

New York State Forum Government Information Focus

Mastering the Web Revolution in New York State Agencies

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Executive Summary

The NYS Forum has a long history of working in support of those who develop state and local government web sites. The Forum's Webmasters' Guild (WMG) was created in 1995 and in November, 2003, the IT Accessibility Committee was created as a spin-off of the WMG to specifically address the broad context characterized by the "digital divide." This white paper is focused on the usability of government web sites across the entire, intended audience and is particularly targeted on issues related to whether a website is fully accessible to users that have one or more disabilities.

The NYS Office for Technology (OFT) first recognized the need to address issues of usability and accessibility in September, 1999 with the issuance of Technology Policy 99-3: Universal Accessibility for NYS Web Sites. In June, 2004, NYS Technology Policy P04-002 and NYS Mandatory Technology Standards S04-001 were issued. The Forum's IT Accessibility Committee and WMG worked in close collaboration with the NYS Office for Technology on the formulation of those policies, their subsequent implementation, and the creation of education and training programs designed to provide web developers with the skills and competencies to meet the standards.

With new policies put in place in 2004, The NYS Forum committees felt it would be of great value to determine what training and education was needed by web development employees and to what extent agencies were complying with the policy standards. To answer these questions, The Forum conducted an online survey involving 226 New York State government employees and follow-up focus group sessions designed to refine the findings of the online survey.

The online survey found great diversity across agencies related to (1) how web development is organized within agencies, (2) the level of professional preparation individuals have, and (3) the authoring tools in use. In addition, respondents indicated that among the perceived barriers to producing fully compliant web pages were:

- Time to ensure production of quality products,
- Lack of training,
- Too large a workload,
- Lack of technical support for the standards, and
- Shortage of personnel.

The follow-up focus groups further delved into these issues and the in-depth discussions that took place clustered around six major areas:

1. Preparedness and training,
2. Succession planning,
3. Separation of functions,
4. Lack of uniformity,
5. Need for knowledge, and
6. Clarification of organizational responsibility.

Focus groups also identified the following as some of the best practices of agencies with successful web development organization:

- Regular provision of in-house training as part of succession planning,
- Active use of web analytics and use of web statistics to determine the need for improved accessibility/usability, and
- An internal “campaign” to ensure that all agency leadership and staff understand the benefits inherent to the increased usability/accessibility of the agency’s web site.

As a result of analyzing the results of both the online survey and focus group discussions, the following *Action Recommendations for the NYS Forum* were posited by the authors:

Training and Education:

1. The Forum should work in the near-term with the Governor’s Office of Employee Relations (GOER) and the Public Employees Federation (PEF) to develop and garner support for training in response to state agency web development needs.
2. The Forum’s IT Accessibility Committee should continue working with OFT in offering hands-on clinics and with OFT and other organizations to explore (a) the feasibility of a live or virtual help desk and (b) the feasibility of creating a mentoring program.
3. The Forum should develop a scholarship program for state agency web developers to support in- or out-of-state attendance at unique training opportunities.
4. The Forum should continue the current work with the World Organization of Webmasters (WOW) to expand opportunities for state agency web developers to take advantage of WOW’s training and certification programs. Moreover, The Forum should join and support WOW’s national initiatives to develop standardized web development certifications and articulation of related competencies.

Operational Management:

5. The Forum, with the assistance of GOER and other policy-level agencies, should pursue the institution of mandatory IT Accessibility training for all employees. The training might be similar to that instituted for health insurance, the Portability and Accountability Act (HIPAA), ethics, sexual harassment prevention and hazardous materials.

Leadership Understanding and Support:

6. The Forum should work with organizations such as GOER, the Office of the Chief Information Officer (OCIO) and other state leadership to develop informative executive level briefing sessions for agency leadership and management to include agency middle management.
7. The Forum should continue to work in collaboration with OFT and expand on the current IT Accessibility Committee work to specifically create a customized validation tool directly tied to the NYS standards and policy.

These recommendations are being taken into consideration as potential initiatives of The Forum’s IT Accessibility Committee and WMG for the 2005-2006 program year that commences on October 1, 2005.

Acknowledgements

This research publication of The NYS Forum results from the work of Katie Crossett who served as an intern for a 12-week period in the spring of 2005. Katie reviewed the results of The Forum's December, 2004 online survey, developed and administered the follow-up pre-focus group questionnaires and solicited participation, organized and administered the focus group sessions held in February, 2005. Following the focus groups during the period March through May, 2005, Katie worked with NYS Forum staff and co-chairs of The Forum's IT Accessibility and Webmasters' Guild to analyze the rich information yielded by the focus groups, align it with the online survey data on hand and distill those findings into a set of clear action recommendations for The NYS Forum to integrate into its 2005-2006 program year and beyond.

In May, 2005 Katie was awarded a Masters in Public Administration with concentrations in Human Resource Management from the Nelson A. Rockefeller College of Public Administration. The NYS Forum wishes Katie well in all that she pursues.

The interest of The NYS Forum's membership in IT accessibility and the broader issues inherent to the "digital divide" have been largely addressed by The Forum's IT Accessibility Committee and Webmasters' Guild. There is good reason for this concentration of effort by these committees since it is New York government's web presence that represents the vital, virtual interface between state government information/services and New York's citizenry. This important work – indeed this research publication – would not have been possible without the tireless contributions of Debi Orton and Michael Short, Co-Chairs of the IT Accessibility Committee and Paul Maguire, Co-Chair of the Webmasters' Guild.

The foundation of all research efforts is the data from which implications and direction might be derived. The contributions of Milena Ivanova, The NYS Forum's Technical Coordinator, were key to the collection and organization of the December, 2004 online web developer survey that provided the foundation for this initiative.

The above persons and the contributions of many more yielded this important publication which constructed the rationale for seven concise "action recommendations" for the NYS Forum. The NYS Forum staff and membership are grateful for these contributions.

Last, the contribution of time that yielded thoughtful responses and discussions by nearly 250 New York State web developers is the core of this research effort. The NYS Forum has great respect for the investment of time made by its membership and trusts that the actions and outcomes resulting from this research effort and the investment of member time will yield a significant return on both individual and public investment.

Introduction: Background on Standards and Accessibility

Since the early 1990s, New York State agencies have been migrating information and service delivery from brick-and-mortar offices to the World Wide Web. As in most organizations at that time, the origin and speed of this migration varied widely from state agency to state agency. Because of the relative newness of the technology and the nature of the Internet, the skills of the staff effecting this migration also varied widely. The result was often little centralized coordination or direction in how agency web sites were created, implemented or maintained.

Similarly, there was no statewide IT authority in New York until 1996 and no official mandate to adopt a particular web-related standard or platform until late in 1999. People who were instrumental in early web development taught themselves the skills necessary and integrated web development responsibilities into their existing duties on an ad hoc basis. These combined duties evolved into “hybrid” positions, more dependent on the individual’s skills than the individual’s title, organizational placement or training. The results of our survey show this diversity of skills and background still to be the case.

The use of standards in planning and implementation has always been a strong factor in successful application development and deployment. However, because the web geometrically expands the size and diversity of the audience for whom developers must design interfaces, we have found that the effective implementation of certain standards can have a significant impact on how well the needs of a web site’s audience are met and what percentage of the audience can effectively use the web site.

Usability and Accessibility

The continuum correlating to an individual’s success in finding and navigating a web site, locating information and services, and correctly interpreting web site content is referred to in this report as **usability**. Jakob Nielsen, a noted web design and usability expert, describes usability this way: *“Usability’s job is to research user behavior and find out what works. Usability should also defend users’ rights and fight for simplicity.”*

There are multiple dimensions affecting a site’s relative usability:

- Site organization,
- Web page layout,
- How well the code used to create the web page complies with standards,
- The equipment, software, and connection with which the individual accesses the site,
- Whether the web content is written in a way that is easily understood by the individual, and
- Whether the individual has a disability.

This last dimension has resulted in the definition of a separate but related term, **accessibility**. Usability generally encompasses a web site’s entire audience; accessibility usually indicates the degree to which a web site’s information and/or applications are available for use by a segment of its audience that has one or more disabilities. The web community, to its credit, recognized early that the audience for its web sites included individuals with various disabilities, often using assistive technology. In many

instances, because of the impact of their disabilities, these individuals cannot use more traditional means of communication and look to the web as a primary source of information.

The 2000 US Census identified approximately twenty percent (20%) of the population over the age of five as having a disability that precluded them from leaving home or working. These disabilities were long lasting and often impacted their ability for self-care.

This report addresses two different types of standards defined below and the potential that each has to affect the degree of success an individual has in locating information and services on state government web sites. Wherever possible, we will try to be explicit regarding the type of standard we are referring to.

Usability has evolved very quickly into a full-blown discipline within the web design field. A Google search on “usability” will yield over 22 million matches. A Google search on “accessibility” returns approximately 287 million matches. It is safe to assume that these two terms and the body of knowledge that each represents has made its way into the main stream of web development.

One of the primary means for ensuring both usability and accessibility in web development is the adherence of these sites to an evolving set of standards and best practices, among which are the design recommendations that come from the research that Nielsen talks about in his work on usability. This report recognizes both best practices and standards, and the potential that each has to affect the degree of success someone using a public sector web site has in locating information and services.

Best Practices and Standards

As disciplines such as usability mature, they are likely to evolve from best practices in web design into standards. For web development, the *de facto* standards-setting body is the World Wide Web Consortium (W3C). The W3C is composed of experts from academia, government and industry, who collaborate to develop a common set of standards. These standards are the first type referred to in this report. Site developers must understand and use the same standards that web server and browser developers use to create content; otherwise, there is a high likelihood that the successful delivery of that content will be compromised.

The second type of standard referred to in this report is the title specification (i.e., minimum qualifications, typical duties, etc.) developed by the NYS Department of Civil Service to define minimum requirements and typical duties for a position within New York’s merit-based employment system.

At present, there is no single title or group of titles (referred to as a “title series”) for which the primary duties relate to web page/site development or management. While some title specifications have been expanded to encompass possible web development duties, there is no requirement for training or certification that a potential web developer could use to identify and attain the necessary skills, and there is no clear career path for those who wish to specialize in web development. Often this situation results in the lack of knowledge about, and failing to apply the latest technologies, resulting in the inadvertent erection of unnecessary barriers that may adversely affect significant percentages of an intended audience.

The Digital Divide

Government agencies have a particular responsibility to ensure that all constituents that they serve have full and equal access to the information that the agency is required to distribute. An agency is not effectively serving the public if a segment of their constituency cannot easily get access to the information that resides on agency web sites. The gap between those individuals able to access this information and those not able to access it is determined by issues such as:

- Having access to a computer and the Internet,
- The literacy of the individual accessing the web site,
- The readability of agency content,
- The familiarity of the individual with commonly-used web design techniques, and
- Whether the individual has a disability, such as blindness or impaired vision (e.g., not being able to read small print) or problems with fine motor control.

These various obstacles can create what is known as a “digital divide.” Accessibility for readers with disabilities is included in digital divide issues, but digital divide issues are much wider than just accessibility.

According to the US Department of Education, forty-eight percent (48%) of the United States population reads at approximately the eighth-grade level (Jakob Nielsen, Alertbox, March 14, 2005: Low Literacy; <http://www.useit.com/alertbox/20050314.html>). Newspapers recognize this fact and typically aim their content at a sixth-grade reading level. Yet, most government web sites are written at the eleventh- or twelfth-grade level (West, pp. 5-6).

This means we can assume that almost half the population will not be able to fully understand most government web sites. A significant portion of the public is not able to use the services provided on government web sites, while increasingly the web site is the only place these services are provided.

Critical Success Factors

New York State government agencies, like much of the public sector, have recognized the benefits of using web sites to successfully reach the constituencies they regulate or provide services for. This trend is called e-government. The Office for Technology sponsored a major initiative to implement e-government in New York State primarily because of the efficiencies it offered.

Our research indicates that three things need to be done to ensure the success of e-government initiatives in New York State. First, it is necessary to build increased awareness of the issues impeding the development of accessible content on public sector web sites at the managerial level. Second, is to make web designers aware of the critical success factors for usability and accessibility that are now recognized as predictive of successful public sector web sites. Third, web developers must be given structured skill improvement opportunities, linked to overall career development, so they can create standards-compliant, usable and accessible web content and make old web pages accessible.

Current New York State Forum Initiatives

The NYS Forum deals with a wide range of complex policy, research and educational issues. Few, however, have implications for more directly affecting so many of New York’s constituents – individuals and businesses alike – as the development of state and local government web sites. This

widespread impact and the need to achieve equitable access for all lies at the heart of this publication and the investigation it represents.

Forum Committees Addressing Information Technology Accessibility

The NYS Forum's IT Accessibility Committee and the Webmasters' Guild address accessibility issues within the technology community, encourage the development of sensible policies to address these issues and provide the technical training and support necessary to implement the policies.

Among the innovations recently offered by the IT Accessibility Committee was a day-long seminar on web accessibility conducted at the "Technology Opens Doors Conference," Governor George Pataki's Assistive Technology Expo in May, 2004. To prepare for the session, the committee rapidly developed a repeatable, modular curriculum, parts of which have been offered at the Webmasters' Guild, SUNY's leadership conferences, the annual Government Technology Conference and other venues.

The committee also recently developed and is offering, in partnership with OFT, a series of hands-on clinics that allow participants to bring their own web pages for expert consultation in a classroom setting, and where other participants could benefit from the discussions that ensue. The first such clinic was completely subscribed in 36 hours, demonstrating the pent-up demand for such training.

With the release of NYS Technology Policy P04-002 and NYS Mandatory Technology Standards S04-001 in June, 2004, the IT Accessibility Committee partnered with the Office for Technology to provide advice and support for State agencies working to bring their web sites into compliance. Members of the committee joined OFT staff for meetings with concerned agencies. The committee provides additional support materials in a section of their web site dedicated to the interpretation and implementation of the policy and standards. In July, 2004, OFT presented the new standards at The Forum's Annual Strategic Planning Session. In May, 2005, the committee arranged for OFT to address the Webmasters' Guild to explain the policy and standards, hear feedback from the community working with them on a daily basis and clarify agency questions on implementation. The IT Accessibility Committee has also worked with OFT to ensure that the recent update to the State banner resolves the accessibility issues inherent to the original version of the banner.

This deliberate and productive collaboration has benefited both organizations. OFT has gained access to a community of expert web developers who have successfully implemented accessibility standards and can help by providing support to less experienced web developers. The IT Accessibility Committee maintains a dialog with the policy makers and can use agencies' feedback to OFT in developing programs and resources to assist in the implementation of the policy and standards.

It is worth noting that the two co-chairs of the IT Accessibility Committee, Debi Orton from the Governor's Office of Employee Relations and Mike Short from the Department of Civil Service, were recognized for their contributions and efforts with The Forum by being selected to receive the Award for Excellence in Government Information Services. The Forum's Award for Excellence is given to individuals who have exhibited extraordinary leadership and commitment to work that benefits New York State.

The NYS Forum's Webmasters' Guild was initially formed in 1995 to provide resources to employees of state and local governments whose job is to maintain their agency web sites. The committee is used to share ideas, issues, problems, etc. with other state and local governments. There

has historically been a natural synergy between the Webmasters' Guild and accessibility advocates, and the relationship has been strengthened with both groups now under the Forum's umbrella. Indeed, The Forum's IT Accessibility Committee grew from the interests of specific members within the Webmasters' Guild.

The Webmasters' Guild sponsored several very successful day-long accessibility programs in both Albany and New York City. These programs succeeded in identifying the issues around accessibility and significantly raised the awareness level within New York State regarding this issue. The Forum and its committees, with financial assistance from the Governor's Office of Employee Relations and the Public Employees Federation, sponsored a very well attended session by web standards advocate Jeffrey Zeldman, a recognized usability and accessibility expert.

The Forum, and in particular these two committees, have provided most of the generic (i.e., not based on a specific tool) standards-based training and educational opportunities for State web developers over the past several years and that history provided the context for this research initiative.

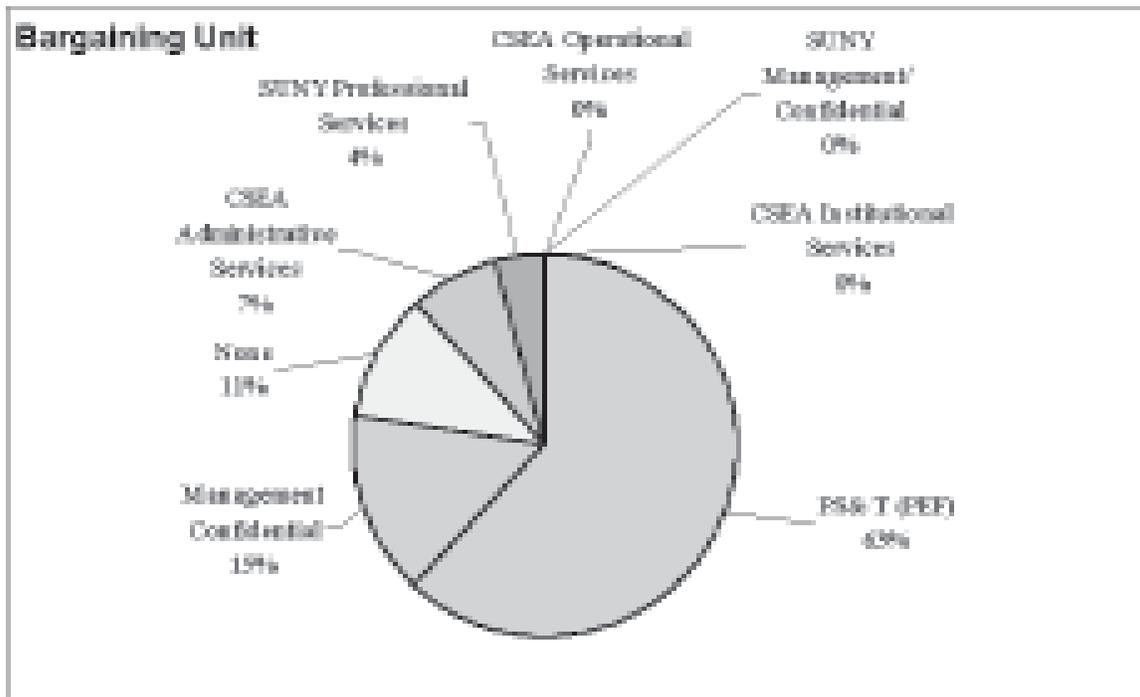
The Research Effort: Survey and Focus Group Findings

December Online Survey on Web Development

With the new accessibility policy and mandatory technology standards in place as of June, 2004, the Forum committees felt the next logical step was to find out what training and education may be needed by web development employees and to what extent agencies were complying with the policy standards. The means for securing this information was an online survey requesting demographic information along with web developer input on the topics they felt were important to address. The results of the survey would provide two important outcomes for the committees: more in-depth information on areas of interest to help in developing programs for the coming year, and clarification of the positions and work context of those developing New York State web sites.

This online survey included participation by 226 New York State government employees. Its main purpose was to glean information with which to plan presentations and training opportunities for the coming year. The survey also looked into the status of agency accessibility compliance efforts to determine if agencies are in compliance and if not, what obstacles remained for them.

The survey confirmed many of the prior assumptions regarding the public sector work force that is supporting the New York State e-government effort, and also confirmed the diversity of this particular work force. The 226 participants for the online survey included 92.9 percent State government employees, 4.9 percent public education employees, 1.3 percent from other government entities and 0.9 percent local government employees. The state employee participants represented 13 different state agencies. Of those responding, 60 percent are from the Professional, Scientific, and Technical bargaining unit, represented by the Public Employees Federation, 15 percent are designated Management/Confidential, 7 percent are in the CSEA Administrative Services bargaining unit and 4 percent are from the State University of New York professional services, represented by the United University Professions.



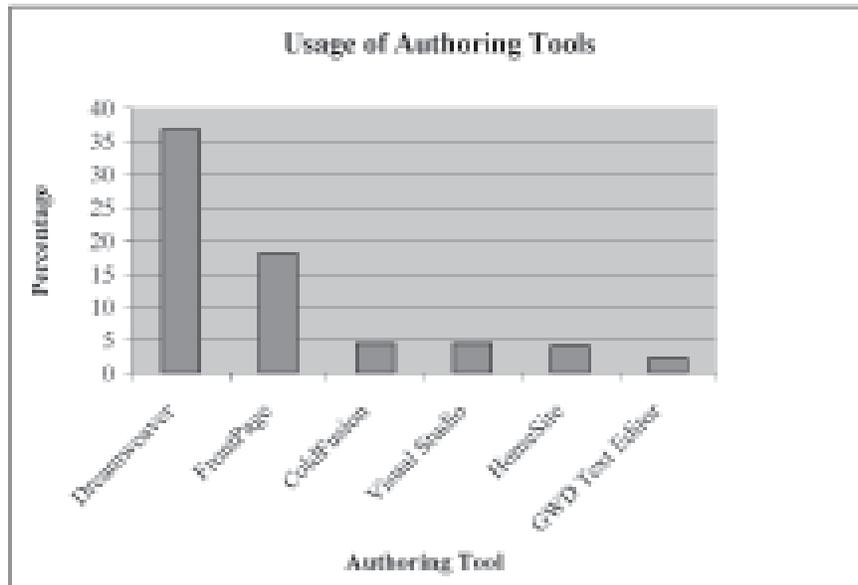
Within the participatory group, 68 percent of respondents had a four-year degree or higher and 19 percent had a two-year degree.



Only approximately two-thirds, 63 percent, of individuals doing web development are located in IT sections of their organizations. The remainder were spread throughout the organization. Seventeen percent were located in a program area, 9 percent were located in the public information office and 9 percent in other areas of agencies.

Adding to the complexity of meeting the survey's stated goals is the fact that each employee fulfills many different roles in the web development continuum. For example, the same person may be involved in web page development, web application development, providing content, managing the web site, acting as graphic designer, carrying out program staff duties, and in some cases, also comprising agency management and agency executive staff.

The survey population also reinforced the diversity of authoring tools in use. The main authoring tools that most participants use are Macromedia's Dreamweaver (38%), Microsoft's FrontPage (18%) and some others: Macromedia ColdFusion (4.4%), Microsoft Visual Studio (4.4%), Macromedia's HomeSite (4%) and GWD Text Editor (2%). In addition to those listed, we know for example, that the Office for Technology supports an IBM Websphere Users' Group that meets in conjunction with the Webmasters' Guild meetings four or five times a year.



Survey Respondents' Concerns

Survey respondents identified several key issues representing barriers they confront while attempting to comply with the state policy and standards. Among those identified were the lack of training to enable them to produce compliant HTML and CSS code, and the perception that even if the training were available, the likelihood that they could attend, because of financial and work load issues, was small.

The online survey showed that the fundamental barriers were:

- Time to ensure production of quality products,
- Lack of training,
- Too large a workload,
- Lack of technical support for the standards, and
- Shortage of personnel.

Survey respondents reported that the highest likelihood that agency employees could attend a training session would be if it were low cost (49.6%) or free (58.4%). The majority of respondents reported that they would only be able to attend training and education if it were local.

The results of the survey spurred the Forum committees to take a deeper look at some of the barriers to compliance with the state standards, narrow down which training opportunities would be the most accessible by and most meaningful to state employees and identify the most effective mechanisms to deliver those trainings, as well as which issues are most prominent in the web developer field.

Short-Term Survey Response

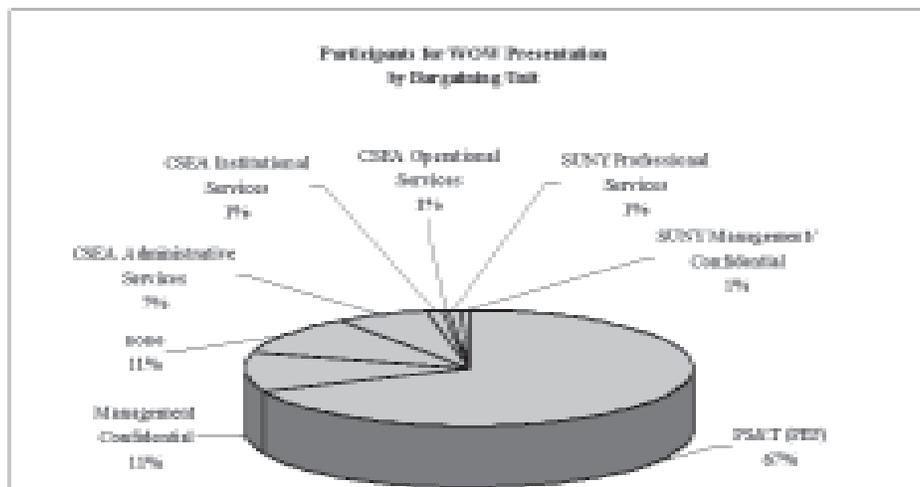
The Forum and its committees had begun to recognize the issues that the survey confirmed. At approximately the same time that the survey was being developed, the Forum reached out to the World Organization of Webmasters (WOW) and began a discussion with the organization around the benefits of establishing a long-term relationship with them. The Forum felt that WOW offered opportunities to address two perceived significant issues impacting web professionals in New York State.

These issues were the lack of accessible training for web professionals and the lack of a clear career path and accepted job title delineation for web professionals. The online survey revealed the fact that there is no standard for organizational placement of web development responsibilities. Additionally, it demonstrated that there are no formal job titles and as a result, no established promotional track for web professionals. The lack of specific job titles in the web profession in State government significantly handicaps agencies as they seek to replace staff that have left the agency or to create additional jobs to meet the expanding requirements related to developing and maintaining an agency's web presence. This lack of recognition of web development as a discipline has also resulted in a lack of uniformity in the implementation of web development tools, resulting in the need for substantial and diverse training requirements.

Our research into WOW showed us that the organization offers three tiers of professional certification for web developers in five different title areas. They also offer a very well-structured training program for web professionals to prepare them to take the certification examinations for these titles

The survey results coincided with the inauguration of the Forum's association with the WOW, and the committees looked to that organization to help meet training needs. Issues relative to training location and cost were addressed by bringing WOW presenters to Albany for two one-day sessions in web site development and web site management, with costs underwritten by the Governor's Office of Employee Relations in partnership with the Public Employees Federation and the Civil Service Employees Association, the two largest public employee unions, representing almost 150,000 State workers.

These inaugural sessions were held during Presidents' Week in February, 2005. This is traditionally a family vacation period, as children are given time off from school. Over 230 attended the



first day session, and almost 200 attended the second day session. This turnout was accomplished with less than five weeks' lead time. Forum leadership felt that this enthusiasm not only underscored the need for these types of programs but also underscored the commitment of New York State web professionals to their discipline. The attendees gave the sessions very high marks, and many have asked for additional sessions from WOW in the near future.

Concurrent with the development of this report and an outgrowth of the initial work of The Forum with WOW, GOER is pursuing a substantial training contract to expand the learning opportunities available to New York's web developers.

Since The Forum has partnered with WOW, they have been asked by RTI International, an independent, nonprofit, North Carolina research firm, to join an effort RTI is pursuing with the US Department of Labor to develop an O*Net or Occupational Information Network. This is a comprehensive database of worker attributes and job characteristics that will replace the Dictionary of Occupational Titles (DOT) which has long been the nation's primary source of occupational information. This role for WOW underscores the rationale that led to The Forum/WOW partnership and adds a national dimension to the job classification efforts The Forum hopes to pursue in New York state.

Focus Group Sessions

The rich data results from the web developer survey prompted the committees to refine the findings of the survey through the use of focus groups.

The focus group initiative included a preliminary questionnaire and two focus group sessions to obtain more in-depth information. A total of 17 web developers participated. The participants were all from State agencies with salary grades ranged from SG-15 to M-1. Participants from ten agencies, representing small, medium and large organizations, attended the sessions.

Participants filled out a preliminary questionnaire before attending a group. In addition, participants were provided with copies of the focus group topics before the group sessions convened. The sessions focused on the prominent issues that appeared in the online survey data.

The questionnaire contained ten items seeking key information:

- Where within the organization web developers are located,
- What state grade level participants occupied,
- What role they have in maintenance and development of their agency's web site,
- How effective they perceive their web site to be in reaching its intended audience, and
- How successfully the accessibility standards are being implemented on their websites.

The pre-focus group questionnaire results depicted the wide variety of ancillary tasks web developers perform. Those tasks included: proofread content and assess usability; document the web site; develop (program) web applications; coordinate information architecture; write standards and policies, develop graphic designs; make public affairs decisions; maintain and develop interfaces for on-line transactions; provide training; act as project manager; maintain proficiency in HTML coding; validate content for accessibility; test, analyze, assess for standards adherence; and manage web-based publications.

In many cases, these roles are performed for both Internet and intranet web sites. There is an extremely broad cross-section of the public that comprises the targeted audiences for the different

agencies. Most agencies have to meet the needs of their public audience, as well as an internal audience for their intranet.

Almost all of the participants felt that they helped their agency effectively reach their targeted audiences. All of the agency representatives surveyed expressed support for the State's accessibility policy and standards, and all participants were in the process of implementing the standards on their agencies' web sites.

With information from the preliminary questionnaires in hand, The Forum committees conducted two facilitated group sessions. In each, participants discussed five issues. The issues were posed to participants as questions that dealt with training and education; leadership understanding and support; operational management; resource commitment; and organizational responsibility. The goal was to extract recommendations and next steps from the focused discussion of these topic areas.

In both focus group sessions three themes surfaced frequently:

- The perceived inability to move fast enough,
- The perceived lack of standards and guidelines, and
- The lack of consistency across the state.

The first theme was the inability to move fast enough. Managers would constantly respond to web development staff to, "Get this up on the site," and, "Skate as fast as you can." Most participants reported a lack of understanding on the part of managers of what it takes to put something up on the web site, especially if it requires a new technique or skill that needs to be learned. As a result of an overall lack of affordable local training opportunities and a lack of a clear enterprise strategy for web site development, web developers reported they are most often self-taught in the software that will be used at their agency, and in the skills to produce new content types for the site are learned on an as-needed basis.

As agencies become more reliant upon their web sites as their primary communication tool with their constituencies, this lack of ready skill development opportunities – in combination with increased competition on the part of agency program staff for scarce web development capacity – is an increasingly important issue. This lack of forward planning is not a new phenomenon in the relationship between IT professionals and the agency staff they serve, but this manifestation of it was identified as a major issue by survey and focus group participants. The issue was exacerbated by the perception among a significant percentage of respondents that there is a clear lack of training, resources and appreciation for web developers within the state system, especially in light of the increasing reliance by state agencies on the web as a communications medium with New York's constituencies.

The second theme was the perceived lack of clear standards and guidelines and the resources and training web developers need in general. Web developers have a wide range of skill levels and, most often, alone choose and master the tools they utilize to get the job done, without clear guidance. One byproduct of this autonomy in tool selection is that in response to demands by their program staffs, some less technically inclined web developers have adopted "wysiwyg" (what you see is what you get) tools, which don't require an in-depth knowledge of the underlying technology. While this enables staff to become quickly productive, it leaves them without the knowledge necessary to remediate their web pages when a validation tool reports accessibility errors.

The third theme was that lack of recognition that web development is a discipline that requires conscious and constant skill improvement to master. Most days it's "just in time" training for a new web

application or software system. Web developers report constantly hearing “Figure it out,” and have adopted the mind set of “Learn as you go.”

These three central themes and the focus group session discussions around them, yielded six major topics of concern. Focus group participant input and observations around those six areas are noted below:

Preparedness/Training

- Most agencies employ the “just-in-time” training approach by default, not through any particular plan.
- Per one participant in the 4/15 sessions: “. . .if somebody gives me something [to do], I’ll learn how to do it.”
- Other issues: Lack of local training opportunities, funding or release time to take advantage of training – even free training. There was general consensus that the local opportunities available (e.g., WOW, Forum sessions, etc.) were quality presentations, but more were needed. The Forum IT Accessibility Committee web site was cited as an excellent resource but that it needs more publicity.

Succession Planning

- The combined lack of standards, training, mentoring and title series/career path make it difficult to develop a succession plan for existing web staff.
- It is difficult to effectively fill positions because you can’t match a web development job with existing Civil Service title(s).
- It is difficult to establish mentoring hierarchies because it’s a relatively new discipline.
- One of the difficulties in filling web development positions comes from the hybrid nature of the jobs of people performing that role. Because people grow into web responsibilities from a wide range of unrelated titles, when they move on, there is essentially no way to truly “replace” them: no title to fill, no position available with those responsibilities, no natural hierarchy from which to promote.

Separation of Functions

- Some inherent problems were observed as a result of the bifurcation of web content and web application development. For example, the web developers are not necessarily in close contact with the programmers, and that causes problems due to the desired outcome of compliance with standards.
- Put another way, “it works” is good enough for web application developers, but web content people need it to work with standards, and integrate within an existing site style and hierarchy.

Lack of Uniformity

- No central/uniform “help desk” where developers can turn to ask for help with problems. As a result, each agency is pretty much an island, reinventing techniques to comply with standards and guidelines with few existing avenues for sharing their discoveries with other organizations.
- Big obstacles to making uniformity a reality, as different agencies use different development environments and technologies with their web sites – no statewide web development standards for tools or technologies, except for those related to accessibility and banner.
- To address the fact that there are no skill standards, there were suggestions for establishment of a curriculum to develop “core competencies.” (Note: Forum committee

leaders are pursuing this work in partnership with the Governor’s Office of Employee Relations (GOER) and the Professional Employees’ Federation Professional Development Committee (PEF PDC).)

Need for Knowledge

- Implications of the lack of knowledge among web developers/web project managers – Some pricey projects may be non-standards compliant, necessitating costly remediation after the fact. If people were better versed in standards (web *and* accessibility) and how to manage contractors in an outsourced environment, result would be cost savings and timelier project completion.
- Lots of confusion regarding policy and standards – What rules apply and where? What do the standards actually mean? What needs to be validated and how? One suggested solution – more training, release more explicit standards; develop a customized validation product specifically for NY standards.
- Perceived disinterest/ignorance on the part of many (non-IT) program/project managers. Consensus was that agency executive-level staffs are generally aware and supportive of accessibility issues, but problem is with the middle managers and program personnel having a full understanding of what is truly involved.

Organizational Responsibility

- As a result of the discussions about where the organizational responsibility for web development resided in each agency, it was clear that there is very little consistency from agency to agency. Two basic models emerged, a centralized and a decentralized model.
- A centralized model begins with the primary responsibility resting with the Public Information Officer (PIO), and goes to web developers who aggregate content from managers and content providers.
- In the decentralized model, web development is managed in the information technology systems (ITS), with content provided (and in some instances, marked up) by business units.

Best Practices Found Across Agencies

Based on the outcome of the survey and focus groups, participants identified the following as some of the best practices of agencies with successful web development organizations:

- A regular process to provide in-house training as part of succession planning.
- User testing, active use of web analytics and the use of web statistics to inform the need for improved accessibility/usability as well as the need for new content and/or improving access to what is currently available before releasing content for public or intranet use.
- A formal, internal “public relations campaign” for the web site to inform agency leadership and staff as to the benefits accrued in the form of increased public access to the web site information and/or increased use of available transactional applications.

Action Recommendations for the NYS Forum

As a result of analyzing the data collected in the online and pre-focus group surveys and that provided by the focus groups conducted in April, 2005, the following action recommendations are made:

Training and Education:

1. The Forum should work in the near-term with GOER and PEF to develop and garner support for training in response to state agency web development needs.
2. The Forum's IT Accessibility Committee should continue working with OFT in offering hands-on clinics and with OFT and other organizations explore (a) the feasibility of a live or virtual help desk and (b) the feasibility of creating a mentoring program.
3. The Forum should develop a scholarship program for state agency web developers to support in- or out-of-state attendance at unique training opportunities.
4. The Forum should continue the current work with WOW to expand opportunities for state agency web developers to take advantage of WOW's training and certification programs. Moreover, The Forum should join and support WOW's national initiatives to develop standardized web development certifications and articulation of related competencies.

NOTE: A benefit of working with WOW and GOER is the potential development of a set of competencies and core curriculum that might eventually be used to develop a title series and career path for web developers in New York State. The lack of a title series and a career path for web developers is a concern heard from many of the participants. The New York State Department of Civil Service has been working with agencies to obtain suggestions for what the title series should contain and at this point there is no consensus among agencies because web development is not consistent. At present, there is a focus on the recommendations coming out of the Office of the Chief Information Officer (OCIO) Council's Human Resources (HR) Subcommittee. It would make sense to channel the recommendations and suggestions made here through The Forum's committees to the CIO Council, and this idea was endorsed by the Forum's leadership at the annual planning meeting held in July, 2005.

Operational Management:

5. The Forum, with the assistance of GOER and other policy-level agencies, should pursue the institution of mandatory IT Accessibility training for all employees. The training might be similar to that instituted for health insurance, the Portability and Accountability Act (HIPAA), ethics, sexual harassment prevention and hazardous materials.

Leadership Understanding and Support:

6. The Forum should work with organizations such as the Governor's Office of Employee Relations (GOER), the Office of the Chief Information Officer (OCIO) and other state leadership to develop informative executive level briefing sessions for agency leadership and management to include agency middle management.
7. The Forum should continue to work in collaboration with the Office for Technology (OFT) and expand on the current IT Accessibility Committee work to specifically create a customized validation tool directly tied to the NYS standards and policy.

References

West, Darrell M. "Working Document: Achieving E-Government for All: Highlights from a National Survey" Benton Foundation and The NYS Forum of the Rockefeller Institute of Government. www.benton.org/publibrary/egov/access2003.html

Jakob Nielsen **Alertbox, March 14, 2005: Low Literacy Users**, <http://www.useit.com/alertbox/20050314.html>.

Appendices

(following pages)

Web Developer Survey

Pre-Focus Group Questionnaire

Focus Group Discussion Topics

Press Release

New Business Survey

The results of this survey will be used to help the Portal and its contributors plan their presentation and training opportunities for the coming year. Participation is voluntary, but we need your information about your experience (you personally) interacting in order to better address or fix about how we can better our information systems.

How many employees do you have?

0-9 employees
 10-49 employees
 50-99 employees
 100-499 employees
 500-999 employees
 1000 or more employees

Next

***See note below.**

What is your primary business activity?

I am not sure
 Retail/Wholesale Trade
 Manufacturing
 Construction
 Transportation and Warehousing
 Information
 Health Care and Social Assistance
 Arts, Entertainment, and Recreation
 Accommodation and Food Services
 Other

Next

What is your primary business industry?

Agriculture, Forestry, Fishing, and Hunting
 Manufacturing
 Construction
 Retail Trade
 Wholesale Trade
 Transportation and Warehousing
 Information
 Health Care and Social Assistance
 Arts, Entertainment, and Recreation
 Accommodation and Food Services
 Other

Next

What is your primary business location?

I am not sure
 New York State
 Other State
 Foreign Country

Next

*NOTE: Refer to page 22 for the pull-down menu for NYS Agency.

The NYU Focus | Web Developer Survey

- Web page creation
- Web application development
- Web design
- Program test
- Project management
- System maintenance

If none, please specify: _____

Question 8 of 12: Do you have a main or secondary job(s)?

Yes

If yes, how do you describe it (es)?

Field to read (Select all that apply)

- Training
- Writing
- QA

Are working for (e.g., marketing, development, operations, etc.)

What working for? _____

No

Question 9 of 12: Do you develop applications beyond your job?

Yes

If yes, what?

Training

If yes, what other working (es)? _____

Web application development (e.g., mobile, desktop, intranet, etc.)

If yes, what are? _____

Web application for education (e.g., etc.)

If yes, what are? _____

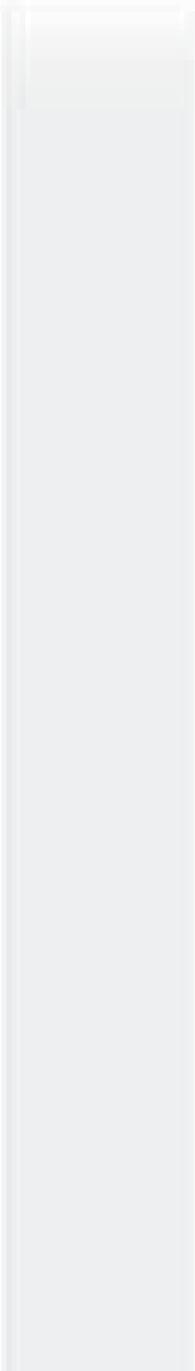
None to date

If yes, in development? _____

No

Question 10 of 12: Are you aware of CPT Technology Policy 104-001 and CPT Technology Architecture Standards 104-002's Accessibility of their Services that cover Network and Internet Infrastructure and Applications?

Yes



Q100

Do you do any international development?

Yes

No

Are you familiar with the economic process?

Yes

No

What percentage of your portfolio have been invested?

Are you receiving your wages for investments or you just holding your own?

Yes

No

Do you have a job that you can make the required changes when a political problem has a solution for your own?

Yes

No

What do you think are the factors causing you to be dissatisfied with the policy and procedure?

What do you think are the factors causing you to be dissatisfied with the policy and procedure?

How do you think about the current situation in the U.S. economy?

Yes

No

How do you think about the current situation in the U.S. economy?

How do you think about the current situation in the U.S. economy?

Yes

No

What would you like to know information on if somebody asked about that topic?

- Market trend analysis and top
- Risk-free trading system
- Full-time trading system
- Investment strategy

- Incorrect**
- Correct - No loading**
- Correct - All classes have a default**
- Correct - No classes for classes**
- Incorrect**
- Correct - No default**
- Correct - No class**
- Correct**
- Correct**

Question 4 of 12: Which of the following are not valid CSS selectors? (Select all that apply.)

- | Answer | Correct |
|---|--|
| <input type="checkbox"/> Correct | <input type="checkbox"/> Incorrect Class (within the CSS syntax of your browser) |
| <input type="checkbox"/> Correct | <input type="checkbox"/> Incorrect id[id] |
| <input type="checkbox"/> Correct | <input type="checkbox"/> Correct id |
| <input type="checkbox"/> Correct | <input type="checkbox"/> Correct id[id] |
| <input type="checkbox"/> Correct | <input type="checkbox"/> Incorrect id[id] (single quote) |
| <input type="checkbox"/> Correct | <input type="checkbox"/> Correct id[id] (double quote) |
| <input type="checkbox"/> Correct | <input type="checkbox"/> Correct id[id] |
| <input type="checkbox"/> Correct | <input type="checkbox"/> Correct id[id] (single quote) |
| <input type="checkbox"/> Correct | <input type="checkbox"/> Correct id[id] (double quote) |

Question 5 of 12: Which of the following are not valid CSS selectors? (Select all that apply.)

- Correct**
- Correct**
- Correct**
- Correct**

Question 6 of 12: Which of the following are not valid CSS selectors? (Select all that apply.)

The NYU Focus | With Development Partner

- Title _____
- Location _____
- Start/End Meeting _____
- New Group (dropdown) _____
- Personal Agency Case Group _____
- Research Project _____
- Academic Project _____
- Other/None _____
- Other _____

Question 18 of 18: How are students' experiences most strongly affected?

- Flag
- Other _____
- What are you doing? _____

Question 19 of 18: What sorts of topics should faculty be asked to "highlight" their classes during faculty meetings?

Both the IT Accessibility Committee and the "Institution" will provide advice and provide some of resources, recommendations and a general focus for online questions about the development of an online program. Some of these questions should include: what are the most important issues for the development of an online program?

What advice: _____

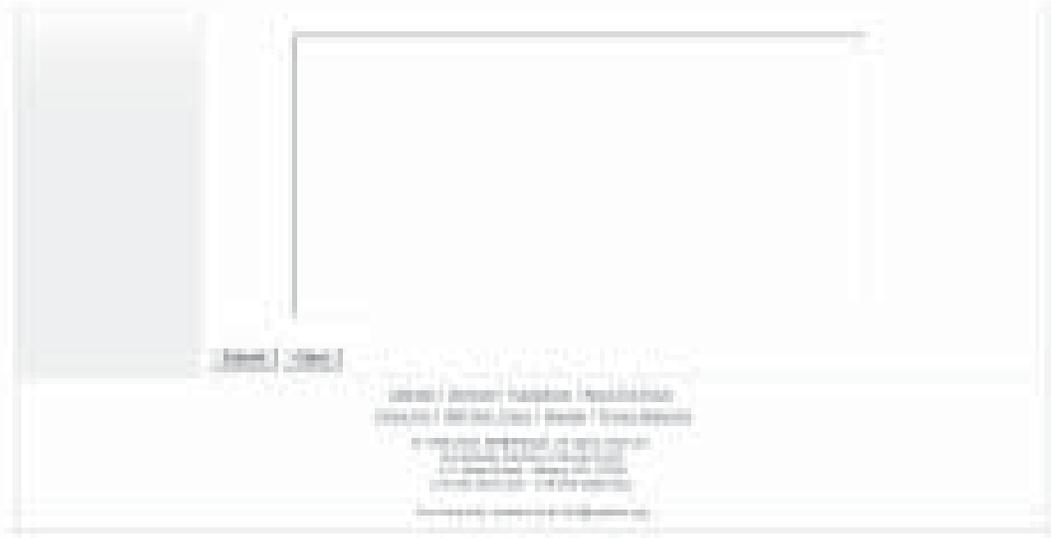
There will be a final session for:

Accessibility Committee (meeting)

Institution (final review)

Both students and a non-student that attending our conference. There is a request to you, and the IT Accessibility Committee will meet at 10:00 AM on 10/10/2013. The "Institution" will also meet at 10:00 AM on 10/10/2013. The "Institution" will also meet at 10:00 AM on 10/10/2013. The "Institution" will also meet at 10:00 AM on 10/10/2013.

Thank you.



NYS Agency Pull-down Menu

From page 1 of Web Developer Survey.

Refer to survey shown on page 15.

Adirondack Park Agency
Advocate for Persons with Disabilities, Office of
Aging, Office for the
Agriculture and Markets, Department of
Alcoholic Beverage Control State Liquor Authority, Division of
Alcoholism and Substance Abuse Services, Office of
Arts, Council on the
Assembly
Banking Department
Battery Park City Authority
Bridge Authority
Budget, Division of the
Buffalo Fiscal Stability Authority
Canal System
Central Pine Barrens
Chief Information Officer, Office of the
Children and Families, Council on
Children and Family Services, Office of
City University of New York or CUNY
Civil Service, Department of
Consumer Protection Board
Correction, Commission of
Correctional Services, Department of
Crime Victims Board
Criminal Justice Services, Division of
Cyber Security and Critical Infrastructure Coordination, Office of
Developmental Disabilities Planning Council
Dormitory Authority
Education Department
Elections, Board of
Empire State Development
Employee Assistance Program
Employee Relations, Governor's Office of
Employee Resource Information Center
Employment Relations Board
Energy Research & Development Authority
Environmental Conservation, Department of
Environmental Facilities Corporation
Ethics Commission
Family Assistance, Department of
Financial Control Board
General Services, Office of
GIS Clearinghouse
Government Information Locator Service
Governor, Office of the
Governor's Office for Small Cities
Governor's Traffic Safety Committee
Health, Department of
Higher Education Services Corporation
Housing and Community Renewal, Division of
Housing Finance Agency
Housing Finance Agency
Hudson River Park
Hudson River Valley Greenway
Human Rights, Division of
Inspector General, Office of the
Insurance Department
Insurance Fund, State
Investigation, Commission of
Judicial Conduct, Commission on
Labor, Department of
Law Revision Commission
Law, Department of
Lieutenant Governor, Office of the
Lobbying, Temporary State Commission on
Lottery, Division of
Management Confidential Employees, Organization of NYS
Mental Health, Office of
Mental Retardation and Developmental Disabilities, Office of
Metropolitan Transportation Authority
Military and Naval Affairs, Division of
Minority and Women Business Development, Office of
Motor Vehicles, Department of
Nassau County Interim Finance Authority
Parks, Recreation and Historic Preservation, Office of
Parole, Division of
Power Authority
Prevention of Domestic Violence, Office for the
Probation & Correctional Alternatives, Division of
Public Service Commission
Quality of Care, Commission on
Racing and Wagering Board
Real Property Services, Office of
Regulatory Reform, Governor's Office of
Restoration of the Capitol, Commission on the
Roosevelt Island Operating Corporation
Science, Tech & Academic Research, Office of
Senate
South Shore Estuary Reserve Council
State Comptroller, Office of the
State Emergency Management Office
State Employees Federated Appeal
State Police, Division of
State University Construction Fund
State University of New York
State, Department of
Tax Appeals and Tax Appeals Tribunal, Division of
Tax Appeals, Division of
Taxation & Finance, Department of
Teachers' Retirement System
Technology, Office for
Temporary and Disability Assistance, Office of
Thruway Authority
Transportation, Department of
Unified Court System
Veteran's Affairs, Division of
Welfare Inspector General, Office of the
Women, Division for
Workers' Compensation Board

Pre-Focus Group Questionnaire

We ask that you complete this survey in hard copy and bring it with you to your interview session.

1. What is your payroll title and salary grade? _____

2. What is your role in maintenance and development of your agency's web site? _____

3. Who is your agency web site's audience(s) – e.g., general public, local governments, business, other state agencies, etc.? _____

How effective do you feel your agency's web site is at reaching your targeted audience(s) – e.g., very effective, effective, and fair but could improve, poor, etc.? Please explain. _____

4. What are the two strongest points about your agency's web site and why?

What are its two weakest points and why?

5. Does your agency support the State's accessibility policy and standards? (e.g., yes, no, somewhat) Please explain. _____

Has your agency successfully implemented the State's accessibility policy? If not, do you know why? Please explain. _____

6. Would you classify your agency's web development staff as small, medium or large, compared to other agencies of your agency's size? _____

How effective do you think the agency's web site is in providing value to the agency's audience?

7. How effective is your product (web site)? (Rank these selections from 1 through 5 with 1 being "very effective" and 5 being "not very effective")

- _____ Value of information/services provided to audience.
- _____ Relevance of information/services provided to audience.
- _____ Understandability of information/services provided to audience.
- _____ Accessibility of information/services provided to audience.
- _____ Level of audience's interest in information/services provided.

8. Do you feel you personally add value to the web site you develop? _____

9. How realistic is your web maintenance and development workload? _____

10. Are you satisfied with your job? _____

Focus Group Discussion Topics

INTERVIEW//DISCUSSION QUESTIONS – These are the questions we’ll be focusing on in our interview sessions. We’ve provided them for you in advance so that you would have an opportunity to think about how they could be answered for YOUR situation.

a) Training and Education: More training for others and me involved in web site development in my agency.

- How often do you feel you are prepared for the web-related tasks assigned to you?
- Are you aware of and have skills sufficient to implement the current NYS accessibility standards on your web site?

b) Operational Management of web site: Overall management of the web development process in my agency.

- How involved is agency management in the web development process?
- Do you feel your management understands what’s required to meet the accessibility standards?
- Is agency management supportive of staff training for web professionals to ensure that they have the tools to do their job – including accessible web design/programming?

c) Level of Resource Commitment: Level of fiscal and human resource commitment to web development in my agency.

- Do you feel you have the resources that you need to stay on top of the latest technological advances? If not, which ones are lacking and what would be needed to overcome the shortfall?
- What are the top three sources you use for upgrading/keeping current with your web-related skills?
- Are any of these supplied by your agency?

d) Agency Leadership Understanding and Support: Level of understanding and support from the upper levels of agency leadership.

- Does your agency have formal standards for web development?
- If so, how supportive is agency leadership when attempts are made to enforce standards?

e) Amount of Organizational Responsibility: Location of web development responsibility within my agency.

- Where is the primary responsibility for the agency’s web site located?
- If responsibility for your web site is shared, please name the primary stakeholders and estimate the percentage of overall web site responsibility each stakeholder bears.
- Is web development outsourced in your agency? If yes, ____% outsourced.

PRESS RELEASE

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rbuchner@nysfirm.org
<http://www.nysfirm.org>

NYS Forum Named to 2005 Associations Advance America Honor Roll

The NYS Forum (The Forum) has been named to the 2005 Associations Advance America Honor Roll, a national awards competition sponsored by the American Society of Association Executives (ASAE), in Washington, D.C.

The Forum received the award for its committee work to develop a training program for making New York State websites accessible and usable by the disabled and then affording that training to over 2000 NY state government web site developers. The recognition also acknowledged the role that The Forum's IT Accessibility Committee had in the shaping the New York state policy and standards for government web site accessibility. The Forum's Committee is co-chaired by Deborah Orton of the NYS Governor's Office of Employee Relations, Mike Short of the NYS Department of Civil Service and Lisa Hebert Ryan of MicroKnowledge, Inc. The Committee includes members from a wide spectrum of New York state government agencies.

Now in its 15th year, the prestigious Associations Advance America Awards program recognizes associations that propel America forward-with innovative projects in educations, skills training, standards setting, business and social innovation, knowledge creation, citizenship and community service.

"The NYS Forum's program truly embodies the spirit of the Associations Advance America campaign. It is an honor and an inspiration to showcase this activity as an example of the many contributions associations are making to advance American society," remarked Associations Advance America Committee Chair David Gabri, President and CEO, Associated Luxury Hotels International.

On behalf of The NYS Forum, it's Executive Director, Gregory Benson, Jr., commented that: "This recognition is an honor for our organization and wonderful acknowledgment of the contributions being made by our committee that has devoted such a superb effort to ensuring that government web sites are usable by all of our state's constituents, particularly those with disabilities."

The NYS Forum is a member organization of information management leaders representing New York state and local government agencies and technology corporations. The Forum's mission is to promote policies and practices for effective development, use and management of information resources in New York State. For further information about The Forum's programs call (518) 443-5001 or email info@nysfirm.org. Visit The NYS Forum online at <http://www.nysfirm.org>.

August 2005

New York State Forum

The New York State Forum is a network of public officials and State government organizations concerned with information management policy and technology.

Information is a vital resource for New York State. Agencies of State government have widely adopted information technologies to improve their abilities to meet their responsibilities. These technologies, the information they process, and the people who use and manage them are essential components of modern government. Together they support a wide variety of public services, contribute to economic health and development, help to manage the state's physical infrastructure and the natural environment, and foster educational and cultural development. Public managers in New York State have become increasingly aware of a need to articulate information policies and to improve the management of information resources which support state operations. A mechanism is clearly needed to support an ongoing exchange of professional and managerial experiences, to coordinate efforts involving issues that are common or transcend the ability of a single organization, and to facilitate useful sharing of the State's technological, human and information resources.

It is the mission of the New York State Forum to promote policies and practices for effective use and management of information resources in New York State Government.

