

North Atlantic
Refining Ltd.,
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Chance,
Newfound-
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**E-Learning
Case Study**



The Conference Board of Canada
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REFINING THE LEARNING PROCESS IN NEWFOUNDLAND

E-Learning Innovation at North Atlantic

BY DEBBIE MURRAY

November 2001

In April 2001, The Conference Board of Canada, with funding from Human Resources Development Canada's Office of Learning Technologies, launched the Learning Technologies in the Workplace Awards. North Atlantic Refining was one of the three winners. This case study illustrates the outstanding and innovative efforts that made North Atlantic a winner.

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This case study is based on data gathered from a site visit conducted in July 2001, the North Atlantic award-winning submission and interviews with staff members.



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Introduction

North Atlantic is located on an inlet on the Avalon Peninsula about 135 km west of St. John's, Newfoundland. With ships coming with crude oil from around the world, the refinery processes 105,000 barrels of oil a day and is closer than any other refinery in North America to international sources of crude oil in the North Sea, West Africa and the Arabian Gulf. Product tankers depart with \$750 million a year worth of petroleum products destined for 25 countries, including Germany, Holland, Brazil and Singapore.

North Atlantic was the winner of the first ever Canadian Innovation Award from the Canadian Manufacturers & Exporters Association in 2000 for the innovative team approach used in producing low-sulfur products. This commitment to innovation extends to e-learning. This case study highlights the genesis of e-learning at North Atlantic and how it integrated this award-winning approach into its organization and business.

Challenges

Isolation is a major obstacle for North Atlantic, yet despite—or perhaps because of—this, it took the lead with e-learning in June 1998.

At that time, North Atlantic was facing a series of challenges—in the areas of improved safety, performance, and employee innovation and capacity—that could be met through better training. The organization recognized that workplace learning was a key way to reduce errors and improve performance. Technology, training and e-learning would eventually form the package that helped staff to tackle production and operation obstacles at North Atlantic.

With new processes and safety regulations constantly emerging, North Atlantic employees need to maintain and upgrade certification. As well, the organization must provide documentation of compliance training and due diligence activity to the provincial government.

In addition to safety issues and compliance needs, the very nature of the work was changing. Employees were under pressure to keep up to speed with rapidly changing technology and regulations. E-learning was seen as a key means to provide training, especially just-in-time training, to employees who work with these processes.

North Atlantic, as part of its culture of innovation, has a strong expectation of decision making in the field from its employees. Not only are employees required to work safely, and constantly upgrade their skills as new technologies and processes are implemented, they are also given the responsibility and accountability to make effective and safe decisions. To do this, they need training.

All of these challenges relate to the need to reduce incidents and errors, improve productivity and empower innovation. Training has always been a way to achieve these, but sometimes classroom training is not the most effective way to deliver learning, especially in a shift-work environment. The learning system in place at the time involved the use of classrooms with instructors. Yet the North Atlantic training department staff recognized the limitations of this system and wanted to try something different. With 700 employees—and 250 of those working on shifts—training can be difficult to schedule. The transient nature of some of the workers required constant retraining and orientation. Training staff found it was difficult to

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E-learning and training was identified within North Atlantic's strategic plan as a priority and was given full executive and management support that continues today.



get learners into the classroom and costly to remove learners from production, and that often participants had no time to learn. To deliver training, they decided that the solution was to bring the classroom to the learners, providing them with the learning they needed, when they wanted it.

E-learning and training was identified within North Atlantic's strategic plan as a priority and was given full executive and management support that continues today. The e-learning program was rolled out first to process operations and maintenance staff, then to fire technicians.

North Atlantic found that a lot of external content available on the market was too junior for experienced employees.



E-Learning Model

The TRAQS training program implemented in 1999 is the core delivery mechanism of e-learning at North Atlantic. TRAQS delivers 40 per cent of training while field training delivers 60 per cent. In addition to delivering content to employees, TRAQS monitors safety records, communication, users, course management and content updating.

North Atlantic defines the curriculum as encompassing courses and learning tasks. Most content needs relate primarily to process and personal safety (Workplace Hazardous Materials Information System, or WHMIS), machinery and instrumentation. Content was provided first in process and maintenance training, then safety training and then fire protection. The first safety related e-learning content was in the First Aid, Back Injury Prevention, Fall Protection and Respiratory programs.

North Atlantic found that a lot of external content available on the market was too junior for experienced employees. This—plus the need for site-specific,

proprietary TRAQS content—prompted an in-house team to take an off-the-shelf product and build North Atlantic's e-learning model. The content was developed through Illuminatus, which is the authorware that accompanies the TRAQS program. Features of the software allow for tests and voice narration, and for photos and graphics from the site to be integrated into the learning content so that employees relate the content to the work site. Tapping into local knowledge and expertise, North Atlantic also partnered with local e-learning providers and the College of the North Atlantic to develop additional content and delivery. Some custom content was developed with an external supplier.

This e-learning model features not only on-line training, but also testing through CHALLENGE, a key software package (from the same vendor) that works with the TRAQS learning management system. CHALLENGE provides testing capacity and tracking of answers to courses hosted on TRAQS. Testing can be conducted through random generation of tests from a question bank, with question types available by multiple choice, true/false, graphical reference, graphical interaction, essay, performance demonstration, matching, sound identification and fill-in-the blank. CHALLENGE also allows for timing of exams and questions.

North Atlantic has developed process emergency simulation exercises that are recognized and used externally which blend e-learning technology and direct human mediation. For the operations personnel specifically, the refinery's LAN (local area network) delivers job-specific technical information, updated and readily available on-line. They can perform exercises and reviews through e-learning and if they need help,

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Access is available to any employee who doesn't work at a desktop (which typifies most North Atlantic employees) through five PC kiosks and quiet rooms devoted solely to training.

Learners have a 24-hour open line to IT staff—and they are not shy to use it.

Training is aligned to process flow maps which help with orienting new employees, linking training with productivity and equipment needs, and providing employees with a clear match between what they are learning and the work they do.

► employees can call the Plant Manager or the Senior Advisor, Production.

Technology Delivery and Access

Technology is fundamental to North Atlantic's productivity, innovation and now learning. In 1994, North Atlantic had 50 PCs on site; by 2001 that number was up to 250. While TRAQS is on every system on the network, this still doesn't make access easy for the mobile refinery employee. Access is therefore available to any employee who doesn't work at a desktop (which typifies most North Atlantic employees) through five PC kiosks and quiet rooms devoted solely to training. Employees can schedule time at these kiosks located around the plant, or drop in to get just-in-time learning.

The North Atlantic e-learning content is delivered through a LAN and a server running Microsoft NT Serve and Microsoft SQL Server. This, combined with the Microsoft Exchange environment, provides automatic e-mail feedback to employees and managers on scheduled curriculum and results.

Ongoing support is provided by two training team members who upload content, track usage and troubleshoot problems with delivery, content or measurement of the entire system. In addition, learners have a 24-hour open line to IT staff—and they are not shy to use it. The IT department doesn't find e-learning takes much of its time, because the e-learning support staff does much of the technical, policies and access programming.

Some older learners were having problems with computers, so a computer literacy course was given. To ensure e-literacy and therefore an ability to e-learn, two instructors trained 500 people on a one-on-one basis.

Adoption, Measurement and Communications

An e-learning intervention, no matter how well-designed and accessible, needs accountability and measurement for success. North Atlantic recognized this from the outset. Training is monitored from start to finish, including measurement of training completion, and tracking the training history of learners. Training is aligned to process flow maps which help with orienting new employees, linking training with productivity and equipment needs, and providing employees with a clear match between what they are learning and the work they do.

North Atlantic employees are notified by e-mail through TRAQS of the new training requirements. Training can be assigned on an individual or group basis with specific requirements measured against departments, individual personnel or jobs. The TRAQS CHALLENGE system allows the training team to define, assign and track training. The system can check who is signed up, what the progress is and what the results are. Immediate supervisors can check a learner's progress (if given clearance to access training data).

The scheduler will notify the employee and his/her supervisor of any upcoming, overdue, expired or failed assignments. Managers are responsible for ensuring that employees don't fall behind. When employees know that learning is key to their knowledge, understanding and progress, they demonstrate a strong will to learn. Employees receive progress reports through TRAQS for motivation and monitoring. Learners can review assignments after completing curriculum. Another benefit of measurement and tracking of employee qualifications and training is that the organization

Certification plans ensure accountability, completion and learning retention.



can determine who is qualified for special duties, or if overtime needs to be assigned. Certification plans ensure accountability, completion and learning retention.

Supervisors of functional areas play a key role in ensuring that employees know their training options, develop plans and understand how to use TRAQS. Operations superintendents co-ordinate training between operators and team shift supervisors. The Training Supervisor works with the operations and maintenance personnel to help them gain needed maintenance craft skills and training. He/she also identifies content needs and helps to develop the curriculum for employee learning. The Fire & Rescue Training Coordinator supervises the emergency response team and supports fire-protection emergency response training through TRAQS. Hands-on emergency response training is reinforced through TRAQS refreshers. E-learning answered the need to constantly maintain this critical fire-protection training.

Communications and marketing of e-learning to employees is pivotal to North Atlantic's success. Meetings with managers, communications support from North Atlantic's President and on-site e-mails, newsletter articles and presentations at staff and safety meetings all contribute to marketing the e-learning program.

Benefits

North Atlantic has witnessed the following benefits from its use of e-learning:

- available at all times—a must in a 24-hour, 7-day a week facility;
- employees don't lose large amounts of time away from work for learning;
- employees don't have to use days off for learning;

- self-paced, individualized program;
- compliance and safety training can be completed and documented to meet regulatory standards;
- curriculum assigned by job, function or department;
- flexibility and accessibility of on-line learning ensures that employees are up-to-date; and
- better outcomes than when traditional classroom teaching was used.

For North Atlantic, the e-learning solution was defined by long-run cost savings, time flexibility, convenience and tracking/documentation. As the Director, Production, noted, the old way of training was too time-consuming; by using e-learning, North Atlantic "cut down costs and gave the learners what they needed and wanted." He says that, "training equipment improvement has made a difference to performance," and that "while e-learning costs more to initially develop, it will pay for itself time and time again down the road."

Goals for the Future

North Atlantic plans to continue with its e-learning efforts and has the following goals for the future:

- broadband facility—they will move to multimedia delivery and design;
- more in-house design;
- remote access; and
- increase range of content beyond current offerings.

Keys to Success and Sources of Innovation

The keys to North Atlantic's successful innovation are practices that other organizations can consider:

- innovative organizational culture;
- vision and action;

Hands-on emergency response training is reinforced through TRAQS refreshers. E-learning answered the need to constantly maintain this critical fire-protection training.



The old way of training was too time-consuming.



Despite its isolation, North Atlantic was able to extend innovation beyond core business processes to embrace learning.



- executive/management support and commitment to learning and employee development;
- positive work/life balance;
- union co-operation;
- technology-intensive workplace;
- linkage of learning with work process and performance management; and

- tracking and certification.

What is unique to North Atlantic's case is that despite its isolation, North Atlantic was able to extend innovation beyond core business processes to embrace learning.



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