluation by Full Time Staff Size

Website Benchmarking

Length of Web Presence

The overwhelming majority of public garden institutions expressed that their web presence exceeded 6 years (Fig. 11).
Content Driven Elements

The respondents were asked to identify when the website displayed the specific elements, currently and/or at launch. Some elements, such as institutional contact details and content navigation, have a high level of importance for the institutions’ websites and have always been important. Conversely, some areas have seen tremendous growth, such as social media and online purchasing (Fig. 12).
Figure 12: Content-driven Elements of Institution Websites

Respondents indicating Social Media were directed to a second question to determine which new media platforms are currently utilized (Fig. 13).
Figure 13: Social Media

Features and Back End Functionalities

Public horticulture institution’s websites have advanced significantly to improve functionalities, such as search engine optimization or making use of a content management system. (Fig. 14)
Perceived Success

The Website and Organizational Success

The data indicated that over 30% of all participants were not sure if their websites were successful (Fig. 15).
For the 52% of institutions that said yes to their website being a large factor in the organization’s success, their reasons varied. See Figure 16 for the breakdown.
Institutions that said their website was NOT a factor in their success were given the opportunity to say why, in text form. Due to the large number of varying responses, only summaries are listed below.

- Lack of web savvy members or visitors
- Lack of web traffic, including lack of updates that would draw the traffic
- Lack of staff to maintain the site
- Social media is doing a better job, so the website is used to push people to the social media offerings
- Word of mouth is already the best marketing tool
**Website Purpose**

Public horticulture institutions’ main goals include promoting themselves and providing potential guests with basic information. In contrast, few institutions use the web for an offsite experience (Fig. 17).

![Why does your institution currently have a website?

Figure 17: Website Purpose

**Future Goals for Websites**

This question sought to find where the institutions believed, or hoped, their website might be headed in the near future (Fig. 18).
**Content Development**

**Systems Used**

Thirty-six percent of respondents indicated uncertainty about their own content management system (Fig. 19).
Figure 19: Content Management Systems

Development

Most public horticulture institutions use internal staff, in some form, to moderate the content management system and the running of website initiatives (Fig. 20). Respondents also indicated that much of their content development was done by an internal staff member (Fig 21). For institutions with an internal staff member developing content, it was uncommon that their positions were solely focused on the website or information technology (Fig. 22). For most public horticulture institutions, the rate at which content is created, upgraded, or modified is more than once a month or at a greater frequency (Fig. 23).
Figure 20: Parties Responsible for Content Management System Moderation and Website Initiatives
Figure 21: Parties Responsible for Developing Web Content

Figure 22: Positions Responsible for Developing Web Content
Figure 23: Frequency of Content Updates

Evaluation Practices

Existence of Web Evaluation in Non-Profits

Almost 65% of respondents indicated that they evaluated the success of their website in some form (Fig. 24).
For institutions reporting their websites to be a factor of their organization’s success, the majority of those institutions also performed some form of evaluation (Fig. 25). Out of 152 respondents, 79 indicated that their website was a factor in their organization’s overall success. Of those 79, 80% said they use some form of website evaluation. Participants who answered “No” or “Not Sure” for whether their website was a factor in their organization’s overall success represented 48%, or 73 out of 152. Of that 48%, 45% indicated that they use some form of evaluation (Fig. 25).
Currently Used Methods of Evaluation

The results for which evaluation methods were used at public horticulture institutions were mixed, with the top three methods involving both a qualitative and quantitative approach (Fig. 26). Almost 46% of respondents said they also record their evaluation initiatives (Fig. 27). The responses of “Other” primarily included comments of inconsistency in record keeping.

Over 66% of respondents indicated that website evaluation was done by an internal staff member (Fig. 28). However, only 19% of responding institutions indicated that they have staff dedicated to web development alone (Fig. 28).
Figure 26: Methods of Website Evaluation

Figure 27: Evaluation Records and Documentation
Analytics Data of Interest

The majority of institutions review data for visits, unique visitors, and page views (Fig. 29) but some data is underutilized, such as conversions, click paths, and demographic information (Fig. 29).
Figure 29: Data Typically Looked for in Evaluation via Analytics

**Actionable Analytics**

Over 73% of respondents said that they use the results of their analytics to modify their website content (Fig. 30). Some institutions also indicated that they alternatively use their website metrics for reporting to board members, reporting to other staff, and reporting to donors (Fig. 31). The category “Other” included responses such as reporting to their University or governing agency, contacting referring sites to keep them notified of click-throughs, and providing data to potential sponsors (Fig. 31).
Figure 30: Evaluation Results and Modifying Website Content

Figure 31: Other Purposes for Evaluation Results
Chapter 5

RESULTS OF CASE STUDIES

Case Study Site Selection

Based on the survey, 63.6% of respondents stated a willingness to participate as a case study site. When secondary selection parameters were applied to this group, Bartram’s Garden, Mt. Cuba Center, and Longwood Gardens were ultimately selected as case study sites, given their proximity within the Philadelphia region and diversity of annual budget, admission fees, and full time staff size (Table 1).

Table 1: Selected Case Study Institutions

<table>
<thead>
<tr>
<th>Institution</th>
<th>Annual Budget Range ($)</th>
<th>Admission Fee Range</th>
<th>Full time staff</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bartram’s Garden</td>
<td>500,000 - 2 million</td>
<td>Free</td>
<td>7</td>
</tr>
<tr>
<td>Mt. Cuba Center</td>
<td>Greater than 2 million</td>
<td>$5-10</td>
<td>36</td>
</tr>
<tr>
<td>Longwood Gardens</td>
<td>Greater than 2 million</td>
<td>$10-20</td>
<td>175</td>
</tr>
</tbody>
</table>

Case Study 1: Bartram’s Garden

Description and Mission

“Bartram’s Garden is operated by the John Bartram Association in cooperation with the City of Philadelphia Department of Parks and Recreation. It is located on the west bank of the Schuylkill River in Fairmount Park, in Philadelphia, PA. It
covers 46 acres and is the oldest surviving botanic garden in North America, established circa 1728.” (Bartram’s Garden, 2011)

As provided in the survey taken by Bartram’s Garden (BG), its mission is, “The John Bartram Association protects and enhances the landmark Bartram’s Garden and House, advances the Bartram legacy of discovery, gardening and art, and inspires audiences of all ages to care for the natural world.”

Response to Technology Change

Bartram’s Garden’s current website was developed in 2008, with the understanding that it would suffice for an extended period of time. However, it has grown increasingly outdated and become a major focus for improvement, since BG intends to use it and social media for more marketing initiatives. The relatively low cost of online media is driving this initiative. By introducing e-commerce to their website, online giving increased by 300%. Some technology implementations were also added to fulfill grant requirements, and BG has seen the benefit of engaging new audiences through this avenue. There are concerns, however, about the amount of related administration time required by these elements, but BG also sees their value. Currently, BG is trying to balance reaching broader audiences with new media while retaining their large donor base, which is primarily characterized by an older demographic who overwhelmingly prefers print material.

In 2008, BG began a strategic planning process that engaged over 800 respondents in the community and began an organizational shift, including new insights into how they connect with the community. They examined their organizational voice, started to develop a consistent message, and supported these efforts using social media and web initiatives.
Bartram’s Garden is considered a place that people visit once, usually seeking a historical perspective, and often as a field trip as a child or once as an adult with children or grandchildren. Currently BG offers few programs that encourage repeat visitors, of primary concern to stay relevant as an institution. Reaching out to past and potential visitors via their website and new media is the best option with their current operating budget.

**Current Purpose and Future Goals of Website**

BG’s main website goal is to continually respond to and deliver content that their users want. They realize this can come from evaluation, which they currently implement by recording what they see and record physically on site, through online surveys, and by participating in market research.
Table 2: Bartram’s Garden’s Current Website Purpose

<table>
<thead>
<tr>
<th>Are the following options included in the reasoning for why your institution currently has a website?</th>
<th>Yes/No</th>
</tr>
</thead>
<tbody>
<tr>
<td>To provide information about our institution (‘About us’, hours, directions, etc)</td>
<td>Yes</td>
</tr>
<tr>
<td>To support marketing initiatives</td>
<td>Yes</td>
</tr>
<tr>
<td>For online giving</td>
<td>Yes</td>
</tr>
<tr>
<td>For e-commerce</td>
<td>Yes</td>
</tr>
<tr>
<td>For event listings/calendar</td>
<td>Yes</td>
</tr>
<tr>
<td>For issue advocacy</td>
<td>No</td>
</tr>
<tr>
<td>To provide content for our peers (for example, research and industry data)</td>
<td>No</td>
</tr>
<tr>
<td>To provide content for our visitors (for example, expert advice)</td>
<td>No</td>
</tr>
<tr>
<td>To create an offsite experience via games, online interactives, user customization, etc.</td>
<td>No</td>
</tr>
<tr>
<td>To keep up with our peers who have websites</td>
<td>No</td>
</tr>
</tbody>
</table>
Table 3: Bartram’s Garden’s Future Website Goals

<table>
<thead>
<tr>
<th>Are the following options future goals for your website?</th>
<th>Yes/No</th>
</tr>
</thead>
<tbody>
<tr>
<td>To provide information about our institution</td>
<td>Yes</td>
</tr>
<tr>
<td>To increase onsite ticket sales</td>
<td>Yes</td>
</tr>
<tr>
<td>To increase revenue by e-commerce</td>
<td>Yes</td>
</tr>
<tr>
<td>To engage new audiences</td>
<td>Yes</td>
</tr>
<tr>
<td>To provide new experiences for existing audiences</td>
<td>Yes</td>
</tr>
<tr>
<td>To create awareness for an issue/Call to action</td>
<td>No</td>
</tr>
<tr>
<td>To provide content for visitors</td>
<td>Yes</td>
</tr>
<tr>
<td>To provide content for peers and professionals in our field</td>
<td>Yes</td>
</tr>
<tr>
<td>To keep up with our peers</td>
<td>Yes</td>
</tr>
<tr>
<td>To set online trends and be at the forefront of online development</td>
<td>No</td>
</tr>
<tr>
<td>To continually respond to and deliver content that our users want</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Institution’s Current Website and Evaluation Practices

Bartram’s Garden current website is hosted offsite and run on the Wordpress.org content management system (CMS), although it has a custom design that was built with an outside consultant. Aside from support, moderation of the CMS is run by two individuals. The Director of Development primarily focuses on influencing new ideas for the website and overseeing content updates, which takes approximately 10% of her overall position. The Public Programs Manager spends approximately 25% of her time developing content for updates for the site and for new media marketing. Although BG attempts to have new content every day in new media, the website itself is updated, on average, less than once a week but more than once a month.

BG has seen a large increase in online revenue since the addition of e-commerce features to their website, which has been through member offers and events. In
their income as a whole, online giving is still a small percentage; however, this area shows the most potential for growth.

Volunteering opportunities, programs, events, and member opportunities are being marketed through various online initiatives, including e-mail signatures, Facebook offers, e-mail newsletters, and e-mail campaigns, in addition to a few remaining direct mail offerings.

Table 4: *Bartram’s Garden’s Website Elements*

<table>
<thead>
<tr>
<th>Content-driven Elements of Website</th>
<th>At Launch</th>
<th>Currently</th>
</tr>
</thead>
<tbody>
<tr>
<td>Online Brochure (Basic visitation info – like hours, directions, about, etc)</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Search functionality</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Content Navigation (multiple sub pages with clear navigation to them)</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Online purchasing/E-Commerce (tickets, products, services, etc)</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Institutional Contact Details</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Polls</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Bulletin boards or chat rooms</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Games (unique to your organization)</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Multi-media (video, audio, etc)</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Social Media</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Wordpress, Blogger, or other blog site</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>
Currently, Google Analytics is used to submit data to the Pennsylvania Cultural Data Project. Within the report there is a section for attendance, which includes web attendance, or traffic.

Google Analytics is only looked at once every 3-4 months, primarily to ensure proper functioning. Although analytics are not used to inform decision making, BG finds the analytics to be a reminder of why they work on the website at all. Seeing visitors frequently using the site provides them with motivation for continual improvement. They desire to learn more about leveraging Google Analytics to better serve their decision making and to improve website user experience.

<table>
<thead>
<tr>
<th>Features and Back-end Functionalities of Website</th>
<th>At Launch</th>
<th>Currently</th>
</tr>
</thead>
<tbody>
<tr>
<td>Security (Secure website certification)</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>SEO (Search Engine Optimization)</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Content Management System (the ability to update your website without having to directly edit the html code)</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Subscription (for either an e-newsletter or an RSS feed)</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Member Login or password protected sections (an option for users to be ‘registered’ on the site)</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>User customization (individual user preferences that define what content is presented to those users)</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Crowdsourcing (outsourcing web tasks through an open call to users, such as social tagging)</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Flash, Image Rotation, Java enabled aesthetic features, or Web 2.0 features</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>
Case Study 2: Mt. Cuba Center

Description and Mission

“Mt. Cuba Center is the legacy of Mr. and Mrs. Lammot du Pont Copeland. Established as a private estate in 1935, the Copelands’ legacy lives on at Mt. Cuba Center, elegantly portrayed in the formal gardens, woodland landscapes, pastures, and fields that are now a part of Mt. Cuba Center. Their estate is a treasure of beauty and inspiration as well as a message of steadfast commitment to ecologically sound gardening practices, and responsible land stewardship.” (Mt. Cuba Center, 2011).

Mt. Cuba Center is a non-profit horticultural institution in northern Delaware located on nearly 600 acres. It is dedicated to the study, conservation, and appreciation of plants native to the Appalachian Piedmont Region through garden display, education, and research. Their woodland wildflower gardens are recognized as the region’s finest. As provided in the survey taken by Mt. Cuba Center (MCC) staff, their mission is “to foster an appreciation for plants of the Appalachian Piedmont and the conservation of their environment through garden display, education, and research.”

Response to Technology Change

MCC’s biggest challenge, also identified as an opportunity, is knowing what exists and is currently available to them. Secondly, it is a challenge to weigh technology options and learn how the organization can best leverage it with limited staff time. Technology initiatives are typically programmatic or needs-based, although Mt. Cuba Center always makes efforts to engage their staff in technology training where there is a need or an interest.

Since its launch in 2004, Mt. Cuba Center’s website has seen three major updates, or iterations. In 2004, the website was created as a placeholder, primarily for prospective guests to find additional information. In the 2nd iteration, the website became a repository for information, such as content related to Piedmont flora. In the third
iteration, Mt. Cuba Center engaged a local web development company to establish a content management system (CMS) to better maintain the website. The CMS and website templates are designed around staff needs. Some areas on the website remained placeholders, but are being developed or have recently launched. These decisions are based on what the staff believes is most valuable for the public and will have the greatest impact. The newly launched distance learning program illustrates the zeal Mt. Cuba Center has for embracing new technologies to achieve institutional goals.

MCC identified staff as key success factors for staying in touch with available technology. They also have a cost-to-benefit ratio that they aim to meet in all their initiatives, which helps to keep them effective. For example, when Facebook pages were becoming more common among public horticulture institutions, MCC took a serious look at the value they would receive for the time spent to maintain an account. In the end, it was decided the cost was worth the benefit of increased awareness and audience interaction.

**Current Purpose and Future Goals of Website**

MCC is focusing their web development efforts on creating a great resource and training repository, including content rich-media. Rich content, in many ways, is a core website focus at MCC. They face the challenge of providing dense information while also providing a seamless user experience. Their website is simply a continuation of what MCC does best at their physical site and supports their real world mission; helping people know how to garden, be environmental stewards, and have the joy of understanding nature and the outdoors. MCC hopes their website, showcasing expert knowledge of staff, is a place where guests will be inspired by what they see and be encouraged to go out into nature.

MCC’s website goes beyond the external guest, and provides a section for volunteers and docents only, with sign-in required. This group quickly adapted from
paper systems to digital, which allows MCC staff to communicate more effectively with their docent group, as well as needing less resources for printing. This docent only portion of the website works as an excellent repository for training as well, as staff can post timely educational material for the docents to review.

**Table 6: Mt. Cuba Center’s Current Website Purpose**

<table>
<thead>
<tr>
<th>Are the following options included in the reasoning for why your institution currently has a website?</th>
<th>Yes/No</th>
</tr>
</thead>
<tbody>
<tr>
<td>To provide information about our institution (‘About us’, hours, directions, etc)</td>
<td>Yes</td>
</tr>
<tr>
<td>To support marketing initiatives</td>
<td>Yes</td>
</tr>
<tr>
<td>For online giving</td>
<td>No</td>
</tr>
<tr>
<td>For e-commerce</td>
<td>Yes</td>
</tr>
<tr>
<td>For event listings/calendar</td>
<td>Yes</td>
</tr>
<tr>
<td>For issue advocacy</td>
<td>Yes</td>
</tr>
<tr>
<td>To provide content for our peers (for example, research and industry data)</td>
<td>Yes</td>
</tr>
<tr>
<td>To provide content for our visitors (for example, expert advice)</td>
<td>Yes</td>
</tr>
<tr>
<td>To create an offsite experience via games, online interactives, user customization, etc.</td>
<td>No</td>
</tr>
<tr>
<td>To keep up with our peers who have websites</td>
<td>No</td>
</tr>
</tbody>
</table>
Table 7: Mt. Cuba Center’s Future Website Goals

<table>
<thead>
<tr>
<th>Are the following options future goals for your website?</th>
<th>Yes/No</th>
</tr>
</thead>
<tbody>
<tr>
<td>To provide information about our institution</td>
<td>Yes</td>
</tr>
<tr>
<td>To increase onsite ticket sales</td>
<td>Yes</td>
</tr>
<tr>
<td>To increase revenue by e-commerce</td>
<td>No</td>
</tr>
<tr>
<td>To engage new audiences</td>
<td>Yes</td>
</tr>
<tr>
<td>To provide new experiences for existing audiences</td>
<td>Yes</td>
</tr>
<tr>
<td>To create awareness for an issue/Call to action</td>
<td>Yes</td>
</tr>
<tr>
<td>To provide content for visitors</td>
<td>Yes</td>
</tr>
<tr>
<td>To provide content for peers and professionals in our field</td>
<td>Yes</td>
</tr>
<tr>
<td>To keep up with our peers</td>
<td>No</td>
</tr>
<tr>
<td>To set online trends and be at the forefront of online development</td>
<td>No</td>
</tr>
<tr>
<td>To continually respond to and deliver content that our users want</td>
<td>Yes</td>
</tr>
</tbody>
</table>

**Current Website and Evaluation Practices**

MCC’s website is hosted offsite, run on Expression Engine, and page templates are set-up by an independent web development company. Staff is then able to make minor modifications to each page as needed. In the education department, they utilize Moodle to maintain their distance-learning program. So far they have been able to focus on programming staff with their current web initiatives without having to bring IT support staff on board. They see this as a potential need in the future. However, MCC currently finds that hiring consultant companies, which specialize in specific tasks, is a better return on their investment than hiring in-house staff, which require benefits and other associated costs, such as continual training.

The website is updated, on average, less than once a week but more than once a month. Various staff, or volunteers, within the institution handle this work when needed, as there are no staffers dedicated solely to web development. MCC recognizes
that in adopting new technologies and more digital assets, that some processes will become more complicated while others are simplified. Because of this awareness, the institution has seen more of a shift in position responsibilities across the institution, rather than the need to hire additional help.

MCC has also seen an increase in online ticket sales and expect this to grow; they are now at 50% online and 50% from other methods. Keeping in line with rich content, they plan to continue incorporating more web ready video options for their users, embedded in the website, as part of their classes and publications.

Table 8: Mt. Cuba Center’s Garden’s Website Elements

<table>
<thead>
<tr>
<th>Content-driven Elements of Website</th>
<th>At Launch</th>
<th>Currently</th>
</tr>
</thead>
<tbody>
<tr>
<td>Online Brochure (Basic visitation info – like hours, directions, about, etc)</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Search functionality</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Content Navigation (multiple sub pages with clear navigation to them)</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Online purchasing/E-Commerce (tickets, products, services, etc)</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Institutional Contact Details</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Polls</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Bulletin boards or chat rooms</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Games (unique to your organization)</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Multi-media (video, audio, etc)</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Social Media</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Wordpress, Blogger, or other blog site</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>
Website evaluation at MCC is primarily done via informal discussions among staff or other internally arranged methods, through the use of visitor comments and feedback provided, and receiving data from external consultants who track their site for them.

MCC has a Google Analytics account; however, on an internal level, they do not use it for reporting. They rely heavily on outside expertise to monitor the analytics and suggest changes as seen, which are infrequent. As a result of this case study, they do hope to learn more about leveraging Google Analytics for decision making and to employ general improvements on their website.
Case Study 3: Longwood Gardens

Description and Mission

As provided in the survey, “Longwood Gardens is the living legacy of Pierre S. du Pont, inspiring people through excellence in garden design, horticulture, education and the arts.” Located in Kennett Square, Pennsylvania, “Longwood Gardens is one of the great gardens of the world. We strive for innovation in horticulture and display. We present the arts in an unparalleled setting to bring pleasure and inspire the imagination of our guests. We contribute to society through excellent and diverse education programs, horticulture research, environmental stewardship, and cultural and community engagement.” (Longwood Gardens, 2011).

Response to Technology Change

Longwood Gardens (LG) has experienced a major culture shift within the organization. Embracing technology is no longer a question of whether they will participate or not, but how they will best implement the technologies available. LG recognizes the digital avenue of communication requires additional expertise. A New Media Strategist position was formed in October 2010 for that reason. Although they see value in using external technology partners, they believe this position will become standard in other institutions as the need for expertise becomes realized. LG has realigned resources to accommodate the new developments, including the website, social media, and mobile, as these were in addition to existing marketing operations. Now all departments at LG must think digitally, which is a challenge. Although marketing is charged with various technology projects, different levels of all departments need to be integrated in order to respond to visitors’ expectations. Staff throughout LG must be equipped with the skills to deliver content and communication through digital channels.

When it comes to technology integration and associated pressures, LG benchmarks themselves against institutions like MoMA, the Smithsonian, or consumer
product companies, such as Apple. Although they would like to be, resources do not allow for them to be setting trends. They feel behind and unable to respond to technology change as quickly and as efficiently as these larger organizations.

**Current Purpose and Future Goals of Website**

Longwood Gardens is currently focusing their web development efforts on creating more engagement with their online guests. There is a need to reach new audiences with compelling content, but a cultural shift within the institution needs to occur for this to be effective. Marketing may understand the digital communication channel, but they are not the content experts are the extraordinary staffers, in horticulture, education, etc. A goal of the new website is to create a streamlined process for sharing and developing content, which will foster additional staff involvement.

The LG website is part of an organization-wide movement to increase revenue streams. Looking at the website as a key driver for revenue, or e-commerce, is a driving force for all initiatives done through the website and other online initiatives, such as social media. In a sentence, marketing staff said that the “website goals should be fulfilled through transactions, interactions, and the experience.” They hope the website will visually tell what a Longwood Gardens experience is like.

In hopes that new audience groups will emerge when new content is developed, LG staff plan to continue using their website as a portal to the onsite experience they are already understand clearly and implement well. In addition, they plan to provide a stand-alone experience for online users. Moving forward, the institution is committing to telling more stories about sustainability, science, how-to’s, etc. This will be a big transition, as these topics are current content gaps for the institution.
Table 10: Longwood Gardens Current Website Purpose

<table>
<thead>
<tr>
<th>Are the following options included in the reasoning for why your institution currently has a website?</th>
<th>Yes/No</th>
</tr>
</thead>
<tbody>
<tr>
<td>To provide information about our institution (‘About us’, hours, directions, etc)</td>
<td>Yes</td>
</tr>
<tr>
<td>To support marketing initiatives</td>
<td>Yes</td>
</tr>
<tr>
<td>For online giving</td>
<td>No</td>
</tr>
<tr>
<td>For e-commerce</td>
<td>Yes</td>
</tr>
<tr>
<td>For event listings/calendar</td>
<td>Yes</td>
</tr>
<tr>
<td>For issue advocacy</td>
<td>No</td>
</tr>
<tr>
<td>To provide content for our peers (for example, research and industry data)</td>
<td>Yes</td>
</tr>
<tr>
<td>To provide content for our visitors (for example, expert advice)</td>
<td>Yes</td>
</tr>
<tr>
<td>To create an offsite experience via games, online interactives, user customization, etc.</td>
<td>Yes</td>
</tr>
<tr>
<td>To keep up with our peers who have websites</td>
<td>No</td>
</tr>
</tbody>
</table>
Table 11: Longwood Gardens Future Website Goals

<table>
<thead>
<tr>
<th>Are the following options future goals for your website?</th>
<th>Yes/No</th>
</tr>
</thead>
<tbody>
<tr>
<td>To provide information about our institution</td>
<td>Yes</td>
</tr>
<tr>
<td>To increase onsite ticket sales</td>
<td>Yes</td>
</tr>
<tr>
<td>To increase revenue by e-commerce</td>
<td>Yes</td>
</tr>
<tr>
<td>To engage new audiences</td>
<td>Yes</td>
</tr>
<tr>
<td>To provide new experiences for existing audiences</td>
<td>Yes</td>
</tr>
<tr>
<td>To create awareness for an issue/Call to action</td>
<td>No</td>
</tr>
<tr>
<td>To provide content for visitors</td>
<td>Yes</td>
</tr>
<tr>
<td>To provide content for peers and professionals in our field</td>
<td>Yes</td>
</tr>
<tr>
<td>To keep up with our peers</td>
<td>No</td>
</tr>
<tr>
<td>To set online trends and be at the forefront of online development</td>
<td>Yes</td>
</tr>
<tr>
<td>To continually respond to and deliver content that our users want</td>
<td>Yes</td>
</tr>
</tbody>
</table>

**Current Website and Evaluation Practices**

The first version of the website was created entirely in-house with Microsoft Front Page in 1998 by Longwood Garden’s public relations coordinator and boiler room operator, who had an affinity for technology. From 2004 to 2006, a new marketing director was charged with re-designing the website for a 2\textsuperscript{nd} reiteration. This is the website they currently have. In 2009, LG realized the current system would not support the growth they needed and began the process for a new content management system and site design. The new site will be launched in spring 2012.

LG focuses heavily on user experience. An example is site navigation, where they have put many hours of evaluation into determining the best information architecture for their website. LG is also focusing on becoming more transparent with external guests, which they have supported by sharing more contact details for individuals. The inclusion of multimedia is important for LG now, but will be a growing component of online
offerings. Marketing staff sees video, for instance, as necessary because it is what guests come to expect. Similarly, staff recognizes that they need social media channels, but are not surprised when user feedback is minimal or responses less than desirable.

Table 12: Longwood Gardens Website Elements

<table>
<thead>
<tr>
<th>Content-driven Elements of Website</th>
<th>At Launch</th>
<th>Currently</th>
</tr>
</thead>
<tbody>
<tr>
<td>Online Brochure (Basic visitation info – like hours, directions, about, etc)</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Search functionality</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Content Navigation (multiple sub pages with clear navigation to them)</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Online purchasing/E-Commerce (tickets, products, services, etc)</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Institutional Contact Details</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Polls</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Bulletin boards or chat rooms</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Games (unique to your organization)</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Multi-media (video, audio, etc)</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Social Media</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Wordpress, Blogger, or other blog site</td>
<td>No</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Due to limitations on their older website, many features were not options, such as a single shopping cart for their various online offerings. The new website will include these features to create a better user experience.

LG will also have a new content management system that will allow for more dynamic content, such as multimedia, which will, in turn, allow for them to focus on a content strategy. Previously, this would have been impossible. This also creates a need
for different departments to meet together and discuss content development. Marketing will likely monitor this, but it will need to involve staff from all areas of the institution if their digital strategies are to be successful.

Longwood Gardens is fortunate to have a support staff in Information Technology, to manage servers and other back-end functionalities. A list of those functionalities are shown in Table 13.
Table 13: Longwood Gardens Website Features

<table>
<thead>
<tr>
<th>Features and Back-end Functionalities of Website</th>
<th>At Launch</th>
<th>Currently</th>
</tr>
</thead>
<tbody>
<tr>
<td>Security (Secure website certification)</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>SEO (Search Engine Optimization)</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Content Management System (the ability to update your website without having to directly edit the html code)</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Subscription (for either an e-newsletter or an RSS feed)</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Member Login or password protected sections (an option for users to be ‘registered’ on the site)</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>User customization (individual user preferences that define what content is presented to those users)</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Crowdsourcing (outsourcing web tasks through an open call to users, such as social tagging)</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Flash, Image Rotation, Java enabled aesthetic features, or Web 2.0 features</td>
<td>No</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Longwood Gardens is constantly striving to gather user responses to continually provide an extraordinary guest experience, and the website is just a part of it. One tangible example involves a content piece on their website called ‘What’s in Bloom’. The project is ever evolving, but it has grown because of visitor’s requests to know what to expect flowering in the garden at any given time. It started out as basic documents with tables, run by an intern. Over time, it has grown to color PDF’s with photos of plants and a map of the garden, with a dedicated group of volunteers that weekly manage the data. It is highly successful and is accessed weekly by many online visitors. Printed copies are also provided in the visitor center, as Longwood staff recognizes that not all of their guests are computer-savvy. However, for two different results, onsite and digital, there is one collective effort. This would not be possible if LG did not critically evaluate their guests’ needs on a regular basis. Although this shows an example of how they have
tracked onsite guest behavior, this culture of evaluation translates into their website as well.

Website evaluation begins as soon as new content is published or edits are made on web pages. The data from website users is utilized to inform decisions as to whether a current process is working, or if it can be improved. For this, they use Google Analytics. Typically, they are looking for a specific metric to answer a question. For example, if they change the text on a page, such as a linked title, the New Media Specialist will look at traffic reports to see if any changes have occurred as a result. Or, another example is that they review a recent ad campaign to see what effect the campaign had on traffic to specific areas of the website.

As they develop the new website, analytical data has helped them better understand what they should include. The new website will allow for internal staff to make changes to content as they see cues of behavioral patterns from Google Analytics. LG plans to determine what metrics will be of most value for their initiatives, to continually monitor web behaviors and take action from data found in reports.
The researcher had an initial hypothesis that web analysis models from the corporate (private) sector were not universally applicable to the non-profit cultural sector. This contention was validated by existing literature that discussed the benefit of museums having their own plan for technology evaluation (Din and Hecht 2007). Those institutions with strong e-commerce elements can directly benefit from existing models of data analysis from corporations, but what about institutions whose primarily goal, or mission, is to create awareness? Public horticulture institutions have websites for many reasons, and many are not directly tied to e-commerce (Overton 2002), which web analytics is, by and large, used to advance (Koberg 2010).

This research investigated the premise that evaluation is a necessary element of a successful website, and that public horticulture institutions will benefit from web evaluation practices; but research also sought to provide a framework from which varying institutions can build an evaluation strategy.

**Survey**

One of the cornerstones of this research was to identify how public horticulture institutions determine the value of their websites. There is supporting evidence indicating that if the institution lacks evaluation, it could not explicitly determine the value of its website (Loveday 2008). Our results indicated that 65% of participating institutions utilized website evaluation in order to inform them of success (Fig. 24).
There is evidence that there is a positive connection between institutions that think they were successful and those using evaluation (Burby 2007). The survey data proved this to be true. A slight majority, 52% of total respondents indicated their website was a factor in their organization’s overall success. Of that 52%, 80% said they use some form of website evaluation. (Fig. 25).

Regarding budgets, finances can be a large, albeit sometimes indirect, factor in whether an institution could evaluate their web initiatives (Cresswell 2005), primarily because evaluation takes time from internal staff or requires an outside consultant, and therefore money, to execute (NETC 2005). According to survey results, it is shown that the larger the operating budget, the more likely an institution is to have the resources, and/or desire, to evaluate their website (Fig. 4).

Websites are geographically non-specific, even though they may be tied to an institution with a specific location(s). The survey showed that geographical location of an institution was not a strong determining factor. Participants’ responses varied among locations and did not show any significant differences from one geographical location to another (Fig. 8).

In terms of website development, this research aimed to better understand those individuals responsible for moderating website content within institutions (Fig. 20). Longwood Gardens stated that individuals who created blog content varied according to their areas of expertise. However, the individuals who develop the content do not physically upload content to the website. This is reserved for the New Media Specialist, primarily because specialized knowledge is needed for uploading (Longwood Gardens 2011). This was similar for both Bartram’s Garden and Mt. Cuba Center. This method was also supported through the survey results, which showed the content developers were primarily internal staff members (Fig. 21). Of institutions in the survey, 66% said website evaluation work was done by an internal staff member whose primary job was not web development related (Fig. 28). A high percentage was expected, as it was also found to be
true for all case study institutions. Even at Longwood Garden’s, which employs a New Media Specialist, not all the staff member’s duties are related to web development (Longwood Gardens 2011).

Institution-specific evaluation methods ranged from formal, such as making use of an analytics package, to informal, such as discussions with staff (Fig. 26). Different evaluation opportunities are available, and valid, for websites (Hongry 2011). While some may be more effective than others, it was important that methods used were known and to what extent used. Of formal analytical tools, Google Analytics was the most commonly used, but considering visitor comments and feedback was the most common informal method (Fig. 26).

Although many responding institutions indicated that they make use of a metrics tool, such as Google Analytics, it is important to note that some data, on its own, does not provide any actionable outcomes in evaluation (Tonkins 2011). The current research attempted to determine if actionable analytics were employed. The data indicated that the three most commonly used reports in Google Analytics were visits, unique visitors, and pageviews (Fig 5.5). These reports are not actionable without further investigation and may not assist an institution in decision-making (Kolberg 2010). More valuable data was shown to be underutilized, such as conversions, click paths, and demographic information (Fig. 29). Over 73% of respondents in our research stated that they use their analytics to inform decision-making (Fig. 30), which is a contradiction. The contradiction indicates that institutions are not making informed decisions from their data, but using generalizations to support plans they have established for reasons other than the data shown, or even as a self-fulfilling prophesy. It would be useful, as additional research, to further inquire with institutions about how decisions are made using only the non-actionable reports indicated, such as the overall number of visits to the site.
To expound on this principle, there seems to be a discrepancy between effective web evaluation and non-effective web evaluation. For example, an institution might put more effort into their website as a whole if they see their monthly visitor number continue to grow. However, this does not address making sound improvements, finding ways to give their users a better experience, and/or creating more conversions with their e-commerce, for example. Any “improvements” made would be supported only by a generalization and not necessarily backed by data.

Regardless of whether institutions were making informed decisions from their data, the survey indicated that there were other valuable reasons for collecting it, such as reporting to institution leaders, board members, staff, and donors (Fig. 31).

**Case Studies**

All case study institutions indicated that technology is changing and so must they, if they wish to stay relevant to their current and emerging audiences. This is a common view in similar cultural institutions as well (Din and Hecht 2007).

Finding a balance between reaching broader audiences with new media while retaining the preferences of a current demographic is a shared challenge. All institutions saw the value of exploring online marketing and programs because of the potential cost benefits and potential new audiences, but it varied as to how much effort would be put into new digital channels. In a digital age where effort does not necessarily equal results, Google Creative Lab director Tom Uglow says, “We don’t always know what is going to happen, but we should know what we want to happen.” In other words, the mission of the organization should point toward the desired results (Uglow 2011).

Some institutions reported that the greatest challenge with technology change involved knowing what technologies (products, software, etc.) were available to them. Other institutions were challenged to know how much time to devote to both already-
adopted and new technologies. Still another challenge was prioritizing time spent on website improvement and other new online initiatives when weighed against the many other pressing tasks. Overall, the greatest challenge came down to the bottom line and how much online work the institution could justify. Similar to other cultural institutions, they were frustrated with recognizing the benefits of various technologies, but typically were lacking resources to implement them (Din and Hecht 2007).

Institutions differed as to where pressures to stay relevant originated. However, all agreed with the supporting literature that reports organizations must find ways to remain relevant regardless of available resources (Pakroo 2005). Examples included internal pressure from other staff, whether at the peer level or from upper management and external pressure from granting institutions or other financial stakeholders, from other public gardens, from other cultural institutions such as museums, and finally, from for-profit organizations that are setting standards. The overarching conclusion is that there are countless pressures to stay relevant, and they will vary according to the institution facing them.

Institutions were all using feedback from the local community, online community, and/or direct constituent correspondence to direct change, but the difference primarily came in what type of change was employed. At Longwood Gardens, it was an entire shift in organizational thinking, and a new voice, to encompass digital initiatives (Longwood Gardens 2011). For Mt. Cuba Center, it was incremental steps, such as including new technology for one program to test and decide if they would move forward with it (Mt. Cuba Center 2011).

Using social media as a specific example, technology integration was approached differently in each institution. For Longwood Gardens, social media was adapted early and given a budget to operate, simply because other organizations, including for-profits, were adopting it (Longwood Gardens 2011). At Bartram’s Garden, social media was integrated because of a requirement for a grant, but other tasks were
juggled so that it would not create significant additional cost of staff time (Bartram’s Garden 2011). At Mt. Cuba Center, social media was only integrated after careful examination and when it was decided that the cost of operating the accounts would be balanced with the engagement it provided. All organizations now claim that their social media efforts are successful, thus proving that integrating new technology provides multiple approaches to achieving success and can be institution specific (Uglow 2011).

Evaluation practices varied greatly among the three institutions. Factors that influenced the level of evaluation were similar to those indicated in the national survey, such as staff knowledge or existing resources. It is clear that evaluation can be a costly endeavor (Cresswell 2005). At Bartram’s Gardens, website evaluation is done primarily for inclusion in a local cultural organization data project, and no decisions are based on the evaluation. At Mt. Cuba Center, website evaluation is used to inform decision-making, but the evaluation is internal and qualitative, utilizing conversations among staff or through visitor comments and feedback. At Longwood Gardens, there is an emphasis on user experience evaluation in which decision-making is based on feedback from different user testing processes, both internally and externally.

All institutions agreed that digital communications need to be managed, either programmatically, structurally, or both, by trained professionals, although not all institutions could do this under current constraints. There were strong opinions for having a professionally trained outside consultant do the work, yet others felt just as strongly about having a professionally trained in-house staff member handle the work.

Institutions are realizing that evaluation is a beneficial step in technology integration and improvement. Some are beginning to implement evaluation processes. This is a positive step in the right direction, as evaluation will provide the opportunity to tailor websites to meet real needs of the institutions and their constituents (Parkroo 2005). However, many institutions are unclear as to the best methods of evaluation that they can use.
Chapter 7

RECOMMENDATIONS

The Case for Web Evaluation

The core of these recommendations will focus on providing institutions with justification for website analysis and an understanding of how metrics can be used for site improvements, to make business decisions, or to better understand users. In addition, a focus is a discussion of possibilities and limitations of web analytics. The tools are only the beginning. According to analytics evangelist Avinash Kaushik, “If you have $100 to make smart decisions on the web, invest $10 in tools, spend $90 on people. It’s the 10/90 rule. People matter. Even the most basic insights you need will come from people. Hire smart people. Hire smart consultants. When a majority of your budget is invested in tools and data warehouses, rather than smart people to use them, you are saying you prefer to suck” (Kaushik 2011).

Explanation of Recommendation Structure

Recommendations have been created to support all levels of interest in web evaluation. In the following subsection, How to begin website evaluation, there is an overall approach to website evaluation, which is appropriate for every level of user. The subsection that follows outlines common Institutional goals, as supported by the benchmarking survey, and provides different approaches to evaluation metrics for specific objectives. Each institution should first identify goals that fit their needs and then dig deeper into the section to gain insight for their own approach. Similar goals listed on the survey were grouped together to prevent repetition. The metric models provided under each goal are rudimentary because there are many more in-depth analysis processes
available on the web, such as http://analytics.blogspot.com/, http://www.google.com/support/conversionuniversity/, or http://www.kaushik.net/.

How to Begin Website Evaluation

A common thread through the research has been that organizations must take a step back to evaluate themselves before proceeding into website evaluation. An institution’s website should not be regarded as its own entity, or only as an element of marketing or development or education or other. A website and other digital technologies should be treated as avenues, or channels, of the same actions performed elsewhere, like onsite offerings (Uglow 2011).

Organizational identity and related goals should be defined. In many cases this is the institutions’ mission, which should be followed in all aspects of its operation (Patton 2011). When an organization cannot easily say it exists to do x, y, and z, the website can be chaotic and without purpose. Without overarching institutional goals, it will be impossible to create strategies to achieve those goals (Loveday 2008).

Include website evaluation before beginning a project. Defining what success looks like at the beginning is vital, and will aid in justifying resources needed (Beckman 2000). With website evaluation, the tracking itself is not the hardest piece of the puzzle. This is relatively simple to do when compared to the critical thinking involved in developing measurable goals and objectives. There will not be anything to measure if the question being asked is unknown (Burby 2007).

Terms of success should be measurable, as specific as possible, and preferably have the potential to be monetized (Tonkin 2010). A goal of increasing site visitation by 50% is a measurable term, for instance, but what can be done with only the outcome of that measurement? What is there to gain with 50% more visitation? Rather,
focusing on conversions, or time spent on specific content, will better help to define success.

Metrics also need to be evaluated in the context of specific situations (Koberg 2010). Weather can provide a tangible example. If a garden is experiencing extreme weather, a snowstorm, for example, there may be a spike in website visitation, perhaps with users who want to know if the garden is open. This could become an actionable analytic if this information is used to change the current web offering. Perhaps it is moving the sunny winter photo off the main page to show a more real time photo and/or offering ½ price tickets to encourage visitation, despite the forecast.

Talking to users is still an important aspect and is invaluable for creating success. Engage the target audiences currently being reached, but also consider including audiences to reach in the future. Speaking with users directly may give clues or answers into the specific online behaviors of the site. Web analytics are best used for remedial action, so engaging users directly will provide a more balanced reporting mechanism (Locke 2011).

**The Recommended Web Evaluation Model**

This model, developed following an analysis of all data gathered in this research, should be ongoing, as indicated by its cycling pattern (Fig. 32). The work can be performed in-house, although it will likely involve basic or in-depth training for responsible staff members. An attractive alternative is to hire a consultant to regularly determine website happenings, to leverage content, to suggest improvements for better user experience, and to provide sound reports for decision-making.
**Review Organizational Goals.** This must be the most important step that is kept central throughout the entire process, and serves as the foundation for any evaluation. It should also be the easiest to compile. Most organizations should already have clear organizational goals defined, such as their mission and/or vision.

**Define Website Objectives.** Without clear direction, it is easy to focus on arbitrary objectives that may not serve a useful purpose. In defining specific objectives, it will help to ask the following questions:

- What are you trying to do?
- Who are you trying to reach?
- How will you know you have been successful?
- What methods best measure this success?
- Can you find comparative data?
- What insights are you gaining?

Many of these questions can be answered qualitatively, by defining the type of site being measured, specifically as it relates to metrics. Four types of websites are recognized in web analytics (Weber 2011), and each type has a common success element attached (Table 14).

**Table 14: Type of website and associated success methods (Weber 2011)**

<table>
<thead>
<tr>
<th>Type of Website</th>
<th>Type of Success</th>
</tr>
</thead>
<tbody>
<tr>
<td>E-commerce</td>
<td>They spent money</td>
</tr>
<tr>
<td>Lead generation</td>
<td>They gave their name/contact</td>
</tr>
<tr>
<td>Service</td>
<td>They helped themselves</td>
</tr>
<tr>
<td>Content</td>
<td>They looked at specific or multiple pages, ads, etc.</td>
</tr>
</tbody>
</table>

An organization may find it difficult to decide which of the website types listed in Table 14 they currently have, or which type they desire to have. If this a difficulty, a useful exercise is to devise a story about a visitor’s experience to the site. Describe the visitor in detail. State their expectations of the site. List the steps they must take to accomplish their goal on that visit. Construct stories for several different scenarios, if needed. Review all the stories for indications of website type. Hybrids of the four types are not uncommon.
**Develop Metrics Based on Objectives.** Quality metrics allow for meaningful data collection. Data should be used for trending purposes and to analyze rate-of-change over time. Benchmarking against industry standards and internally established standards are both recommended; consider milestones and how they could be tracked. For instance, if there is a goal to increase the visibility of an internship program, a website objective could include increased visitation and viewing of the internship application page. A starting standard of measurement could include site visitation, length of stay, or where the user clicked to next.

There are three commonly accepted analytics goals, which are software-specific and different from organization goals. A URL goal is when a particular page was reached, possibly with a number of steps, leading up to the page. Some examples are a “thank you page” for filling out a form, a “receipt page” for a purchase, or a key page for information on your site. An engagement goal is when a metric reaches a numeric threshold. Examples include the time a visitor spends on the site or how many pages were viewed during the visit. An event goal is when a particular event occurred. Events can be many different things, but are typically pre-developed actions that a user might take on the site, such as hitting ‘play’ on an embedded video. Considering the internship page example from above, the organization may choose to set the page itself as a goal (URL), a 2-minute time-on-page as a goal (engagement), or downloading a PDF application form as a goal (event).

**Collect Data.** Many analytics packages, such as Google Analytics, have comprehensive instructions for setting up tracking. Our research indicates that the best approach is to avoid reinventing the wheel, by maximizing the basic functionality provided in analytics packages. Should a more technical approach be necessary, consider hiring a consultant to develop a customized analytics package, although in-house staff could perform basis queries, depending on time availability.
**Take Action.** Moving forward must be preceded by a well thought out set of website objectives coupled with metrics that support the objectives. Taking action will become easier, as well as creating stakeholder buy-in, as information about the site continually becomes realized.

**Institutional Goals**

Each Institutional Goal is characterized by:

- **A Goal Description**, in order to ensure that the author and reader have the same understanding of the goal.

- **Metric Models**, which outline evaluation methods that will help to determine value. Technical details are omitted, as tutorials and step-by-step instructions of how to use the metrics are abundant on the web. Developing metrics based on the organizations’ mission is key, so to assist, the value of the metric model, such as possible outcomes, uses, or examples of how the data can be used to support decision-making, are also included where applicable.

Listed below are very *broad* goals; however, these examples should help to formulate institutional-specific objectives more effectively. Goals need to be developed around the mission of the organization, and thinking critically about what metrics will service to measure those goals properly is very important. In more technical terms, objectives must first be defined in a qualitative format before more detailed steps can be created for quantitative results. While the model presented in this thesis does not include the technicalities to set up tracking in analytics software, Google Analytics and others provide related, detailed tutorials and instructions to set up, query, and create reports.
from copious amounts of data types. Although most tangible suggestions will be from the platform of Google Analytics, most analytics packages have similar functionalities built into the software.

**To Provide Information About Our Institution**

**About the Goal**

According to our research, 95% of survey respondents included this as a goal for their website; and they should, as many users expect to find information about businesses and destinations online. Commonly sought information includes hours, directions, amenities, cost, and also typical “about us” queries (Tonkin 2010).

**Metric Models**

*Keyword Search.* This report can be used to see commonly used search terms that lead users to the website. Search terms including organization-based names will likely be at the top. These branded keywords, which include brand name, trademarks, etc., are of less value because those were results from users who already intended to find the site. The most actionable results come from unbranded search terms, which are topical keywords excluding brand names (Weber 2011). For example, if there are a high number of monthly visitors searching for a specific plant on the site, consider creating a page for that plant, providing more content about the plant, or creating an experience, such as a game or purchase opportunity, around the plant.

*Top Landing Pages.* Site visitors come from many different sources, including search engines, affiliate links, directly typing a URL into their browser, bookmarks, etc. Site visitors coming from various channels may first land on different website pages. This information is immediately actionable in that pages are automatically ranked according to traffic (Koberg 2010). If pages are rarely viewed, evaluate the reason and determine if that page is needed.
If users are not finding an “About” page, or another page less trafficked than expected, it likely indicates a poor navigation structure or a link not displayed prominently. Users might only want to find hours or admission fees, and they may not being interested in the “About” page. If the institution desires to create greater awareness, consider adding a more prominent “About” link to the front page (article, photo, banner image, larger button, etc).

Advanced Segments can be used to combine the Keyword Search and Top Landing Pages to determine which keywords are providing the most success (Weber 2011). An example is a visitor who searched in a specific keyword category and found a page associated with that search term, such as a search for ‘hours’ and landed on the ‘Visit Us’ page with hour information.

Search Engine Optimization (SEO). Reports that show a lack of users finding a site, or page, via search engines, would support the need for investing in more robust SEO (Tonkin 2010).

404 Error Page detection. A search result or a link that brings a user to a 404 error page is a sure way to frustrate the user or to lose a possible conversion. Broken links can be hard to avoid, especially if a website has had multiple upgrades in the past and pages are not properly re-directing. However, analytics can be used to easily locate these error pages for correction.

To Increase Ticket Sales/To Increase Revenue by E-commerce

About the Goal

Of survey respondents, 56% indicated increasing ticket sales was a goal for their website, while 62% indicated increasing revenue was a goal. The website is another avenue, or channel, for communication, so it should be another avenue for revenue generation. Case study participants said their websites indirectly generate revenue by
bringing physical visitors to the garden. Selling tickets or gift shop items online are not the only options for using the website as revenue generation.

**Metric Models**

*Conversion/goal development.* Analytics allows for goal setting and conversion tracking on a website. Goals can be utilized in a variety of ways to monitor website performance. There are several types of commonly used tangible goals in Google Analytics. A URL goal allows for a specific page to be the goal itself, which is a common method for the end of a conversion path, such as a ‘thank you’ page. A time-on-site goal provides data about particular behaviors on a site, which essentially measures the engagement users have for a particular section, page, or element within your site. A pages-per-visit goal can be valuable for giving insight into how engaged a user is, primarily because it will show depth and how much a visitor used the page (Weber 2011).

*Create value for actions.* There are metrics that aid in understanding the value of users actions within a site that are in addition to literal monetary conversions. These measurements can be performed in two ways, by assigning goal values or by enabling ecommerce reporting for a non-ecommerce site. Adding values to goals allows you to see metrics such as Per Visit Goal Value and other in-depth visit value analyses. Alternatively, setting up a site with ‘fake money’ values will aid in better understanding which actions on the site are valued highest and the rate of return, even if literal money is not gained (Weber 2011).

*Referral Traffic sites.* This is another quick way to see where constituents generate, but provides an opportunity to evaluate partnerships or common referrals such as social media sites (Koberg 2010). Determine the value of a website partner or social media site by comparing the conversions, or goal completions, from visitors landing from the referral site against the overall sites conversion rate.

*Funnel visualization.* This form of tracking is best used in order to determine how a user navigated through the site, or how they went through a purchasing process.
For example, if there are multiple pathways to reach the ticket purchasing process, setting up a funnel to track it will provide insight into where, or why, users are not completing a transaction (Weber 2011). Funnel visualization assists in identifying the most profitable pathways within a site.

**To Engage New Audiences/To Provide New Experiences for Existing Audiences**

**About the Goal**

Of survey respondents, 87% indicated engaging new audiences was a goal for their website, while 69% indicated providing new experience for existing audiences was a goal. This can be done in a variety of ways, most commonly through technologies potential audiences are using, such as social media; creating campaigns targeting new audiences; and for existing audiences, providing more compelling and interactive content.

**Metric Models**

*Social media tracking.* Tracking social media is as simple as setting up a report from the referral traffic options. View all social media accounts, such as Facebook, Twitter, LinkedIn, etc, in one report, using Advanced Segments (Weber 2011). Track how many visitors coming to the site from social media sites are converting goals, and compare that with the overall conversion rate of the site.

*Social interaction tracking.* Social interaction tracking differs from social media tracking in that all interactions tracked are within the site, not ON Facebook.com or others. Instead, it represents ‘likes’, ‘retweets’, etc., within the site. This tracking informs which users are using social media, which social media options are most used, and whether or not more traffic and revenue generation is being driven to the site through social media. Additionally, it provides data to determine whether users who are engaged with social media are also providing conversions, or goal completions (Weber 2011).
Many times the social interaction data points will provide insight into which platforms provide the most ROI. It is difficult to communicate the effectiveness or the ROI of various sites, but the tracking suggestions can provide the value, or not, of social media sites. This may or may not influence the way an organization puts emphasis on their social media efforts.

**Campaign Landing Pages.** When creating an advertisement that focuses on a particular audience, it can be informative to create a special landing page for those visitors (Tonkin 2010). This allows for tracking their individual interests and provides an opportunity to glean additional information through discount sign ups or other offerings. Using a wine event as an example, the organization could post an advertisement in a local wine enthusiasts’ publication with a link to the specific website discussed above. Any users who came to the site through that page would be labeled as wine enthusiasts and, depending on how segmented the advertising, they came directly from that publication. Tracking actions throughout the site will provide behavior data specific to that user demographic. For gathering specific user group information, use page URL’s with identifiers, such as zipcodes.

**Vanity URL.** Many URL’s are too long to be added into a publication advertisement, billboard, or other non-digital forms of advertisement. Using the example from above, the organization can choose their printed URL to be ‘organization.com/wineevent’, even though the real URL might be something much longer, difficult to type out, or impossible to remember. From a technical perspective, this is possible through a 301 redirect.

**Bounce rate.** Bounce rate is calculated from the total number of users who leave from the same page they land on. A ‘good’ bounce rate is difficult to define. In most cases, a higher number is negative, but in cases where a visitor may be coming to your site only for the purpose of viewing your hours, one page is all they may need in order to have a successful visit. However, it is commonly assumed that a high bounce
rate indicates the site entrance page was not relevant to the user. Particularly with campaigns, bounce rate can help to determine if visitors like what they see after they first land on the site. A good way to use bounce rate is to compare the bounce rate of one page to another, particularly when using an Advanced Segment for other factors, such as goal conversion (Koberg 2010).

*Top landing pages.* Evaluating areas that current audience segments enjoy, or what they are most engaged in, can assist in choosing what content to further develop or what additionally to explore in the future.

*Video Tracking.* Video usage can be monitored using event tracking, which is when a particular event occurred by a user’s action. Set up a video to track when it is played, paused, stopped, reached the end, or even when the volume is changed. With Advanced Segments, further analysis is available, such as viewing all visits where a user played a video (Weber 2011). Event tracking can be used to track any interactions that do not cause a pageview, but do require extra tracking code within the pages selected. In addition, events can be labeled as goals or conversions.

*Mobile device tracking.* For institutions providing mobile features with onsite usability, use an Advanced Segment to isolate data from users with mobile devices that access the features while in the geographical location of the institution. Compare conversions with mobile devices against total site conversions to determine if the mobile features are producing similar results to the overall site.

*Visitor and Goal Flow.* The Visitor Flow report allows for analyzing site insights graphically, while providing the platform to instantly understand how visitors flow across pages in the site (Weber 2011). The Goal Flow report provides a graphical representation of how visitors flow through the goal steps and where they dropped off. Advanced segments can be applied to the Flow Visualizer for both visitors and goals, which allows for numerous analysis opportunities.
To Create Awareness for an Issue/Call to Action

About the Goal

Of survey respondents, 38% indicated a goal for their website was to create awareness for an issue or to communicate a call to action. Creating awareness for an issue is difficult to measure because if content is properly displayed or even viewed, it is not guaranteed that the user gleaned the knowledge intended for them (Tonkin 2010). Although some assumptions need to be made, some metrics will shed more light than others.

Metric Models

Event Tracking. Event tracking can be triggered by any pre-set user action with the site, such as clicking a submit button, playing a video (see ‘Video Tracking’), or downloading a document. For institutions hosting PDF files on their site with information pertaining to their issue awareness-raising efforts, any download of the document must assume that the content was read or, at minimum, perused. Use event tracking to monitor how often the document is downloaded, what other pages the user viewed on their visit, and where they originally came from (Tonkin 2010).

Time on page/Time on site. The time a user spends on a page can be set as an engagement goal (Koberg 2010). The amount of time assigned should reflect what the organization feels is sufficient time to have experienced the content on a particular page. For instance, determine the amount of time a user could be expected to read or watch enough content to make assumptions that amount to ‘awareness created’.

E-mail Campaign Custom Segments. When tracking e-mail campaigns that include call-to-actions or pertinent content related to your advocacy issue, it is insightful to create an Advanced Segment that separates out all e-mail referrals (Weber 2011). With this report, it can be determined if users who come from various e-mail campaigns
perform similar actions to the overall website user trends, such as completing goals or conversions.

Vanity URL’s. See ‘to engage new audiences.’ Consider the example of using a vanity URL in flyers, brochures, or billboards on a topic. It is much easier for an interested user to type and remember “organization.com/water” than it is to type out a full URL path with lots of dots, dashes, and underscores.

To Provide Content for Visitors, Peers and Professionals/To Continually Respond To and Deliver Content that Our Users Want

About the Goal

Of survey respondents, 72% indicated a goal of providing content for visitors, continually responding to visitors, and delivering content users want. Providing content to peers or professionals was a goal for 51%. 72% also indicated continually responding to and deliver content users want as a goal. These goals are best achieved by constantly being aware of site metrics and understanding any changes in metric trends (Schwartz 2010), which is done through various reports. Many of the suggested metric models are closely connected with previous reporting models, which will be indicated.

Metric Models

Time on page/Time on site. See ‘to create awareness for an issue.’

Funnel visualization/Visitor Flows. See ‘to engage new audiences.’

Virtual pageviews/event tracking. When a goal is only a click and not a URL, virtual pageviews or event tracking can be used to base goals upon. See ‘to create awareness for an issue.’

Tracking Specific User Groups. Breaking users down into segments can provide the opportunity to understand the different content desired from different groups.
A common example of separate user segments is members vs. non-members (Weber 2011). To track data on specific audience groups, use advanced custom segments.

**Social media and interaction tracking.** See ‘to engage new audiences’.

**Site Searches.** Using the Site Search report along with the Visitor Flow reports will aid in determining if users are finding what they have come to the site to find. Sites without a site search should consider incorporating this function. Users expect a robust site search tool, if they know exactly what they want but are not clear where to find it within the site navigation (Tonkin 2010).

**Top landing pages.** This report, although mentioned above, is also a powerful tool for determining if certain offerings or content are not in line with visitor needs. Query the report to discover the least viewed pages, and then take some time to deduce why these are least viewed. There are two common reasons, including poor information architecture or irrelevant content (Tonkin 2010). If it is difficult for a visitor to land on the page, then consider changing navigation so the page is easily found. However, it is just as important to consider that content is not interesting to viewers. This will be hard to define from the web metrics alone, but the metrics can suggest ways to use other evaluative methods, such as surveys and focus groups, with a clear objective in mind.

**Cookie tracking.** First of all, understanding cookies can be difficult. For the sake of this general overview, a cookie is a message that is sent from one server to another when actions are made. Cookies can be created for a user when landing on a webpage or for specific actions they perform within a site. Cookie tracking allows for better segmentation of specific categories of visitors and can differentiate between members and non-member, male and female, zip codes, etc. This is useful for modifying content and experiences according to these various groups (Weber 2011).
To Keep Up with Our Peers/ To Set Online Trends and Be at the Forefront of Online Development

In order to set online trends and be at the forefront, consider engaging in all of the above suggestions. If trying to keep up with peers, start by doing what is possible. If peers are open about their own evaluation, consider sharing data to learn from each other. Remember, each situation is different, so implementing another organizations tactics may not yield desired results.

Conclusion of Recommendations

Website evaluation should be embraced across the institution for the most effective results. Start by encouraging all staff members to know the organization’s mission, vision, and associated objectives. Once they have a firm grasp on clearly defined overall goals, they should be encouraged to determine how web initiatives support those mission and goals, encouraged to determine success measures for web initiatives, and encouraged to deploy technical solutions like analytic data tracking and reports to document success measures. Encourage staff to implement continuous improvements by using the website evaluation model provided in this paper. Encourage staff to implement some of the analytic functionalities as they relate to site goals. Finally, encourage staff to improve or change the website based on data gathered from analytics. A theme is emerging from this conclusion. Not surprisingly, because it was also reflected in existing literature, the conclusion is based around empowering the whole organization to embrace a culture of evaluation and self-improvement.


REFERENCES


APPENDIX A

UD RESEARCH OFFICE APPROVAL DOCUMENT

DATE: May 31, 2011

TO: Aubree Pack
FROM: University of Delaware IRB

STUDY TITLE: [244007-1] Evaluating Web Technology: the use and measurement of web initiatives in Public Horticulture Institutions

SUBMISSION TYPE: New Project

ACTION: DETERMINATION OF EXEMPT STATUS
DECISION DATE: May 31, 2011

REVIEW CATEGORY: Exemption category # 2

Thank you for your submission of New Project materials for this research study. The University of Delaware IRB has determined this project is EXEMPT FROM IRB REVIEW according to federal regulations.

We will put a copy of this correspondence on file in our office. Please remember to notify us if you make any substantial changes to the project.

If you have any questions, please contact Elizabeth Peloso at 302-831-8619 or epeloso@udel.edu. Please include your study title and reference number in all correspondence with this office.
APPENDIX B
QUESTIONS FROM SURVEY ENTITLED: AN ANALYSIS OF WEBSITE EVALUATION IN NON-PROFIT INSTITUTIONS

Preliminary Questions

Q1 Institution Name
Q2 Your Position/Job Title
Q3 Dear Participant, My name is Aubree Pack and I am a Fellow in the Longwood Graduate Program in Public Horticulture at the University of Delaware. I am conducting research to investigate the current state of website evaluation within public horticulture institutions and similar non-profit organizations, such as museums, nature centers, and zoos. I would appreciate your participating in my research by completing a survey entitled “An Analysis of Website Evaluation at Non-Profit Institutions.” This survey should take approximately 15-20 minutes. All participants will receive access to a summary of data results if they choose (an option for adding your contact information is at the end of the survey). All data will be destroyed within 6 months of successful thesis defense (thesis completion is projected for June 2012). If you have any questions about this survey or the entire research project, please contact me via e-mail ataubreecherie@gmail.com or via phone at 302-831-2517. I would welcome any additional information your institution may be able to offer as it relates to this project. Thank you in advance for your participation!

After reading the above statement, are you the best individual within your organization to take this survey?

☑ Yes (1)
☒ No (2)

Q3b If no:

☑ Please forward this to the following recipient to take the survey in my place (enter e-mail address) (1) ___________________
☑ I changed my mind and would like to continue with the survey (2)
☑ No one in my organization is suited for this survey (3)
Section 1
Q4 Does your organization have a website?
☐ Yes (1)
☐ No (2)

Q4b Why not? (select all that apply)
☐ We don't have the funds (1)
☐ No staff availability (2)
☐ We don't see the need for one (3)
☐ Other (4) ____________________

Q5 How many years have you had an online presence?
☐ Less than 1 year (1)
☐ 1 to 5 years (2)
☐ 6 to 10 years (3)
☐ 10 or more years (4)
☐ Not sure (5)

Q6 Which of the following content-driven elements were/are part of your website? (Leave blank if never, select from both columns if both)

<table>
<thead>
<tr>
<th></th>
<th>When Website Was First Launched (1)</th>
<th>Currently (2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Online Brochure (Basic visitation info – like hours, directions, about, etc) (1)</td>
<td>❑</td>
<td>❑</td>
</tr>
<tr>
<td>Search functionality (2)</td>
<td>❑</td>
<td>❑</td>
</tr>
<tr>
<td>Content Navigation (multiple sub pages with clear navigation to them) (3)</td>
<td>❑</td>
<td>❑</td>
</tr>
<tr>
<td>Online purchasing/E-Commerce (tickets, products, services, etc) (4)</td>
<td>❑</td>
<td>❑</td>
</tr>
<tr>
<td>Institutional Contact Details (5)</td>
<td>❑</td>
<td>❑</td>
</tr>
<tr>
<td>Polls (6)</td>
<td>❑</td>
<td>❑</td>
</tr>
<tr>
<td>Bulletin boards or chat rooms (7)</td>
<td>❑</td>
<td>❑</td>
</tr>
<tr>
<td>Games (unique to your organization) (8)</td>
<td>❑</td>
<td>❑</td>
</tr>
<tr>
<td>Multi-media (video, audio, etc) (9)</td>
<td>❑</td>
<td>❑</td>
</tr>
<tr>
<td>Social Media (10)</td>
<td>❑</td>
<td>❑</td>
</tr>
<tr>
<td>Wordpress, Blogger, or other blog site (11)</td>
<td>❑</td>
<td>❑</td>
</tr>
</tbody>
</table>
### Q7 Social Media (Leave blank if never, select from both columns if both)

<table>
<thead>
<tr>
<th>Social Media (Leave blank if never, select from both columns if both)</th>
<th>When Website Was First Launched (1)</th>
<th>Currently (2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Facebook (1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Twitter (2)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>YouTube (3)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LinkedIn (4)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flickr (or other social photo storage) (5)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social tagging (Digg, Diigo, etc) (6)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social Online Archiving (eHive, Librarything, etc) (7)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other (please list) (8)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Q8 Which of the following features and back-end functionalities does your website incorporate? (Leave blank if never, select from both columns if both)

<table>
<thead>
<tr>
<th>Feature</th>
<th>When Website was First Launched (1)</th>
<th>Currently (2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Security (Secure website certification) (1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SEO (Search Engine Optimization) (2)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Content Management System (the ability to update your website without having to directly edit the html code) (3)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Subscription (for either an e-newsletter or an RSS feed) (4)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Member Login or password protected sections (an option for users to be ‘registered’ on the site) (5)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>User customization (individual user preferences that define what content is presented to those users) (6)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Crowdsourcing (outsourcing web tasks through an open call to users, such as social tagging) (7)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flash, Image Rotation, Java</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Q9 Is your website a large factor in your organization’s success?
- Yes (1)
- No (2)
- Not Sure (3)

Q9b Is so, why? (select all that apply)
- It supports our mission (1)
- Increases onsite attendance (2)
- It allows us to share content (research, collections, etc) (3)
- It has increased our audience (4)
- Directly increases our income (e-commerce) (5)
- Other (6) ____________________

Q9c If no, why?

Q10 Why does your institution currently have a website? (select all that apply)
- To provide information about our institution (‘about us’, hours, directions, etc) (1)
- To support marketing initiatives (2)
- For online giving (3)
- For e-commerce (4)
- For event listings/calendar (5)
- For issue advocacy (6)
- To provide content for our peers (for example, research and industry data) (7)
- To provide content for our visitors (for example, expert advice) (8)
- To create an offsite experience via games, online interactives, user customization, etc. (9)
- To keep up with our peers who have websites (10)
- Not Sure (12)
- Other - please specify (11) ____________________

Q11 What are the future goals for your website (select all that apply)
- To provide information about our institution (1)
- To increase onsite ticket sales (2)
- To increase revenue by e-commerce (3)
- To engage new audiences (4)
- To provide new experiences for existing audiences (5)
- To create awareness for an issue/Call to action (6)
- To provide content for visitors (7)
- To provide content for peers and professionals in our field (8)
To keep up with our peers (9)
To set online trends and be at the forefront of online development (10)
To continually respond to and deliver content that our users want (11)
Nothing, our website is fine (12)
Not sure (14)
Other – please specify (13) ____________________

Q12 What content management system do you use to run your website?
Drupal (1)
Joomla! (2)
Wordpress (3)
eZ Publish (4)
Expression Engine (5)
Front Page (6)
None (7)
Not sure (8)
Other - please specify (9) ____________________

Q13 Who is responsible for moderating the content management system and running your website initiatives?
Internal staff member (1)
Internal department or multiple staff members (2)
Outside consultant (3)
Both internal staff and an outside consultant (4)
Other - please specify (5) ____________________

Q13b What is the position title of the internal staff member?
Q13c If so, what is the department or staff members' titles?
Q14 Who develops your web content?
☐ Internal staff members (1)
☐ External consultants/contractors (2)
☐ Both internal staff members and external consultants/contractors (3)
☐ Not sure (4)
☐ Other - please explain (5) ____________________

Q14b Who within your organization handles this task?
☐ Dedicated web content staff (1)
☐ Other staff (2)

Q14c Their position(s) are best categorized as (select all that apply)
☐ Information Technology (1)
☐ Marketing (2)
☐ Education (3)
☐ Visitor Services (4)
☐ Horticulture (5)
☐ Administration (6)
☐ Other – please specify (7) ____________________

Q15 How often is content on the website created, updated, or modified?
☐ More than once a day (1)
☐ About once a day (2)
☐ Once a week (3)
☐ Less than once a week but more than once a month (4)
☐ Once a month (5)
☐ Not sure (7)

Q16 Is your website hosted or run in-house?
☐ Run in house on internal server/storage (1)
☐ Hosted off site (2)
☐ Not sure (3)
☐ Other - please list (4) ____________________

Section 3
Q17 Does your institution evaluate the success of your website in any way?
- Yes (1)
- No (2)

Q18 Please indicate which qualitative or quantitative methods you use (select all that apply):
- Informal discussions among staff/internally (1)
- Use of visitor comments/feedback (2)
- Site counter (3)
- Google Analytics (4)
- AWStats (5)
- Built in analytics with your host provider (6)
- External consultants/contractors track our site and produce results for us (7)
- Other - please list (8) ____________________

Q19 Do you record and document your evaluation initiatives?
- Yes (1)
- No (2)
- We don't have any evaluation initiatives (3)
- Not sure (4)
- Other - please explain (5) ____________________

Q20 In your evaluations via analytics, what type of data do you typically look for? (select all that apply)
- Hits (1)
- Visits (2)
- Unique Visitors (3)
- Page views (4)
- Entry and Exit pages (5)
- Referring Websites (6)
- Search Keywords (7)
- Visitor Information/Demographics (8)
- Click paths/Funnels (9)
- Conversions (10)
- Not sure (11)
- Other – please list (12) ____________________
Q21 Who is responsible for this evaluation? (select all that apply)
- Internal Staff who is dedicated to web development (1)
- Internal Staff who has other responsibilities in addition to web development (2)
- External Consultants/Contractors (3)
- Not sure (4)
- Other – please list (5) ____________________

Q22 Do you use your results to change or modify your website's content?
- Yes (1)
- No (2)
- Not sure (3)

Q23 Do you use your results for other purposes, such as: (select all that apply)
- Reporting to other staff (1)
- Reporting to institution leaders or board members (2)
- Reporting to donors or funders (3)
- Other (4) ____________________

Section 3
Please provide additional information about your institution
Q24 Institutional Contact Information i.e., info@institution.org, main phone line number/operator
- E-mail address (1)
- Phone Number (2)
- Web Address (3)

Q25 What category best describes your institution?
- Public Horticulture Institution (1)
- Zoo (2)
- Museum (3)
- Nature Center (4)
- Other (5) ____________________
Q26 What is your institution’s mission? (if you don’t know, please type ‘I don’t know’)

Q27 What is your institution’s average annual budget?
- Less than $500,000 (1)
- $500,000 to $2 million (2)
- Greater than $2 million (3)
- Rather not say (4)
- Not sure (5)

Q28 What is your institution’s largest source of funding?
- Endowment or other proceeds from investments (1)
- Basic membership fees, admission revenues, or other sources of earned income (2)
- Gifts and grants (3)
- Not sure (5)
- Other - please explain (4) ________________

Q29 What does your institution charge as an admission fee?
- None - our institution offers free entry (1)
- Less than $5 (2)
- $5 to $9.99 (3)
- $10 to $20 (4)
- Greater than $20 (5)

Q30 Which below describes your institution’s location?
- Urban (1)
- Suburban (2)
- Rural (3)
- Other - please specify (4) ________________

Q31 What is the current staff size your institution? (Please be as specific as possible)
- Full Time (1)
- Part Time (2)
- Students, Interns, Seasonal (3)
- Volunteers (4)
Q32 In the last 5 years, has your organization's staff sized increased, decreased, or stayed the same?

- Increased (1)
- Decreased (2)
- Stayed about the same (3)
- Rather not say (4)

Q33 Does your organization plan on increasing, decreasing, or staying approximately the same in the upcoming fiscal year?

- Increasing (1)
- Decreasing (2)
- Staying approximately the same (3)
- Rather not say (4)

Q34 Final Question: If you select yes, you will only be sent additional information at a later date. No commitment is required.

<table>
<thead>
<tr>
<th>Do you want your institution listed in a potential website inventory for non-profit destination institutions (primarily public gardens, zoos, nature centers, and museums)? (1)</th>
<th>Yes (1)</th>
<th>No (2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Would you like your institution to be considered as a case study for this research in the future? (2)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Would you like to receive a summary of research data at the completion to this study? (3)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Q35 If you have said yes to one of the previous questions, please provide the following information so you can be contacted further:

- Your Name (1)
- Your Email (2)
APPENDIX C
CASE STUDY INTERVIEW QUESTIONS

1) What does the rapid change in web technology mean for your public garden?
2) Is there a pressure to stay relevant for you and if so, how do you address this?
3) I will review the features listed from their survey. Please speak to some of your website’s features: what features do you have, what works well, and why?
4) Who develops your website features and how? This could have already been answered in the survey, so it may be a review
5) I will review the content driven elements listed from their survey. Please speak to some of your website’s content driven elements: what content area’s do you focus on, what works well, and why?
6) What is your content development process?
7) What are your user demographics? Both onsite and online. How do they differ? How are they the same?
8) What staff are involved in the website? (total number, types of position, departments heavily involved, etc) This may be a review of survey answers
9) What are your current evaluation practices?
10) How long have you performed this evaluation practice? Do you find it successful and why?
11) What changes, if any, have you made in your evaluation process due to experience?
12) I will review the goals they answered as important on their survey submission. Why are these goals for your institution? Are you fulfilling these goals already? How are you planning to reach these goals in the future?

Google Analytics

13) In what ways do you currently use Google Analytics? What types of reports or data do you look for?
14) How much time do you spend each week/month looking at analytics reports?
15) Do you find it’s useful? Why or why not?
16) What changes, if any, have you made to your website due to analytics data?
17) I will ask them to identify specific online user goals that can tie into Google Analytics for future tracking