These are just some of the Library’s electronic forms accessible via a World-Wide Web browser at http://www.library.upenn.edu.

With the continuing development of the Library’s Gateway, more and more users have been wondering whether the Library would begin to offer some of its more routine services electronically. Recognizing that this capability is both desirable and useful, Library staff have been working hard to develop electronic service request forms. Now, in conjunction with the scheduled launch of the Library’s Web home page in March, the first batch of electronic library request forms is available to users.
Development

The development effort necessary to create the request forms was managed by a subcommittee of the Library’s Electronic Access Task Group. The Forms Committee was assembled in late November 1994 to create electronic versions of four basic library service request forms. The Electronic Access Task Group wanted to offer the public something early in the Spring semester. At the same time that the Forms Committee was assembled, another subcommittee was set up to create a World-Wide Web home page for the Library. The development of both the electronic service request forms and the Web home page moved forward rapidly and, to some extent, conjointly. Because of these intersecting development paths, the Library decided that a simultaneous launch of both new products was appropriate.

Operational and technical challenges

The Forms Committee faced significant challenges—some operational, some technical—as it began its work. Workplace transitions are often difficult, particularly when existing operations are supplemented rather than replaced. Procedures for handling printed forms have been in place for years. Staff routines have developed to handle the work those forms generated. Even electronic versions of paper forms necessitate the creation of new procedures and work routines. Also, a concern was raised about how much additional work would be generated for an already stretched staff by providing electronic service request capability over the network. The question of whether electronic requests will replace or supplement paper requests is yet to be determined. However, the implications for improved patron service alleviated any doubts about additional workloads. In fact, the enthusiasm for this project is so great that the Committee has moved past its initial mandate to create four electronic request forms, and to date, has created ten.

The technical challenges faced by the Forms Committee were even more daunting. The Committee needed to anticipate not only how Library patrons would use the electronic request forms but also how forms would be accessed. It was essential that the forms be accessible to our large and diverse user population regardless of their individual computing environment.

Designing for the Web

The ability of a Web server to make hypertext documents available across the Internet has redefined the way the Library can provide services. These hypertext documents are text files in machine-readable format that contain special tagging called Hypertext Markup Language (HTML). The Web server transmits the text file with its HTML tagging across the Internet. The user needs client software to interpret the HTML tagging to display the document in a standard style. Some popular client Web browsers are Mosaic and Netscape, which take advantage of a graphical interface and are available for Windows, Mac, and X-terminal platforms, and Lynx, a character-based browser. The electronic request forms we created are a function of HTML, which allows for an interactive environment between the client and the server. Taking advantage of this kind of functionality, we developed request forms that work for both the user and for Library staff.

During the design phase of the forms’ development, the Committee took the most popular client browsers’ functionality into consideration and made compromises to design for the different browsers. As the forms currently exist, text appears on the screen and fields are provided for user input. The server then uses Common Gateway Interface (CGI) scripts to process data gathered from a user. Currently, the CGI scripts that process the request forms capture the input, write it to a file, and then send that file to a predetermined e-mail account. The service request is then reviewed by the appropriate Library staff member.

Printing the forms

Various client browsers can and do interpret tagging in differing ways, which makes processing forms from patrons using those browsers challenging. For example, the Committee realized that a user might want a hard copy of his or her request. Trying to print a form that also includes the user’s input shows how different browsers react. With Lynx, the form prints without any of the user’s data. Users of Mosaic or Netscape, depending on the version, will have varying degrees of success trying to print a completed form. To compensate for this difference we have added a feature to the CGI script that will transform a completed request form into an HTML document that can be printed regardless of the browser.

The future

Refinements will be made as the technology matures and as staff time permits. For example, we want a user to be able to extract information from a source and automatically move it into a service request form. New ideas for forms surface every day. As we gain experience with the ten forms currently available we’ll have a better sense of what we can and can’t do. We urge you to use the forms and let us know what you think. We see form development as an evolutionary process: some forms will change; some will be discontinued and new forms will take their place. As the great evolutionary Charles Darwin so eloquently put it (although in a slightly different context): “...from so simple a beginning endless forms most beautiful and most wonderful have been and are being evolved.”

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