

## **eForms: Process Re-engineering, Paperwork Reduction and Environmentalism**

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## **Abstract**

In order to improve College business processes; generate savings in staff time, supplies and storage; and reduce environmental waste, the College's IT department developed a web-based electronic forms application. Called eForms, the application was built using Microsoft .NET and a Microsoft SQL Server database.

An eForm can be developed by any employee, after a little training. eForms replace existing paper forms. Among system features are electronic routing and approval, the ability to attach documents, the automatic aggregation of data in spreadsheet form, the ability to make fields required or optional, and an option for customized programming. To ensure form integrity, the system has an archiving capability. Every completed eForm displays exactly as it did when it was approved, meaning that even if an eForm design is eventually changed, a graphic is replaced, etc., the forms approved prior to these changes will remain unaffected.

Some of eForms features include automatic routing online approval, the ability to append files to forms, and the option to augment the forms capabilities with custom programming.

Implementation included a formal training program, placement of newly-created eForms and the forms development application on the College's Intranet, and technical assistance. The College's IT staff also provide form creation services for departments that only have one or two forms to convert.

In fiscal year 2008, over 17,000 eForms were processed, resulting in savings of over \$130,000. Many processes were improved as paper forms were converted to electronic versions. Environmental savings also accrued, as an estimated 60,000 sheets of paper and 30 toner cartridges avoided the dumpster or recycling.

Opportunities for improving eForms in the future include requiring each eForm to have an administrative or executive champion, having the champions mandate the use of all new eForms in lieu of paper ones, and improving the promotions and publicity of the eForms initiative.

## **Introduction of the Organization**

Cincinnati State Technical and Community College is a two-year, public institution located in Cincinnati, Ohio. The College offers more than 75 associate degree programs and more than 40 certificate programs in business technologies, health and public safety, engineering technologies, humanities and sciences and information technologies. Some 14,000 students are enrolled annually at Cincinnati State in credit and non-credit classes. Cincinnati State has a 93% graduate placement rate within 3 months of graduating, and its students have a 91% pass rate on required licensing and registry exams.

Cincinnati State has the largest co-op program among two-year colleges in the United States, placing students in such major companies as Procter & Gamble, General Electric, Disney World, 5/3 Bank and the Health Alliance.

## Statement (Restatement) of the Problem/Initiative

**To do expand:** For many years, Cincinnati State had been heavily dependent on paper form to conduct its business. Whether it was a staff member requesting travel authorization, a budget officer making a purchase requisition, or even a student applying for graduation, a form, and often a multipart form, was required, and numerous signatures were necessary to complete each process.

This method of work is inherently inefficient. Paper forms:

- Must be printed, wasting paper, and completed by hand (difficult to read)
- Must be submitted in person
- Must be delivered manually for review or processing
- May be easily lost (stuck in a stack of paper)
- Require a great deal of physical space for archiving
- May be impossible to retrieve once they are archived

Some forms were converted to electronic format, but the approach was *ad hoc* and not without problems:

- Many were static forms (PDF) files, with marginal benefit over paper forms.
- New web-based forms required a long development time; with limited ITS staff; only a few high-profile forms got developed.
- Updates/modifications to electronic forms were slow, since IT staff had to make all changes to forms.
- There was no standard look and feel to the electronic forms.
- Electronic forms were difficult to find, since they were spread over an entire website.
- There was usually little or no automatic routing and review capabilities for these forms.

In order to improve College business processes; generate savings in staff time, supplies and storage; and reduce environmental waste, the College's IT department developed a web-based electronic forms application.

## Design

Called eForms, the application was built using Microsoft .NET and a Microsoft SQL Server database. The form development tool and existing eForms are accessible through the College's Intranet, which is a tab within the portal, MYCSTATE.

eForms as an application is highly flexible. While there is a similar look and feel to each created form, they can feel and function quite differently. An eForm can be developed by any employee, after a little training. eForms replace existing paper forms. Among system features are electronic routing and approval, e-mail notifications with embedded web links to forms needing review and approval, the ability to attach documents to the form, the automatic aggregation of data in spreadsheet form, the ability to make fields required or optional, and an option for customized programming. eForms can be sent back down the line for revision, declined outright or approved for final processing. A powerful search engine makes it easy to find a completed or in-process form. To ensure form integrity, the system has an archiving capability. Every completed eForm displays exactly as it did when it was approved, meaning that even if an eForm design is eventually changed, a graphic is replaced, etc., the forms approved prior to these changes will remain unaffected.

## **Implementation**

Once the eForms application was completed and field tested, a training program was developed. The program was in two parts: how to complete and route an existing eForm and how to create a new one. Follow-up technical support was available on an as-needed basis. Newly-created eForms were placed on the College's Intranet, as was the eForms creation application itself.

Departments that had many forms to convert quickly became experts in the application, requiring only occasional technical assistance. In many cases, however, departments only had one or two forms to create. In those situations, IT staff provided a digital production service, creating the form or forms for the departments in consultation with a process owner. An executive assistant in the IT unit is now methodically working through all the paper forms on campus, contacting departments, arranging to meet with process owners and converting forms. The ultimate goal is to take the College completely paperless. The eForms application, when used with the College's administrative system (DATATEL Colleague) and an enterprise-wide imaging system (ImageNow), is a key element in achieving that goal.

## Benefits

17,604 eForms were used in FY 2008 in lieu of paper forms. Total savings for last year was well above \$133,000, assuming a paper form costs 5 cents in consumables (\$880.20 total) and requires a half an hour in staff time (@ 15/hour) to route to an average of 3 people (\$132,030). These estimates are very conservative. Total savings, which would also include photocopies, staff filing time and storage space, will grow every year as more and more eForms are implemented and mandated.

While the eForms application was designed as a self-service tool, meaning anyone can, with a little training, develop a form, most individuals work with the College's IT staff before finalizing their work. All Cincinnati State IT professionals, from software trainers to managers to forms designers, view a new eForm as an opportunity to improve/re-engineer a process. Approaching a form from this perspective inevitably generates a series of questions: "What are you trying to accomplish?" "Are there other processes that are impacted by/interact with this one?" "Why do you do it this way?" "Do you need the form at all?" Frequently the existing process is flowcharted to look for how the form works and how it might be improved.

Change management theory describes three stages of change: substitutive, innovative and transformational. Many individuals initially approach eForms as a way to substitute an electronic form for its paper analog. Very quickly, however, they see ways to use the application to make their lives easier, such as aggregating inputted data in an Excel spreadsheet, which is a native feature of eForms. When that happens, form designers become

innovative. Sometimes consideration of a paper form results in its abandonment altogether, usually because the process owner has had an insight and sees an entirely different way to conduct business. When that happens, the change is transformational.

The environmental benefits of eForms are obvious. Over 17,000 uses of eForms in lieu of paper ones does not begin to capture the true “green” savings for the College. Most offices make copies of forms they have approved. Very quickly, over 17,000 transactions turn into almost 60,000 sheets of paper saved. That represents 120 reams of paper that do not end up in a landfill or a recycle bin and 30 toner cartridges (at 2000 sheets a cartridge) that have not been used.

## Retrospect

While the implementation of eForms has been very successful, three tactics can be implemented that will make it even more so:

1. Each form should have an administrative or executive champion. Some eForms have been developed and implemented by clerical staff who do not necessarily have the political capital to ensure that the form will be universally adopted.
2. Once the processes and procedures for a new eForm are refined and the form is successfully piloted, the champion should mandate the use of the new electronic version over the old paper one. Some champions have in fact mandated their new forms, but others have not.
3. The eForms application in general—and new eForms in particular—should be heavily publicized and promoted. There are still many opportunities at Cincinnati State for eliminating paper forms, improving business processes and reducing paper waste. Better publicity about the existence of the eForms application will help to expand its reach across the enterprise.