

Organizational Readiness

Often, the development of the first Internet-based project in the agency requires a great deal of planning and support to get off the ground. The Internet is relatively new, the technology is rapidly changing, the user base is quickly developing, and few government agencies have first-hand experience with developing and operating Internet services.

This category includes the resources necessary to get the agency to the point where implementation of the Internet-based service is feasible. It includes training, demonstration projects, and other educational activities designed to help agency management and staff become more familiar with Internet-based services and technologies so that they may make sound decisions about the proposed project and its technology.

A variety of activities can support this decision. Specific activities appropriate for WWW services can be found in the CTG publication *Delivering Government Services on the World Wide Web: Recommended Practices for New York State*. More general suggestions may be found in CTG's *Making Smart IT Choices: A Handbook*.

Line	Human Resources Costs	Description
1	<i>Training for Technology Awareness</i>	This category includes the training and demonstration activities necessary to acquaint the agency management and staff with the potential of Internet-based services. It includes exploratory investigations and trials of the Internet, best practices research and demonstrations, development and demonstration of preliminary prototypes, and training and self-study of staff involved in the decision making.
2	<i>Planning for Internet Presence</i>	<p>This category includes the management, technical, program, and policy staff resources to plan for the service. This includes project development, review, and fiscal analysis on the project. The plan should include an assessment of outsourcing options for developing and operating portions of the service. Specific tasks might include:</p> <ul style="list-style-type: none"> • strategic planning for services • conducting a successful pilot • gaining executive level support • cost-performance analysis • internal and external marketing • promoting intraorganizational cooperation • identification and structuring of information • defining roles and responsibilities • team formation • identifying liaisons for program areas • developing staff expertise • advance public relations • providing for post-implementation Web site support.

Access for Agency Staff and Other Users

Each Internet service will involve users communicating over the Internet. Depending on the particulars of the project, it may be necessary for users to be able to browse the WWW, receive and respond to electronic mail, communicate with one another, and have access to specially developed internal Intranet applications. The users might be the public at large, agency staff, staff in other agencies and affiliated provider agencies, business partners, or clients.

In order to be successful, it may be necessary to provide hardware, software, Internet access, and training on both general software and on your particular service. For services aimed at the general public, user access is typically not subsidized by the project and general WWW competency is all that is required. For users within the

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agency or perhaps for non-profit affiliates, the cost of necessary components should be included when planning the project. You may have this infrastructure in place, or it might need to be developed further for a successful project. While this equipment might serve other purposes in addition to the specific activities of the Internet-based project (such as general office automation and communication), if it is necessary for the success of the project its cost must be considered in the cost of the entire project. How much of the cost is charged to the Internet project varies depending on circumstances.

Line	Infrastructure Costs	Description
3	<i>Hardware for End Users</i>	This should include PC's capable of supporting Internet access, either dial-up via modem or network-ready for LAN access to the Internet. The annual cost should include hardware upgrades on a periodic basis.
4	<i>Software for End Users</i>	This includes network software, WWW browsers, electronic mail systems and gateways, other Internet software, and security software. The annual cost should include software upgrades.
5	<i>Network and Internet Access for End Users</i>	This category includes all capabilities needed to provide access to the Internet services from the end users' PCs. In almost all cases, a unit external to the agency that provides access to the Internet will be involved. This "Internet Service Provider" or "ISP" can provide access to the Internet in a number of ways. Individual accounts with dial-in access to an ISP provides an inexpensive starting approach that grows as the number of users increases. This approach requires modem access, either directly or through a LAN, for each user of the services. Alternatively, an agency's LAN or mainframe computers may be connected to the Internet through the ISP, through either a dial-up or leased connection. The latter comes at a higher cost but with increased flexibility and level of service. Connecting through a LAN or mainframe involves security considerations because, depending on the configuration, other Internet users may gain unauthorized access to agency resources. What exactly is included depends on whether you intend to use dial-in from individual PC's or connect through a LAN. For dial-in access, this typically includes modems, phone line charges, and Internet access accounts. For LAN access, this may include network interface cards, hubs, routers, switches, firewalls, data line charges, and ISP accounts.
6	<i>Other Vendor Services</i>	This may include network design and installation, PC configuration, and maintenance.

Line	Human Resources Costs	Description
7	<i>Start-up Process for Equipment</i>	This should include costs of the purchasing department as well as the installation and testing of the network if that is to be done in-house.
8	<i>Procurement</i>	This includes all costs related to managing the outsourced activities. One-time costs include the initial time to research options, select a vendor, and establish the contract. Ongoing costs include technical liaison with the vendor and contract administration and coordination.

End User Support

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Staff and other users of the system will need training and help-desk support to make effective use of the resources. Again, depending on the user, the cost to support the users may be borne by the agency or by other parties.

Studies have indicated that, in general, formal training is less costly and more effective than self-learning. The training and day-to-day support may be provided in-house, or outsourced to a separate organization.

Line	Infrastructure Costs	Description
9	<i>Vendor Services</i>	If training or help desk support are outsourced, include the cost paid to the vendor here.
10	<i>Establish and Manage Vendor Contracts</i>	This should be included if line 9 is not-zero. It includes all costs related to managing the outsourced activities. One-time costs include the initial time to research options, select a vendor, and establish the contract. Ongoing costs include liaison with the vendor and contract administration and coordination.

Line	Human Resources Costs	Description
11	<i>Development and Delivery of User</i>	This should include only the cost of developing the training program, not staff time in receiving the training. Even if outside trainers are engaged, staff may be involved in planning and designing the specific training activities.
12	<i>User Time in Training</i>	This should include staff time spent in both self-help and formal training.
13	<i>Help Desk for Users</i>	This should include all costs of day-to-day support for both agency staff and other users of the system.

Content Development and Maintenance

Developing a suite of information and services that will be provided on the Internet entails, at a minimum, converting the information into a form that can be delivered to recipients by WWW servers. At present, this often requires specialized "mark-up" activities that require trained personnel and can be time-consuming. This is an area in which the support tools are rapidly changing, and project plans need to be reassessed frequently to keep up with the current technology.

If the intended application involves two-way communication, using such technologies as electronic mail, fax-back services, fill-in forms that users can access via the WWW, specialized applications that link agency databases and other applications to the WWW front end, or adaptive Web pages, then the cost of developing and operating the service may be substantial. Agency staff may be needed on an ongoing basis to reply to email and handle the additional work generated through the Web service. Developing the technical infrastructure may involve security planning, technical evaluation of alternatives, specialized programming, linking of search engines and databases to Web pages, and on-site hosting of the WWW site.

Once again, development of the content may be done completely in-house, outsourced, or some combination of the two. The initial development is often outsourced to get a jump-start on developing the services.

In the categories below, a number of different functions related to developing and maintaining the Internet service are detailed. In a large organization, these functions may be done by separate staff members; in a smaller agency one person may perform several of these functions.

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Line	Infrastructure Costs	Description
14	<i>Hardware for Content Developers</i>	If the service or Web pages are developed in- house, the content providers will need suitable systems.
15	<i>Software for Content Developers</i>	This may include page creation tools (graphics tools and HTML tools), application development tools (CGI scripting tools, Java development environments), search engines, database interfaces, document creation and conversion software, a variety of Web browsers for testing, design manuals, and reference materials. The annual cost should include software upgrades and acquisition of new tools. Although many shareware tools are available, a cost may be incurred just to keep up with this rapidly changing field.
16	<i>Network and Internet Access for Content Developers</i>	If a LAN connection has been provided for general users, this may suffice for the content providers as well. However, if the plan is to use individual dial-in accounts, there may be an additional cost to provide access for the content developers.
17	<i>Other Vendor Services</i>	All other outsourced costs related to content development go here. This may include development of the system information architecture, graphics design, layout, HTML conversions, technical design, and testing.

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Line	Human Resources Costs	Description
18	<i>Start-up Process for Equipment Procurement</i>	If hardware and software need to be provided, the administrative and technical costs should be included. This should include costs of the purchasing department as well as the installation and testing of equipment.
19	<i>Establish and Manage Vendor Contracts</i>	This should be included if line 17 is not-zero. It includes all costs related to managing the outsourced activities. One-time costs include the initial time to research options, select a vendor, and establish the contract. Ongoing costs include liaison with the vendor and contract administration and coordination.
20	<i>Development and Delivery of Staff Training</i>	This includes the training of content developers, and may be done internally or contracted out. This should include the cost of the training only; staff time to attend the training should be included in the staff costs below. Depending on the service and how much of it is to be developed in-house, this may include training in technical topics such as HTML editing, search engines, database integration, Java programming, CGI scripting.
21	<i>Staff Time in Training</i>	This should include staff time spent in both self- help and formal training. It may include technical training on the tools used in developing content for WWW-based services, as well as general training on new operating systems or network technologies.
22	<i>Webmaster</i>	This person is responsible for overall coordination of the WWW-based service. It is typically a single person or unit that manages the creation and evolution of the service. Depending on the agency organization, this may be done in the office of the PIO or in the program offices.
23	<i>Editorial Review</i>	It is usually important that all aspects of the developed system have a consistent look and feel. This staff effort ensures the consistency and quality of information that goes on the WWW site.
24	<i>Content Creation and Coordination</i>	This effort provides information to be made available on the WWW service. Typically staff that perform this function are from the program offices or the public information office. It also includes the managers that are involved in the selection and maintenance of content.
25	<i>Web Site Design and Development</i>	This should include the effort to design the service, create an information architecture, page design and testing, graphic design, and HTML conversion.
26	<i>Staff Support for Service</i>	Staff that provide components of the WWW-based service. This may include responding to email, providing new or expanded agency services that are accessed through the WWW service, or additional interaction with other agencies or organizations.
27	<i>Programming Support</i>	Many custom services such as database access, customized WWW pages, search engines, and automatic form handling require programming activities.
28	<i>Database Administration</i>	Management of the content of information provided in agency databases linked to the WWW. This may be

		increased if new databases are added or more complexity is added to existing databases.
29	<i>Other Management Support</i>	For coordination, approvals, auditing.
30	<i>Other Clerical Support</i>	For necessary typing and other routine tasks.

Host of Site

To support a WWW-based service, a system containing a WWW server and space to store the information must be available, usually on a 24 hour a day, seven days a week basis to support a Web site. Advanced applications may require additional equipment to support email access, process forms, link to databases, perform searches, or generate customized HTML pages for individual users. These WWW hosting activities may be outsourced to a vendor, or may be implemented by connecting the agency's WWW server to the Internet. While simple informational Web pages, forms, and electronic mail can typically be outsourced, more advanced two-way applications often require development of a custom WWW server application and a dedicated host to provide that service.

Again, several roles and responsibilities are defined below. Unlike the previous category, these are typically done by different individuals. A very small organization may combine some of these roles or outsource most of them for cost effectiveness.

Line	Infrastructure Costs	Description
31	<i>Hardware</i>	If done in-house, additional hardware may be necessary to host the WWW service. If not accounted for elsewhere, this may include not only processors but also networking equipment such as hubs and routers. Often, to protect the agency LAN from outside intruders, this may include security hardware such as a dedicated Web server system, firewalls, and proxy servers.
32	<i>Software</i>	This may include database servers, WWW servers, search engines, monitoring tools, and security software. Again, this may only be necessary if the WWW service is hosted in-house.
33	<i>Network and Internet Access</i>	This may have already been included earlier if Internet access for the Web server is to be shared with agency users or content developers.
34	<i>Other Vendor Services</i>	The entire Web site may be outsourced. Even if hosted by the agency, such activities as network design, security planning, and technical support may be outsourced for cost considerations.

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35	<i>Front-end Research and Technical Evaluation</i>	There are a number of technical considerations related to providing a WWW service, particularly whether to host the site in-house or outsource it. Often the cost of performing this evaluation is significant, especially if the planned service is technically complex.
36	<i>Start-up Process for Equipment Procurement</i>	This should include costs of the purchasing department as well as the installation and testing of equipment if that is to be done in-house.
37	<i>Establish and Manage Vendor Contracts</i>	This should be included if line 33 is not-zero. It includes all costs related to managing the outsourced activities. One-time costs include the initial time to research options, select a vendor, and establish the contract. Ongoing costs include liaison with the vendor and contract administration and coordination
38	<i>Development and Delivery of Staff Training</i>	This includes the training of the technical support staff, and may be done internally or contracted out. This should include the cost of the training only; staff time to attend the training should be included in the staff costs below. There may be a cost even if the site is outsourced both in order to make informed decisions and in order to support a connection to the Internet to manage the information at the off-site service.
39	<i>Staff Time in Training</i>	This should include staff time spent in both self- help and formal training.
40	<i>Network and Systems Administration</i>	The workload of IT support staff will be increased if the service is hosted on the agency computer. Software will need to be installed, linkage to data connections will need to be established, security measures will have to be added, and additional backups will need to be managed.
41	<i>Web Server Management</i>	Someone will be required to install and maintain the operation of the WWW server, search engines, database linkages, and other Internet services
42	<i>Operations Support</i>	There may be an increase in workload due to such needs as backup and installation services.
43	<i>Clerical Support</i>	There may be increased workload if such services as printing, mail-back, and other information services are included.