



Best Practice: Web-Based System for Buildings' Applications and Records*

***The following three reports detail the 3 phases required to upgrade Buildings records and filing system to an electronic, web-based format, known as 'eFiling'.**

REPORT UPDATED: APRIL 29, 2010

CITY: NEW YORK CITY

POLICY AREAS: BUILDINGS ADMINISTRATION; TECHNOLOGY

BEST PRACTICE

eFiling Phase I was the pilot electronic filing initiative implemented by the Department of Building in February 2005. Electronic filing is a major component of the Department's strategic plan. eFiling Phase I provided properly licensed and registered tradespersons the ability to renew most types of "no-change" construction permits entirely online, including processing of the renewal fee. A link to the complete eFiling system is available at www.nyc.gov/buildings and it is available 24/7.

ISSUE

Before the creation of eFiling, tradespersons had to manually complete paperwork and visit a borough office in order to obtain a permit renewal. The process was time-consuming and inefficient. By creating the ability for many permits to be renewed online, tradespersons can more quickly and efficiently renew permits without a trip to a borough office.

GOALS AND OBJECTIVES

The goal of the electronic filing strategic initiative (eFiling) is to make an online equivalent for as many in-person transactions and processes as possible. This not only provides a major service to the public and the filing community by reducing the time and steps required to obtain key Department deliverables, but also improves the efficiency and quality of service the Department provides both online and in-person.

IMPLEMENTATION

eFiling Phase I, when it was released, was the first time applicants could renew any type of Department of Buildings' permit online. The in-house operations and information technology team worked for approximately seven months developing the pilot application which allowed for select no-change permit renewal and associated payments through a web browser. eFiling is based on an Adabas database system with business processes written in Software AG's Natural programming language. The IT team used Software AG's EntireX Communicator integration software to link the Department of Buildings legacy applications with a Web site hosted by New York's Department of Information Technology and Telecommunications. EntireX wraps the data stored in the Adabas mainframe application and passes it to a java application for presentation to the Web. By keeping the data in Adabas and the majority of the business process in natural programming language, the Department of Buildings was able to capitalize on the speed of a mainframe database, and provide online access to that information with modern web interfacing technologies.

COST

eFiling Phase I was developed entirely by the Department's in-house operational and application development staff (a team of approximately 10 people at any given time). Opportunity costs were incurred by these individuals not working on other projects.



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RESULTS AND EVALUATION

At the six month mark, eFiling Phase I (eRenewals) renewed approximately 100 permits per month. Evaluation of the project has proven that expanding the pilot to other permit and application types (as done in subsequent eFiling phases) would be beneficial to the Department and welcomed by the industry.

TIMELINE

2002 Strategic plan with commitment to electronic filing initiatives released
August 2004 "Kick-off" of eFiling Phase I Project
February 2005 Implementation of eFiling Phase I for select "no-change" permit renewals

LEGISLATION

Online security requirements from both the state and the city were, and continue to be, major considerations with each new facility that is added to eFiling. Interpretations of digital signature (ESRA) laws are closely followed and supported by security plans and risk assessments prior to design and implementation of new eFiling capabilities.

LESSONS LEARNED

Applying an incremental approach towards creating an eFiling system for the Department was an extremely beneficial decision for both the Department and the filing community. This allowed the Department to understand the best way to perform transactions for filers through an online interface and allowed filers to provide valuable feedback before the Department invested to heavily in one eFiling approach. As a result of this incremental approach, two larger scope eFiling phases were subsequently and successfully launched.

TRANSFERABILITY

For cities with extensive and constant buildings-related activities, initiatives such as eFiling dramatically increase the availability of Department services from in-person visits during normal business hours to 24/7 access through the Internet, thereby reducing inefficiencies and costs associated with labor-intensive processes.

CONTACTS

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BEST PRACTICE

eFiling Phase 2 is the second major system improvement in the electronic filing system (eFiling) implemented by the Department of Buildings. Electronic filing is a major component of the Department's strategic plan. eFiling Phase 2 focused on the universe of electrical permit applications. Once implemented, eFiling Phase 2 allowed licensed electricians to prepare, submit, and pay for electrical permit applications online without any need to visit a Department office in-person. A link to the complete eFiling system is available at www.nyc.gov/buildings and it is available 24/7.

ISSUE

Before eFiling Phase 2, electrical permit applications took approximately four to six weeks to process manually, a costly and time-consuming process not only for the industry but for the Department staff as well.

GOALS AND OBJECTIVES

The goal of the electronic filing strategic initiative (eFiling) is to make an online equivalent for as many in-person transactions and processes as possible. This not only provides a major service to the public and the filing community by reducing the time and steps required to obtain key Department deliverables, but also improves the efficiency and quality of service the Department provides both online and in-person.

IMPLEMENTATION

Beginning in October 2005, electricians could begin registering to use the eFiling system. eFiling Phase 2 was fully implemented for permit processing in March 2006. Electricians could then process, from start to finish, electrical permit applications through a web-based interface. Users also had the advantage of accessing their application information from virtually anywhere in the world with an internet connection.

eFiling Phase 2 was able to take advantage of the architecture established in phase 1 of eFiling. Though eFiling Phase 2 took approximately 12 months to complete from conception to implementation, this time would have been longer if there was an existing system to build upon. This implementation laid the groundwork for future enhancements in the job applications filing aspects of eFiling that should save more time and increase efficiency.

eFiling is based on an Adabas database system with business processes written in Software AG's Natural programming language. The IT team used Software AG's EntireX Communicator integration software to link the Department of Buildings legacy applications with a Web site hosted by New York's Department of Information Technology and Telecommunications. Entire X wraps the data stored in the Adabas mainframe application and passes it to a java application for presentation to the Web. By keeping the data in Adabas and the majority of the business process in natural programming language, the Department of Buildings was able to capitalize on the speed of a mainframe database, and provide online access to that information with modern web interfacing technologies.

COST

eFiling Phase 2 was developed by the Department's in-house operational and application development staff, supplemented by outside IT consultants hired under the City's ITCS open contract managed by the NYC Department of Information Technology and Telecommunications. There were approximately five consultants at any given time, a total cost to the



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Department of about \$2,000,000 USD. Contracted roles included web development, Adabas development, and systems testing.

RESULTS AND EVALUATION

In its first year, eFiling processed nearly 65% of all electrical applications submitted to the Department. For calendar year 2007, eFiling handled 75% of all electrical applications submitted to the Department. As of March 2010, eFiling handled almost 90% of all electrical applications submitted to the Department. If an electrician has all the proper information to complete the electrical application, the process from start to finish to obtain a permit using eFiling should average approximately 15 minutes.

TIMELINE

2002	Strategic plan with commitment to electronic filing initiatives released
February 2005	Implementation of eFiling Phase 1 for select "no-change" permit renewals
March 2006	Implementation of eFiling Phase 2 for electrical applications

LEGISLATION

Online security requirements from both the state and the city were, and continue to be, major considerations with each new facility that is added to eFiling. Interpretations of digital signature (ESRA) laws are closely followed and supported by security plans and risk assessments prior to design and implementation of new eFiling capability.

LESSONS LEARNED

Working closely with the electricians filing electrical applications was critical to the success of the project. From the beginning of the project it was known that electricians were historically "computer-resistant" or otherwise did not have the skill set to productively process applications over the internet. Therefore, it became important not just to educate and get feedback from electricians on the eFiling application, but to provide them general training in internet use and web-based applications.

TRANSFERABILITY

For cities with extensive and constant buildings-related activities, initiatives such as eFiling dramatically increase the availability of Department services, from in-person visits during normal business hours to 24/7 access through the Internet, thereby reducing inefficiencies and costs associated with labor-intensive processes.

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BEST PRACTICE

eFiling Phase 3 is the third major system improvement in the electronic filing system (eFiling) implemented by the Department of Buildings. Electronic filing is a major component of the Department's strategic plan. eFiling Phase 3 focused on the universe of job applications that could be prepared using the older PC Filing (floppy-disk filing) system and making that functionality available online through a web browser. This includes preparation of the application and error-checking to expedite the process of filing when the application is submitted in-person. A link to the complete eFiling system is available at www.nyc.gov/buildings and it is available 24/7.

ISSUE

Before eFiling Phase 3, applicants had to use the older, less advanced PC Filing application in order to expedite their filing process. PC Filing was a stand alone Visual Basic application that was difficult and time consuming to update when business process changes occurred. The application relied on older, less reliable 3.5" floppy disk technology which is no longer a standard component of personal computers sold in the past few years. The PC Filing application could also not take advantage of an internet connection for smart integration with information available through BISWeb. The application was also limited to the Microsoft Windows platform and had compatibility problems with Microsoft Vista; non-issues with most web-based applications (including eFiling).

Another significant accomplishment was that the implementation of eFiling afforded the Department the opportunity to revise and modernize its core application, the PWI form, which had not been updated since the introduction of PC Filing in 1995.

GOALS AND OBJECTIVES

The goal of the electronic filing strategic initiative (eFiling) is to make an online equivalent for as many in-person transactions and processes as possible. This not only provides a major service to the public and the filing community by reducing the time and steps required to obtain key Department deliverables, but also improves the efficiency and quality of service the Department provides both online and in-person.

IMPLEMENTATION

eFiling Phase 3 was implemented on February 19, 2008 and the older PC Filing application was discontinued on the same day. Users could now interact with an improved web-based interface when preparing their job applications. Users also had the advantage of signing up for an eFiling account and accessing their information from virtually anywhere in the world with an internet connection. eFiling also brought increased consistency between paper and electronic filing processes by producing the same forms the applicant would have completed manually, instead of a unique report like the PC Filing application. eFiling Phase 3 was able to take advantage of the architecture established in previous phases of eFiling. Though eFiling Phase 3 took approximately 12 months to complete from conception to implementation, this time would have been longer if there was no existing system to build upon. This implementation laid the groundwork for future time-and-resource-efficient enhancements in the job application filing aspect of eFiling.

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Web. By keeping the data in Adabas and the majority of the business process in natural programming language, the Department of Buildings was able to capitalize on the speed of a mainframe database, and provide online access to that information with modern web interfacing technologies.

COST

eFiling Phase 3 was developed by the Department's in-house operational and application development staff supplemented by outside IT consultants hired under the city's ITCS open contract managed by the NYC Department of Information Technology and Telecommunications. There were approximately six to eight consultants at any given time, a total cost to the Department of about \$2,000,000 USD. Contracted roles included web development, Adabase development, and systems testing.

RESULTS AND EVALUATION

After six weeks of implementation, eFiling prepared applications representing approximately 70% of all applications. In the first three months of 2010, over 85% of all eligible job applications were eFiled.

TIMELINE

2002	Strategic plan with commitment to electronic filing initiatives released
2005	Implementation of eFiling Phase 1 for select "no-change" permit renewals
2006	Implementation of eFiling Phase 2 for electrical applications
February 2008	Implementation of eFiling Phase 3 for preparing job applications / replace PC Filing (PW-1)
July 2008	eFiling was able to easily adapt to collect the new Building Code requirements

LEGISLATION

Online security requirements from both the state and the city were, and continue to be, major considerations with each new facility that is added to eFiling. Interpretations of digital signature (ESRA) laws are closely followed and supported by security plans and risk assessments prior to design and implementation of a new eFiling capability.

LESSONS LEARNED

Working with multiple departments and consultants avoided the need to build, from the ground up, a new system. The life-span and usefulness of older legacy technologies, such as Adabas and Natural, can be extended into the online Web world through enabling technologies, thus avoiding the effort, cost, and delays that would be imposed if the core "engine" of a legacy system had to be rebuilt.

TRANSFERABILITY

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