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The term "document delivery" has come to have several meanings in recent years. When Clemson University began considering the feasibility of providing document delivery service to our users, particularly University Faculty and Staff, we used the term in its literal sense - the delivery of printed information to the user at his or her work site. Since that time, there have been a number of companies entering the market to deliver fax copies of articles to users either through their library or directly to them. This service has become known in the profession as "document delivery." These are but two of the "document delivery" mechanisms which are and will be used in the 90's to meet library customer's needs. We are already seeing publishers of journals testing the waters for the delivery of their articles in addition to the sale of subscriptions of their journals.

This paper will address primarily the first definition, the physical delivery of photocopies of articles and books to faculty, staff and students at Clemson University. This is accomplished by using a system created at Clemson University and has the name of EDDIE (Electronic Document Delivery Information Exchange).

Clemson University - the Environment

Clemson University is a "state assisted" public university. It is the land-grant university of South Carolina. It's focus is agriculture, sciences and engineering. Clemson has an enrollment of 17,000 students. Its faculty numbers 1,300 and there are approximately 3,000 staff positions. As the land grant institution for the State, Clemson has five major agricultural research stations and 46 extension offices located throughout the State of South Carolina. In addition, nearly 20% of Clemson's annual income is derived from funded research, primarily in engineering and the sciences. The Clemson campus has been using computers and networks for over 20 years and access to the campus mainframe, initially by dumb terminals, now mostly PC's, has

been widely available. Since the late 80's, there has been very wide access to the campus networks by PC's and a few remaining dumb terminals. Upon arrival at Clemson University, all students, staff and faculty are automatically issued a computer userid and password for the campus mainframe.

Clemson University Libraries

Because of this environment, the Libraries have had an ongoing effort at creating an environment of "Libraries without Walls" since the early 1980's. In 1985 the Libraries made available to the public our online catalog LUIS, using the NOTIS™ software. This was followed two years later in 1987 with the development of DORIS, our locally mounted database system, using the BRS Search™ software as the search engine. All modules of the NOTIS™ LMS system are in use and we are 100% converted bibliographically. We have nine bibliographic indexes available via DORIS. With these two services, our students, staff and faculty both on and off campus can search bibliographic indexes and determine if the citation is held in the Clemson University Libraries.

It was in this context that the Libraries conceived the idea of developing the next link in the chain, the delivery to the user of the item or items found electronically. Our objectives were to improve the productivity of our faculty and staff my developing a system which would reduce the time necessary for them to retrieve needed information resources and to improve the provision of resources to faculty and students located at locations remote from the main campus. Indeed, part of our rationale for the system was to formalize something which had been implemented informally with our agricultural researchers located throughout our state. The Libraries' Agriculture Bibliographer had developed a number of relationships with these researchers and they, with her encouragement, were sending her regular e-mail messages describing the items they needed for her to send them. Further, we believe, as I will address a little later, that the world of information delivery is and will be changing so dramatically during this decade that Libraries must be at the forefront of the developments and must add value to remain viable information agencies in the future.

EDDIE (E-Mail Document Delivery Information Exchange) is Developed

The medium of electronic mail was chosen as the basis of the service because it provided a manageable way of receiving the requests and an easy way of authenticating the requester. Further, it allowed the user to submit requests 24 hours a day, 365 days a year and do so from home or office. The vast majority of Clemson's faculty and staff have network connections on campus and all of the remote sites have access via a Clemson operated state-wide network. Because certain information was required to process requests, the decision was made to have a system which presented the user with pre-formatted screens. The screen the user would see would depend on the service he requested from a menu of options.

During the development stage, Library staff participated initially by determining which services should be available. Library staff then worked together with the computer staff to create the unique pre-formated screens which would be presented the user. They determined which fields on the screen were mandatory for the user to complete. The Library staff also determined the routing of the email messages, which messages would be sent to which unit within the Libraries.
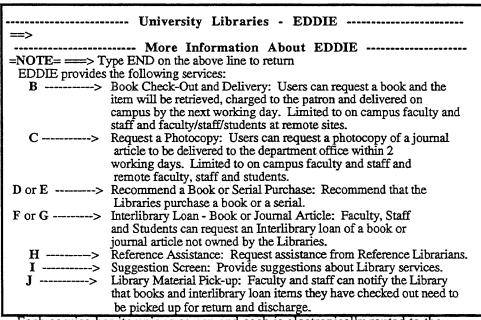
The system software was designed by our Administrative Programming Services (APS), a department of the University's Division of Computing and Information Technology (DCIT). They used as the basis of the system a software package already in use on the campus mainframe, ISPF . This software package allows for relatively easy designing of pre-formatted screens within the email system. Using this package, the APS team was able to have an operating system in a matter of two to three months.

Shown below are four of the screens from the EDDIE system. The first is the main EDDIE menu screen, it is followed by the first selection on that menu which provides some explanation of the menu options.

The EDDIE Menu Screen:

```
------------------------- University  Libraries -------------------------
==>
-------------------------- EDDIE  Main  Menu ----------------------------

Welcome to EDDIE (E-mail Document Delivery and Information Exchange).
For more information, type A to the right of the arrow above, then press ENTER.
To send a request, select from the options provided below, then press  ENTER.


            A    More Information About EDDIE
            B    Check Out a Book
            C    Request a Photocopy from CU Library Material
            D    Book Order Request
            E    Serial Subscription/Standing Order Request
            F    Interlibrary Loan - Book
            G    Interlibrary Loan - Journal Article
            H    Reference Assistance
            I    Suggestion Screen
   NEW ---> J    Library Materials Pick-up   <------ NEW
            X    Exit

For more information about EDDIE and other library services, call 656-3214.
```

The Explanation Screen:

```
------------------------ University  Libraries - EDDIE ----------------------
==>
------------------------- More  Information  About  EDDIE --------------------
=NOTE= ===> Type END on the above line to return
   EDDIE provides the following services:
   B ----------> Book Check-Out and Delivery:  Users can request a book and the
                 item will be retrieved, charged to the patron and delivered on
                 campus by the next working day.  Limited to on campus faculty and
                 staff and faculty/staff/students at remote sites.
   C ----------> Request a Photocopy:  Users can request a photocopy of a journal
                 article to be delivered to the department office within 2
                 working days.  Limited to on campus faculty and staff and
                 remote faculty, staff and students.
   D or E -------> Recommend a Book or Serial Purchase:  Recommend that the
                 Libraries purchase a book or a serial.
   F or G -------> Interlibrary Loan - Book or Journal Article:  Faculty, Staff
                 and Students can request an Interlibrary loan of a book or
                 journal article not owned by the Libraries.
   H ----------> Reference Assistance:  Request assistance from Reference Librarians.
   I ----------> Suggestion Screen:  Provide suggestions about Library services.
   J ----------> Library Material Pick-up:  Faculty and staff can notify the Library
                 that books and interlibrary loan items they have checked out need to
                 be picked up for return and discharge.
```

Each service has its unique screen and each is electronically routed to the

appropriate unit within the Libraries.   Items B and C initiate a delivery of an item to

the customer. Items D, F, and G may initiate such a delivery if requested by the

customer when they sent in the request.

Below are sample screens a customer sees if they are requesting that a book be checked out and delivered to them, and a request for an interlibrary loan book.

Book Check Out Screen:

```
------------------------ University  Libraries  -  EDDIE -----------------------
==>
------------------------ Book  Check-Out  and  Delivery -----------------------
=NOTE= ===> On the above line, use SEND to send the Note, CANCEL to abort
=NOTE= ===> Limited to faculty, staff, and remote site students.
Userid of: JBOYKIN


Author: _____

Title: _____

Call Number/Location: _____

Name:  Joe Boykin_____
Status: Faculty  x    Staff _   Remote Site Student _
   Building/Dept.: Cooper Library_____
        Street: _____
City, State, Zip: _____
        Phone:( ___ ) 656 - 3026

You will be notified if the above item must be recalled from circulation
before it can be delivered.
```

Interlibrary Loan- Book Request Screen:

```
------------------------ University  Libraries  -  EDDIE -----------------------
==>
------------------------ Interlibrary  Loan  -  Book -----------------------
=NOTE= ===> On the above line, use SEND to send the Note, CANCEL to abort

Userid of: JBOYKIN

 Title: _____
   : _____
Author: _____
Edition: _____
Date of Publication: _____
Source of Reference: _____

   Name: Joe Boykin_____
   Fac  x  Grad _  Ugrad _  Staff _
   Dept.: Cooper Library_____
Building: _____
   Street: _____
Home Phone:( ___ ) ___ - ____      Office Phone:( ___ ) 656 - 3026

Latest Date Needed: _____
```

Since its creation and implementation in 1991, we have made a few changes to the system. We found, fairly soon after implementation, that we needed for the system to give an automatic reply to the sender letting him or her know that the appropriate office in the Libraries received their request. Faculty were complaining that they had the feeling that once they sent the message it was going into outer space and they had no assurance that we had received it. This was a fairly easy improvement to make. The second and most recent addition has been a new screen allowing faculty on campus to notify us when they have library books they would like to return and be picked up from them. This screen is needed because our delivery staff only go to departments for which they have deliveries, so a faculty member may have an item ready to return and the delivery staff will not know of it. Now with the pick-up screen, faculty and staff can request that materials be picked up.

To implement the system in 1991, we allocated a half-time support staff position to our Circulation Unit. This position was responsible for receiving all the requests for book check-out and photocopy as well as making all deliveries.

Since the time the system was created and now, we have had a reorganization within the Libraries. In that reorganization a new unit was created - Resource Sharing and Copier Services. This unit is now responsible for the document delivery system as well as interlibrary loan and the operation of our copier services. Today, we have increased the position to full-time and have added around 20 hours of student assistants per week to the service. This individual and students receive all of the requests for books to be delivered, photocopies to be made and delivered and do the actual delivery. We commit to the delivery of monographs within 24 hours of request and journal articles within 48 hours of request. We generally deliver both books and journals in less than 24 hours.

Arrangements have been made with each academic department to have a place in the departmental office where items are delivered and picked-up. The Libraries lease a mini-van from the campus motor pool and it is used to make the daily deliveries and pick-ups. Because we also have two remote book return units on campus, the van

and staff are used to pickup from those sites as well. For delivery to faculty and students located at remote sites, we use fax when possible and the surface mail for items which can not be faxed.

Use and Cost of EDDIE

In spite of our initial concerns about being overwhelmed with requests, we have found that the level of usage has not been as high as we anticipated. This year we delivered approximately 4,400 items from our collections. The break down between monographs and journals is almost even with a slight edge to monographs. This relatively low level of usage results from a number of factors. First, in spite of our efforts, may faculty and staff remain uninformed as to the existence of the system. Secondly, access to the system is "hidden" behind one of the main menu items on the mainframe. Thus, the user has to know to go to TSO, log in, then issue the command "EDDIE" to have the EDDIE menu presented to them. We are making every effort to move EDDIE to the primary menu on the mainframe. We anticipate that making EDDIE immediately visible to customers will do more than anything to increase the level of usage. We have a cadre of loyal users who think the service is the best thing "since sliced bread." We have a number of faculty who just like us so much they want to come see us rather than deal with us electronically! Additionally, may of the faculty have graduate students who are often used as the researcher for the faculty and they are the finder and deliverer of information for their faculty member.

One aspect we had hoped would catch on more than it has is the use by students taking classes at remote locations. These students have historically not had any real access to library materials, and EDDIE will provide that access to them. We are having to reeducate faculty, so they know that their students at these sites can gain access to library materials and will make assignments which will require their students to make use of this and other library systems and services.

One interesting remote use which is being implemented this summer is with MBA students located in Portenone, Italy. Students at this site, primarily European students, can access our catalog, our online indexes and EDDIE via the Internet. Once they locate periodical articles they need by searching our online <u>Business Index</u> or

Expanded Academic Index, and determining we have the journal by searching our OPAC, they will be using EDDIE to send requests for journal articles which we will fax or use the ARIEL software to send to them in Portenone. The ARIEL system is a software package sold by The Research Library Group in the US which facilitates the scanning, compressing and sending of data via the Internet. We plan to test this system in the near future. Use of it will eliminate the expensive fax to Italy. Further, because the article is printed on their local laser printer, the quality of the product will be much better than by fax.

Currently our annual costs for the system is approximately $27,000. This includes salaries, fringe benefits, supplies and van rental. All of the services offered in the EDDIE system are free to our users except for the cost of photocopies. We charge a copy fee per page. The only other charge we make related to this system is to our MBA program in Italy, where we currently charge for the cost of the fax transmission. Once we begin using ARIEL, this charge will disappear.

The Future of Information Delivery

The system I just described is used primarily to deliver materials housed in our library. While we also use the system to initiate and deliver material acquired on interlibrary loan, its main use is to request delivery of items held in our libraries.

As noted at the beginning of this paper, there are now a number of firms in the business of providing customers with copies of articles from a wide variety of journals or periodicals. In the US, these companies also tend to have as a part of their wares a Table of Contents database which a customer may search to determine which article he or she may want delivered to him or her. Typically, the companies use FAX for delivery, but not always. Costs vary considerably among companies, but all charge for copyright clearance. An increasing number of libraries are subscribing to these services to access information **they do not have** in their collections. Almost exclusively these services provide access to and delivery of articles from serial publications. For technological oriented university libraries, these services will be our initial demonstration of the new paradigm of "just in time" information delivery.

By the end of the decade I predict we will see, on a fairly large scale, companies,

which are now in the business of publishing journals, selling their products, "by the drink" or article as well as "by the bottle" or journal. Indeed, several publishers are now actively testing the waters for this future business. As increasing serial prices and reduced library budgets collide, this maybe the most desirable source of articles for researchers in institutions where their libraries have canceled the journal needed.

Publishers and others could market these services directly to researchers, bypassing the libraries in the process. This is an illustration of a situation which could lead to libraries becoming archives or museums of information. Just being the agency on the campus which pays for information sources will not carry us for long, faculty and departments will demand they have direct control over their information dollars if the services they receive from their library does not meet their needs and expectations. I believe that in addition to providing rapid delivery to the faculty member, we will be increasingly called upon to act as information filters for faculty. The plethora of databases, almost all becoming enormous in size, generate, upon demand, large numbers of citations for almost all searches. Increasingly, information users are becoming overwhelmed with the mass of information which they must evaluate. The role of librarians may well be as a source of filtering for the user, resulting in the user being presented with the "best" of the information, not all of it.

Abbreviations, Acronyms and Initialisms

APS	Administrative Programming Services at Clemson University, a part of DCIT, see below.
ARIEL	Software developed by the Research Library Group for the scanning, compressing and sending of full text data.
BRS	A company which markets a search engine known as BRS Search™
DCIT	Division of Computer and Information Technology at Clemson University.
DORIS	The name of the locally mounted database system at Clemson which includes 9 bibliographic databases and 8 campus information databases.
EDDIE	The name of the document delivery system at Clemson (E_mail Document Delivery Information Exchange.)
ISPF	Interactive System Productivity Facility
LUIS	Name of the OPAC at Clemson University.
NOTIS LMS	The integrated Library Management System of NOTIS Systems™
TSO	Time Sharing Option