

# Consolidated Edison of New York New York, New York

## North America Excellence Award: Workflow, Silver

### Executive Summary

The Consolidated Edison Automated Workflow System (hereinafter referred to as AWF) was initially implemented in 1992. Since the system was first installed Con Edison has added significant features which support their customer service objectives. The AWF system is used by approximately 600 Customer Service Representatives (CSRs). When they first installed the system these employees worked on three types of paper:

- Customer correspondence (one million letters per year)
- Faxes from government organizations (100,000 faxes per year)
- Mainframe documents which were sent to printers (several million "citations" per year). These mainframe documents are citations produced each evening in the batch process, which highlight potential problems with accounts

These documents, in their electronic form, are now processed through the AWF system throughout the day. Utilizing Wang Laboratories Inc.'s OPEN/work<sup>plus</sup>™ RouteBuilder™ software, Con Edison is able to direct the flow of each of these electronic documents from their entry into the system through their completion.

### ***1.) Describe the system application. What the system is used for, who are the users and what does the job entail?***

A typical document flow would include the following steps:

- Work would be loaded into the system via one of three methods. Customer correspondence would be scanned in, and fax documents would automatically be entered as electronic data. Mainframe documents are sent directly to the AWF server, using a "loader" program developed by Wang.
- Electronic documents are routed to predefined queues based on several criteria; type of work, dollar amount, age, etc. The routes are changed by non-Information System personnel to reflect the changing needs of the organization.
- CSRs are assigned to work these electronic documents, either as fill-in work or for the entire workday, depending on needs.
- Work is sent to succeeding steps in the route, until they are either sent for deletion, sent to file, or sent to a Quality Review queue for analysis by supervision.

This use of the AWF system differs from the customary use of workflow systems, both technically and functionally. As a result, Con Edison has new ways of achieving organization goals. Several examples follow:

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- The mainframe documents are loaded into the servers for routing to CSRs. This method bypasses some of the actions needed by companies who use COLD (Computer Output to Laser Disk).
- The work is no longer assigned only to “back office” personnel. Work is routed through the Wide Area Network (WAN), as fill-in work to employees in the Call Center and walk-in Service Center.
- Several employees work at home, using ISDN telephone links to the AWF servers. Thus, employees at home can do the same work as they did in the office, with the same or better productivity and quality.
- “automated quality review” as an integral part of the routes
- Off-the-shelf ad-hoc reporting software is used with Wang software to provide improved management reports.

Thus, CSRs are able to respond easily to customer correspondence, answer faxes, and process mainframe citations.

### **2. What are the key motivators behind the system?**

Originally, the key motivators were cost reductions. In 1990, Con Edison had 240 clerical employees supporting their Customer Operations organization. An industrial engineering study confirmed that almost 80 percent of the clerical functions were related to “paper-pushing” tasks that provided no real value to customers.

Con Edison also surveyed 400 of employees, including CSRs, their Managers and some Executives. The survey results emphasized that there was “too much paper”, and they were losing efficiency due to this paper excess.

A six-month pilot test conducted in one branch office determined that they could realize significant clerical savings with an AWF system. Four years later they have fewer than 40 clerical employees, a significant reduction in personnel attributable to many factors, including AWF.

Yet, even without this extremely favorable payback (less than one year) they would have installed the AWF system, reports Ed Glister, Senior Project Manager. The organizational flexibility the system provides is greater than could be realized any other way.

Previously two organizational factors were barriers to improving work processing:

- The system was organized into three functional groups: back office, Call Centers, and Service Centers. These organizations never shared work in the past, due to their specialization.
- Employees were working from physically remote sites throughout the New York metropolitan area.

The AWF system overcame both these barriers. The organization was changed so that employees worked on different tasks during the day. As an example, a CSR in the Manhattan Call Center may work mainframe citations at one time of the day, and answer phone calls at other times. If a site is backlogged, some remote site can process their work, by accessing the work

over the WAN. CSRs can now access work from their home, regardless of where the work may exist within the AWF system.

“For us, these organizational benefits, and other intangibles were more important than the significant tangible cost reductions realized,” says Ed Glister.

**3. Please describe the current system configuration (number and type of software, servers, scanners, printers and storage devices, etc.).**

Con Edison has nine primary server sites. There is one server in each of six headquarter-offices (the five boroughs of New York City and Westchester), which service most of their 600 users. Additionally, there are three dedicated servers for special tasks.

The servers are Compaq XL dual-486/50 mhz processors, with one gigabyte of memory and RAID V. The CSRs use Dell 486/33 Model ME PCs and have 17” NEC 5FG displays.

Data storage is accomplished on the server for the first 90 days then sent to HP jukeboxes when storage is required. The six jukeboxes range from 20GB to 60GB in size. There is one or more Fujitsu scanner at each site. The software, when purchased, was Sigma’s Omnidesk (now acquired by Wang Laboratories Inc.). This utilizes OS/2 and Database Manager. There is one site using Wang’s OPEN/workflow 3.0 software that utilizes NT with SQL Server as the database.

**4. How is this system integrated with the Company’s other information processing systems?**

The integration of the AWF system with other Company systems occurs on various levels. This project was installed as part of a larger project called “New CSS,” the new *Customer Service System*.

It was installed as part of a project that included PCs for 1,500 employees, a WAN at T-1 speeds for 31 sites, and five major client-server software applications, which included:

- a graphical user interface
- telephony (voice-data integration)
- ad hoc reporting
- automated cash processing
- automated workflow

These systems are described in a videotape, *New CSS 93/94*, which was produced to inform CSRs and management of the applications being installed. It provided a quick way to understand the scope of the New CSS project and specifically the AWF project.

When the project first started each of these applications was included based on its own benefits. With the ensuing years it was found that the integration of these applications yielded greater benefits.

The first integration action related to the linkage of the AWF with the mainframe system. When a CSR starts working on an item in AWF, they press the “Control-A” key and initiate a Visual Basic application that accesses

the proper mainframe account, and the proper mainframe screen for the document. The next step of integration was extending the use of the ad hoc “point-and-click” reporting tools from the mainframe to the AWF system. Thus, *Quest* and *Forest and Trees* are used in AWF, enabling analysts to use only one query tool to meet all their needs.

The next aspect of integration was the addition of the system with other applications, so that CSR could use any system at any time. This provided the work flexibility noted above.

Use of “home office” capabilities of the Wang product enabled extension of the complete office environment to the CSR’s residence.

Con Edison is now about to use the product in yet another unique way—to integrate it with the Call Center Automation Call Distribution (ACD) software. In this manner the CSR who is not busy will be automatically assigned an item or work from the AWF system, using DDE links.

**5. Describe how the Company has been impacted by this system. Be as specific as possible:**

**a. What cost savings or increased revenues have been realized since the system was first installed?**

**b. What productivity improvements have been realized?**

**c. How has the business workflow been affected (compared to before system implementation)?**

As described above, Con Edison realized tangible savings related to clerical reductions. These are estimated to be worth \$2 million per year.

“While the benefits of organizational flexibility are difficult to quantify, we feel they are more significant than the clerical savings. Each Manager has the ability to change the way work flows through the organization, by using the RouteBuilder tool. This means new methods of processing work can be tested and installed overnight,” says Ed Glistner.

“And, when backlogs arise in one site and workers are idle at another, we can immediately transfer work over the WAN, a benefit not achievable in the paper world.”

There are other intangible benefits as well. Employees are more satisfied using the new system. It responds to their complaints about paper, and makes it easier to service the customer quickly and with better quality. Also, management is more effective, since the automated quality review feature guarantees that they are reviewing work in accordance with their own guidelines. Further, the AWF system provides on-demand reports regarding cases in inventory and detailed audit trails to satisfy security requirements.

“And let’s not underestimate the value of finding work when it is needed, overcoming a problem that existed with the filing of paper documents.”

Finally, the ability to balance different kinds of work on a CSR’s desktop is also valuable. Employees get tired of working on one task. With the integration of the AWF system and other new automated systems, they are able to vary workloads to employees, keeping them interested and productive.

From a workflow perspective, the way work is processed is totally different than it had been prior to the system. No longer bound by

organizational charts or geographic limitations, each manager changes the workflow routes when needed, and they do so without the assistance of an I.S. programmer.

Not only is this a *potential* benefit, it is a real benefit. This “reengineering on the fly” is easy to introduce, is clearly outlined in the new route maps, and can be changed anew if required. Initial routes had only 30 processing rules, now they have over 800 rules. The value of this tool is evident each time routes are restructured.

**6. Describe the implementation process and methodology, the project team and any change in management and business process re-engineering issues addressed.**

The implementation follows:

- After determining what users wanted, Con Edison developed a six-page list of functional and technical requirements for the AWF system.
- The AWF system was introduced in a pilot test in the Mt. Vernon branch office. (Mt. Vernon management had volunteered to “champion” the pilot test.)
- At the end of the six-month pilot test CSRs and Managers from five other organizations were invited to use the system for one week. This ensured that they didn’t have to make a decision based on a demo but, rather, could use the system themselves to get to truly understand it.
- Prior to installing the software an educational campaign, consisting of information videotapes, demos and newsletters, was initiated. This way CSRs learned about the system with a consistent message.
- High-speed lines and PCs were installed prior to installing AWF software at each site. This provided immediate benefits to the CSRs, 90 percent of whom had never used a PC before the New CSS Project.
- The electronic forms were designed the same as the paper forms used previously. This reduced the learning curve for employees.
- Software was available to the best users first. This reduced novices’ fear and also ensured the best feedback initially.
- The training was developed by professional staff, and administered by respected CSR supervisors. A two-day training class included computer-based training and use of the new system. On-the-job training was available from staff support and others who had completed the course.

The AWF system and the other four systems identified above were installed during an 18-month period. This schedule enabled the CSRs to gain confidence in the new system and to realize the benefits as quickly as possible.

Once the implementation phase was completed, the system went through new phases of development. Some of these phases were

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occasioned by changes in organization. During implementation, Call Centers dropped from 23 to six and several functions were centralized, which resulted in the use of the AWF for these newly constituted organizations. In addition to these large-scale changes, users made other changes as they became more familiar with the benefits of the routing tool.

The installation team consisted of two employees from the Central Customer Operations staff, two LAN support specialists from IS and others from Training Services and the Operating Organizations. Consultants were not used during installation.

In summary, the AWF system has provided Con Edison with a platform to meet Company goals and serves as a platform for future integration and enhancements.

**The following information has been extracted from the December/January 1995 issue of *Review* "Training and change: the key to reengineering":**

Number of Customers Served	<ul style="list-style-type: none"> <li>• 5,000,000 at 19 Site Offices</li> </ul>
Number of Phone Calls Annually	<ul style="list-style-type: none"> <li>• 6,000,000</li> </ul>
Number of Documents Received Annually	<ul style="list-style-type: none"> <li>• 4,000,000 managed by 200 clerks</li> <li>• 80 percent of clerk's day spent on paper process</li> <li>• Paper physically moved to various site offices for work load balancing during peaks</li> </ul>
Reengineering Efforts	<ul style="list-style-type: none"> <li>• Begun December 1992</li> <li>• Team of 15 Employees: Manager, Union Personnel, and Information Systems (IS)</li> <li>• Week long Joint Applications Design (JAD) session facilitated by IBM</li> </ul>
	<ul style="list-style-type: none"> <li>• Goals:</li> <li>• Reduce number of Call Centers from 23 to six</li> <li>• Answer Calls 24 Hours per Day (vs. 8:30 a.m. to 5 p.m. Mon.-Fri.)</li> <li>• Reduce time to answer call from 40 seconds to five seconds</li> <li>• Reduce costs by 25 percent in three years</li> <li>• Increase workload by 20 percent</li> <li>• Conducted 400 employee interviews after JAD reengineering session. Over 90 percent of employees had never used a PC before and were concerned the company would not train them properly</li> </ul>

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<p>Customer Surveys Included</p>	<ul style="list-style-type: none"> <li>• Employee involvement:</li> <li>• Must become stakeholders in design/implementation “Champions” concept introduced by department to lead project and champion results</li> <li>• Brooklyn office request to champion telephone Center</li> <li>• Originally planned pilot with 10 users</li> <li>• Opted for more aggressive approach installing a LAN, 100 PCs and new software in 90 days</li> <li>• Westchester office request to champion Customer Service process</li> <li>• Gradual introduction of workflow and imaging technology over six months to test alternative ways of doing business</li> <li>• Implemented concept of “user self-sufficiency”</li> <li>• Software enabled them to create/modify own reports</li> <li>• Software enabled end-user organization to define/modify workflows or create ad hoc reports without IS involvement</li> </ul>
<p>Corporate Workflow &amp; Imaging Rollout</p>	<ul style="list-style-type: none"> <li>• Implementation Team</li> <li>• Central Customer Operations Staff</li> <li>• LAN Support Specialists</li> <li>• Training Services and Operating Organization. New technology reduced system response time from 3-6 seconds for data to appear on screen to a “split second.”</li> </ul>
<p>External Audience Test</p>	<ul style="list-style-type: none"> <li>• Presented to Public Service Commission</li> <li>• Each gas and electric utility is subject to review by PSC</li> <li>• PSC needed to authorize expenditure for project hardware and software</li> <li>• Test was testimonial of the reengineered processes and the capabilities of new technologies</li> </ul>
<p>Industry Coverage</p>	<ul style="list-style-type: none"> <li>• 10 articles in publications during 1995 including</li> <li>• Business Week</li> <li>• ComputerWorld</li> <li>• Software Magazine</li> </ul>

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	<ul style="list-style-type: none"> <li>• January 1995 included in <i>Giga Review</i></li> <li>• May 1996 Microsoft Solution of the Month</li> </ul>
The System 1996	<ul style="list-style-type: none"> <li>• Users at nine primary server sites</li> <li>• One server at each of six headquarters offices (five boroughs of NY &amp; Westchester)</li> <li>• Three dedicated servers for special tasks</li> <li>• Six jukeboxes ranging from 20GB to 60GB</li> <li>• One or more Fujitsu scanners at each site</li> <li>• Wang's OPEN/workflow and OPEN/image on OS/2 and Database Manager</li> <li>• One is using Wang's OPEN/workflow 3.0 on NT and SQL Server</li> </ul>
Results	<ul style="list-style-type: none"> <li>• \$2,000,000 in annual savings related to clerical reductions</li> <li>• Customer Call Centers reduced to six</li> <li>• Ability to find work when needed</li> <li>• Computer-literate organization</li> </ul>