

MANAGING EXPLOSIVE GROWTH OF EMAIL AND INFORMATION

2005 COMPUTERWORLD HONORS CASE STUDY

BUSINESS & RELATED SERVICES

A NATIONWIDE MORTGAGE BANKING COMPANY TRANSFORMED THE WAY LOANS ARE PROCESSED BY IMPLEMENTING AN INFORMATION LIFECYCLE MANAGEMENT SOLUTION, WHOSE BASIC COMPONENTS ALSO FORMED THE FOUNDATION FOR THE COMPANY'S LEADING-EDGE BUSINESS WORKFLOW AUTOMATION SYSTEMS. BENEFITS INCLUDE: COST SAVINGS, IMPROVEMENTS IN INFORMATION FLOW, PRODUCTIVITY, OPERATIONAL EFFICIENCY, RISK MANAGEMENT, AND COMPETITIVENESS. [2005356]

SUMMARY

Encore Credit Corp., a nationwide mortgage banking company, is transforming the way that loans are processed by implementing an information lifecycle management (ILM) solution, whose basic components will also form the foundation for the company's leading-edge business workflow automation systems. This is a significant technological achievement, with benefits ranging from cost savings to improvements in information flow, productivity, operational efficiency, risk management, and competitiveness. And it's made all the more challenging by the need to simultaneously maintain IT performance and accessibility to support the company's rapid growth. Encore's whole-loan sales volume increased from \$1.1 billion for the year ending December 31, 2002 to \$4.3 billion for the year ending December 31, 2003, and to \$6.5 billion during the nine months ending September 30, 2004.

APPLICATION

Encore Credit Corp., a subsidiary of ECC Capital Corporation, was founded in October 2001 by veterans of the wholesale subprime lending business. With strong track records in loan production, technology, quality control, credit compliance, administration, and secondary markets, Encore quickly grew from 50 people at the company's Irvine, CA headquarters to 1,100 employees, working in five regional operations centers nationwide.

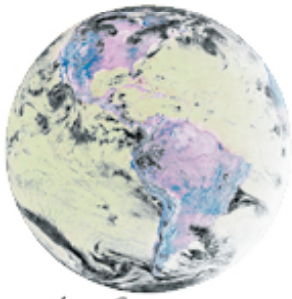
Simply maintaining operational standards for the company's IT systems in this rapid growth environment presented a considerable challenge, but supporting the status quo wasn't enough to satisfy the business units. In particular, the loan appraisal unit was eager to make big changes in an industry that has always been locked into paper-based work processes. The appraisal unit wanted to add electronic imaging and data extraction to their IT capabilities, so that information such as appraisal forms (originating as hard copy, faxes or emailed PDFs) and color real estate photographs could be more easily accessed and more efficiently processed.

Used in this way, imaging could serve as the first step in a business workflow automation strategy that would streamline operations, move information through the company much more rapidly and give Encore significant competitive advantage. Unfortunately, Encore's in-house development group didn't have the resources to support an imaging initiative. Outsourcing was considered, but the company's IT operations group decided that they couldn't allow the business units to contract with outside vendors for various pieces of a business automation solution that, in the end, would have to be integrated for company-wide interoperation.

IT operations also understood that whatever technology they put in place would have to meet the legal requirements for information accessibility, storage and retention mandated by federal regulations like Sarbanes-Oxley and Gramm-Leach-Bliley, as well as the requirements of the 49 states where Encore Credit operates.

The solution came in a flash of inspiration, when Encore's IT operations managers realized that Encore could do something that hadn't been done before – Encore's IT department could build an ILM infrastructure, with strict adherence to policies that would comply with storage and retention regulations, and use the same technology components as the foundation for Encore's business workflow automation solution.

The first phase of the implementation – an initial hard copy imaging/scanning solution, deployment of multiple tiers of storage infrastructure and creation of a long-term ILM archive – was completed in



A Search for New Stories



Robert Carrigan,
Chairman of the Chairmen's Committee

Ron Milton,
Vice-Chairman of the Chairmen's Committee

Dan Morrow,
Chief Historian

2004, and is already delivering benefits ranging from cost savings to improvements in information flow, productivity, operational efficiency, and risk management.

The imaging solution was developed by IKON Office Solutions. It ensures that critical loan documents, the heart of Encore Credit's business, are moved into the electronic workflow, where they are indexed and stored for quick and easy tracking and location.

The ILM/archiving solution was based on EMC Corporation's storage area network (SAN) and content-addressed storage (CAS) technology, and storage management software from EMC and Princeton Softech. This combination of ILM technology and management software means that Encore can not only track the movement of data and documents across the storage tiers, but most importantly, it can specify rules for how the ILM system will manage that business data over time, based on the changing value of the data as a loan matures. For example, in the early stages, loan information must be immediately available to Encore's staff, so it is stored on more costly rapid-access systems. Once the loan is sold to an investor, however, the loan information can be moved to less costly storage media in the long-term archive, which serves as the "retirement home" for the loan data, and doesn't need to offer quite as quick access to that data.

Ultimately, when the entire solution is in place, Encore plans to capture all the elements of a loan package (which on paper totals about 200 printed pages) and put them through the business workflow electronically. The elements will be maintained on appropriate ILM storage tiers, to optimize both system performance and accessibility as they move through the loan process, and all data will be automatically replicated for disaster recovery. When the loan is finally sold to an investor, the loan package will be stored electronically in the long-term ILM archive until its legal lifecycle expires, at which point it will be automatically purged from the system.

Of course, the solution doesn't completely eliminate paper, and really isn't designed to do so. A true "paperless solution" is universally recognized as unfeasible, since paper continues to be a necessary medium for some functions. For example, regulations still mandate that companies like Encore must retain the original signed paper loan documents (typically for seven years to meet federal standards). The lenders that purchase loans from Encore still expect to receive a printed copy of each loan package, and the fact is that sometimes people are more comfortable printing a paper copy for this or that task. But electronic solutions like Encore's are making a significant change, if only by giving people the flexibility and choice to work with paper only where it is required. With the first phase of the solution complete and the next well underway, immediate cost savings are already being delivered due to a dramatic reduction in the total volume of paper that Encore must generate, process, access and warehouse, as well as improvements in productivity and operational efficiency.

BENEFITS

Encore Credit is already realizing a wide range of benefits from its combination ILM/business workflow automation solution, beginning with the significant benefits of information lifecycle management. Encore has already put into place multiple tiers of storage that maximize ROI by moving loan information to less costly tiers as the information ages and its business value changes. The various ILM tiers and accompanying storage management software establish policies that handle business data differently over time, as the value of the data changes, and that comply with federal and state regulations for record access, retention and purging at expiration.

The ILM environment also enforces data security and establishes the foundation for the company's business continuity and disaster recovery solutions. This improves Encore's risk management capabilities. For example, with key information stored only on paper, there is always a risk that fire can have a serious impact on the company's business. Addressing this risk by insurance may not be enough to cover the true loss that could be incurred by the destruction of the documents. By moving important information from paper to electronic form, Encore's new environment more effectively mitigates risk.

Encore has also begun to enhance aspects of the company's basic work processes. In Phase 1, loan appraisals that originate as hard copy are scanned, creating images that are stored and archived electronically. This significantly improves the staff's ability to locate, process, and track information that is all too easily misplaced on paper.

Encore is also gaining immediate cost savings, including:

- A dramatic drop in copying/duplicating expenses,

- Reduced archiving cost of electronic ILM storage as opposed to warehousing paper at Iron Mountain,
- Savings on the cost of physically transporting information using people, vehicles, etc.,
- Lower electronic imaging costs compared to paper-based, manual processing, and
- Reduced storage cost per record, as infrequently accessed information is stored in bulk on less expensive hardware, using more cost-effective software to manage it.

Phase 1 has generated dramatic quantifiable savings. Using an industry standard ROI calculation model, applied to the specifics of Encore's business environment, the IKON team identified an annual savings of over \$475,000 (equal to 45% of Encore's document lifecycle expenditures) with system payback in less than four months.

As Phase 2 moves into production, all appraisals, including those that originate as emailed PDFs and faxes, will be converted into XML data via Optical Character Recognition (OCR) and data extraction software. The resulting data will be imported automatically into Encore's Loan Origination System (LOS). This will largely eliminate manual data input, and further increase overall data accuracy and efficiency. Implementing workflow automation will significantly reduce the total cost of each loan package, making Encore an industry leader as well as ensuring a competitive edge in the marketplace.

By improving the way loan data is generated and processed, Encore's solution fundamentally changes how tasks are performed, and ultimately it will change the way everyone in the organization works. Instead of shuffling papers and stacks of loan packages, Encore's staff will review and process most information on screen. Incidents of misplaced loans will be mitigated, and data will always be accessible online. Loans will be processed more quickly, and some functions in the life of a loan that must be performed linearly on paper will be done simultaneously, significantly reducing workflow delays and enhancing competitiveness. The ILM aspects of the solution also improve overall efficiency by making information much simpler to catalog, store, sort, move, etc., as well as identifying where information is currently, where it should be, where it's going to go and when.

In fact, the improvements to Encore's internal process will also make it easier to sell the loans to potential investors, since an electronic version of a loan can be reviewed and examined by investors before processing is finished, without causing delays in completing the loan.

Phase 2 will bring additional savings, as a result of:

- Immediate online record retrieval and elimination of lost records,
- Pre-funding imaging and data extraction of appraisal information into the LOS versus the need of manual data entry and post-funding imaging,
- Improved productivity due to the ability to move each loan package through the workflow more efficiently,
- Savings on physical storage in cabinets, mail boxes, file folders, sticky notes, etc.,
- Potential cost savings due to elimination of some insurance policies previously used to protect the company against lost or destroyed physical records, and
- Intangible costs, such as those associated with the risk of keeping information longer than legally necessary, or the possibility that data may be lost or destroyed prior to audit or other legal proceedings.

Now moving into production, Encore's automated loan appraisal process is expected to pay back in only 3.5 months, and generate savings of \$23,900 a month – \$860,400 over three years – equal to an ROI of 1022 percent.

Perhaps the most important benefit Encore will realize from the combined ILM/workflow automation solution comes from the fact that the technology was designed to be modular. Initial phases of the system built-out the storage tiers and ILM archive, and implemented hard copy imaging for the loan appraisal department. As imaging is extended to include appraisals that originate on emailed PDFs and fax, and OCR and data extraction capabilities are added over the next few months, the entire loan appraisal process will go electronic, and will then serve as the model for all the other business units. Encore will build on what has been learned in the initial phases of the project, knowing that the various components are hardened and how they work together, what custom coding will be needed, etc. to bring underwriting, funding and every other department into the automated business workflow – and all the company's information into the ILM solution at the same time.

When considering benefits, it's also important to understand that the ILM system will eventually serve as the custodian of all Encore's business data, a combination of storage systems and management

software that clearly determine what stage in the lifecycle each bit of data currently occupies, where it is currently located, and what policies should be applied to determine when and where it goes next, until it is finally purged at expiration.

This isn't a new idea – companies like Encore already have policies for handling paper-based information. But now, the technology and storage management software exists to bring all forms of information into the electronic environment – for both business workflow automation and ILM purposes. Emails, faxes, PDFs, database records, paper loan applications, color photos and more make up the loan packages created by Encore Credit. For the foreseeable future, hard copy and signed originals will still be needed. But as Encore moves forward, more and more information will be brought into the electronic workflow from the beginning, and eventually, it will all end up in the company's electronic ILM archive. The process improves on paper in every way, serving as a sort of Total Quality Management for business information.

IMPORTANCE

Leading-edge information technology is the basis for Encore Credit's combination ILM/business workflow automation solution – a new generation, multi-tiered infrastructure that changes how the loan processing business works. At its heart is EMC Corporation's storage area network (SAN) technology, connecting Encore's front-end Microsoft Exchange email servers to EMC CLARiON CX systems for quick access and short-term storage, and to EMC Centera Compliance Edition (CE) systems for long-term, magnetic disk-based write-once-read-many (WORM) archiving. A variety of storage management and archiving applications are provided by EMC and Princeton Softech.

The project is rolling-out in multiple phases, with the initial focus on creating the long-term archive and using the appraisal department to prototype the business automation workflow. Conceived by Encore's IT operations managers and the company's Facilities Director, Phase 1 is already complete and includes:

- Hard copy imaging – With help from IKON Office Solutions, Encore is scanning images of appraisal forms received on hard copy to bring the forms into the electronic workflow environment, ensuring that the information will be easier to store, locate and process. Using document imaging software from Kofax, each paper form is scanned to create a TIFF group IV image and identified with the same loan ID number found on a bar code on the loan's paper file folder. Once converted into its electronic form, the appraisal document and associated ID data can be used both in the loan origination process and in handling the loan as part of its lifecycle. Each image and its associated ID are stored using EMC Documentum ApplicationXtender software, which is used to catalog, search and view the documents.
- Creation of the ILM archive – Encore's initial version of the long-term archive is an electronic copy of the paper-based information that makes up the loan packages. This copy is created using the images of the appraisal hard copies and then scanning the remaining original documents and photos. The idea is to save all 200 pages in each loan package electronically rather than copying them on paper to store in an archive like Iron Mountain. The electronic loan package is completed by associating key metadata from the LOS – such as the loan number – to the appropriate images, and the whole loan package is written to the long-term archive at Encore's Irvine facility. All records in the system have a lifecycle applied to them. This enables Encore to specify ILM rules for how the system will manage the records, based on changing value over time, to track the movement of the various data across the storage tiers, to comply with federal and state regulations, and to automatically delete all records on their expiration dates.
- Simultaneous replication – Another important aspect of the solution is data replication. As soon as a loan package is written to the EMC Centera CE archive, it is replicated to Encore's second EMC Centera CE system in Chicago more than 2,000 miles away, meaning that Encore has already put in place the foundation for its business continuance and disaster recovery solution.

Phase 2 of the project, which was developed by Encore's IT operations managers and the company's Appraisal Director, is currently coming into production. It continues the process of converting incoming appraisal information into an electronic form and funneling it to the appropriate targets – into the LOS, so that loan processing can begin, and into ILM so that the information can be cataloged, tracked and ILM rules can be applied to it. Phase 2 includes the following enhancements:

- Extension of the image capture solution – With Phase 2, Encore's appraisal imaging capabilities include not only scanned hard copy images, but images of emailed PDFs and faxes as well. As a result, 100 percent of all loan appraisals will be brought into the business automation workflow for quick onscreen access. This is a key change from past procedures, in which the documents in a loan package were scanned only once the loan was sold. Now, all incoming appraisal documents will be converted to electronic form at the beginning of the workflow.

- Data Extraction – All appraisal images, regardless of their original form (hard copy, fax or emailed PDF), will be processed with Optical Character Recognition (OCR) and data extraction technology. The objective is to enable Encore's IT systems to import and use this incoming information without inefficient and error-prone human intervention such as manual keystroking. Instead of printing paper copies of incoming faxes and PDFs, Encore will now extract that data directly into its systems. The OCR/data extraction solution was created by Verity, Inc./Digital Documents. It sets up a trigger in which an incoming fax or PDF image is sent through a filter that mines the image for essential data, which is automatically written into the appropriate fields in the LOS (Encore staffers do Quality Assurance as part of the normal work process). This is a central capability of Encore's automated workflow, and the appraisal department was an ideal place to develop the company prototype. Due to the large volume of incoming information, arriving in multiple forms, implementing the appraisal solution allowed Encore to establish the process for transforming and mining incoming information, yielding data and metadata that can be used both in the loan origination process and in handling the data according to its lifecycle.
- Enhanced ILM Archive – Moving beyond Phase 1, in which only the loan number and other key metadata tags were associated with the archived loan package, the new version will associate all the metadata from the LOS to the image files and archive the entire, complete loan package.

As this solution is rolled out over the next three years, taking the proven technologies that have automated the appraisal department and deploying them into all of Encore's other business units, the business workflow/ILM solution will reach the entire organization. Ultimately, the long-term archive will be populated solely with information from the automated business workflow. Once all incoming information is brought into the electronic environment at the earliest stages of the work process, there will no longer be any need to scan the hard copy of a loan package.

To better understand what Encore Credit has accomplished to date, consider the company's updated email environment. An average of 20,000 emails per day come into Encore's systems, including data from a fax gateway, instant messages (IM) and the 80 percent of appraisals that arrive as PDFs. This heavy volume was causing serious server performance degradation, and skyrocketing storage and administration costs.

To keep the email servers trim, boost their performance and meet service level agreements (SLAs), the company uses EMC EmailXtender software to write the email images to EMC CLARiiON CX fibre channel systems for short-term storage and quick, ongoing access to anything that may have been purged from the mail servers.

Once a loan is sold, the images are automatically written to the long-term EMC Centera CE archive at the company's Irvine facility, using EMC DiskXtender software. Encore also uses EMC NetWorker software to back up the Exchange servers to a Hewlett-Packard tape library, as well as EMC Documentum ApplicationXtender and WebXtender software for easy Centera CE content management using standard Web browsers. By matching individual storage tiers with different requirements for data availability and performance and automating data management, this multi-tiered solution reduces both storage acquisition and administration costs.

Applying the same approach to database management, Archive For Servers software from Princeton Softech is used to apply a lifecycle to the database metadata. As that data is moved to the archive when a loan is sold, the front-end database is kept lean and more easily managed, and its storage costs are also reduced.

It's important to note that Encore Credit mitigates legal risk through its ILM implementation. All information in the archive is immediately available and more reliable than tape-based (or paper-based) information, which makes it easier and less costly for the company to respond to litigation discovery requests. It's also essential that Encore reduce legal exposure by ensuring that all information having to do with a particular loan is automatically purged when its lifecycle expires. This is a significant challenge for companies that maintain paper records, and may unwittingly retain documents past the end of their seven-year legal lifecycle. Companies in all industries spend considerable time and money searching for files and paper documents, shredding paper originals, and scouring records in databases, data warehouses, and paper storage archives. When Encore's combination business automation/ILM solution is complete, the company's information retirement processes will also be streamlined, more accurate and far less costly.

ORIGINALITY

Encore Credit's combination of ILM and business workflow automation is probably the best example of such a solution in the loan industry; it is certainly the first time this type of deployment has been done to this extent. While a good number of WORM archive systems are being sold, and competing companies may be taking similar approaches, the vision demonstrated by Encore's IT operations managers – that it is possible to meet ILM and business workflow automation challenges at the same time – is unique.

SUCCESS

With Phase 1 of the implementation complete and Phase 2 now coming into production, Encore Credit has implemented its ILM archive, and by completing the loan appraisal automation, has established the prototype for its company-wide business workflow. Encore's second EMC Centera CE system has been installed at the company's Chicago location, extending the archiving solution to support the East Coast. And all 1,100 staff members are using the updated email environment.

The company is already seeing improved performance from the email servers, as well as streamlined work processes in the appraisal department and immediate savings on copying and paper storage costs.

It's no exaggeration to say that the vision of combining ILM and business workflow automation is working. The Encore staff has rushed to embrace the solution – in fact, the business units are all demanding that they be integrated into the automated workflow. People throughout the company are sharing in the vision – they see the future and are

DIFFICULTY

Encore Credit's IT operations managers compare implementing their solution – while supporting the company's rapid growth – to changing a horseshoe during the actual race. When you're running as fast as you can, how do you stop and look at how you're running? It's a particularly apt question for a company that isn't technology-based. Encore's business is to sell loans, yet they moved forward with a cutting edge solution that required true vision to conceive – and pushed ahead against the pressures of day-to-day business operations.

The solution's architects faced significant resistance, and no small amount of impatience, when they proposed an infrastructure that, rather than solving an immediate tactical problem (such as an imaging solution for the appraisal department), took a long-term holistic view of the company's business automation and ILM needs. Encore also had to deal with a shortage of resources, and decided to outsource where it made sense for the initial hard copy scanning operation, and then hire quickly to expand in-house capabilities for subsequent phases – like the broader appraisal project now moving into production.

While the solution was in its early stages, people were impatient to gain access to each new piece as it was deployed. For example, it was difficult to help the business units understand that business workflow automation, of which imaging is a subset, is different from ILM and archiving, of which imaging is also a subset. People wanted to use the ILM archive as part of the daily workflow, a proposal that defeats the idea of creating a legitimate, compliant archive.

IT operations' idea was to establish the ILM process first, and build from that foundation – it was the lowest common denominator to accomplish the larger goal. But getting the business units to be patient while the archive was put in place and hardened, keeping them from going to outsource companies for point products, was difficult. It was tough to convince the business units that a point product might accomplish something right now, but could potentially put the department in jeopardy if that point solution could not become part of the automated workflow and the ILM solution.

Fortunately, Encore's executive team supported IT operations, and the project moved forward successfully. Now, the IT team is facing a different kind of impatience as each of the business units clamor to be next on the roll-out schedule.

