

## Desire2Learn Client Case Study

# EDMONTON FIRE RESCUE SERVICES IMPLEMENTATION



This case study provides an overview of the implementation of Desire2Learn® Learning Environment as a corporate Learning Management System (LMS) within the City of Edmonton, Fire Rescue Services (EFRS). Since its deployment in the last quarter of 2006, the use of the Desire2Learn LMS has contributed to substantial cost avoidance, direct cost savings, due diligence with respect to compliance training issues, and learning around critical incidents.

### **The Background**

Edmonton Fire Rescue Services (EFRS) was facing a number of challenges within its training division at the beginning of the millennium. As first responders to fire, medical, rescue and hazardous materials incidents, the nature of a day's work can be confrontation with a series of dangerous "once in a lifetime situations." Training for this type of work involves a broad range of practical skill and scenario-based training for incidents a fire fighter may face throughout one's career. You never know when you are going to use what you have learned. The terrorist events of 9/11 added significant pressure to the job, thereby necessitating increased training standards.

### **The Challenge**

Practical training in emergency services is an important aspect of being ready for any incident. It is enormously expensive, however, to take a fire fighter off shift for training and replace that fire fighter without a disruption in service coverage. In order to mitigate these costs associated with training, EFRS identified the use of internet-based technologies and an LMS as a strategy to provide content and testing of a theoretical nature online. This strategy would reduce time spent in a classroom and focus training events on practical application and incident scenarios. In collaboration with the City's Information Technology (IT) Branch, EFRS undertook a year long process to

select an LMS. The selection process included an RFP with 33 mandatory and 46 discretionary requirements. A blind review of the proposals between two teams from Edmonton Fire Rescue Services and IT narrowed an initial thirteen respondents down to two. These two companies then went through a proof of concept testing consisting of a series of interviews, a more thorough product review, and a pilot testing of the products. In the end, Desire2Learn was the clear winner.

## **The Solution**

Although there were many selection criteria by which to determine the best LMS provider, three criteria have proven to be of substantial benefit from a business point of view:

1. 24/7 Help Desk Support Availability – EFRS senior staff were very concerned that the technology should be well supported. In order to ensure that any potential frustrations would be quickly remedied, two options were purchased as part of the contract with Desire2Learn:
2. 24/7 end-user support for a 6 month period during the program's initial deployment
3. Premium 24/7 Administrative Support for the LMS Administrator.

In the six months that end-user support was available, there was only one phone call to the Desire2Learn Help Desk. Accordingly, it was an easy decision to drop this service at the end of this period. The Premium Support package was invaluable to the LMS administrator throughout the hectic implementation period and beyond. This package was retained for the first two years of the contract and then dropped as EFRS internal skills with the product improved.

## **Modularization**

Desire2Learn® Learning Environment has been modularized in such a way that it provides maximum flexibility in customizing each course site around the pedagogical needs of each area. The majority of Edmonton Fire Rescue Services courses are focussed on the need to link competencies defined by the

National Fire Protection Association (NFPA) with skill based content and specific performance benchmarks, however, there is a growing body of theoretical knowledge required to effectively respond to medical emergencies, incidents involving hazardous materials, and technical rescue scenarios. As such, there is an increased need for courses that follow a more academic model.

Desire2Learn Learning Environment allows for customization regardless of the instructional model required. Many course sites consist of content, quizzes and grades (renamed to “records” to be better understood in a corporate environment). Some course sites also contain discussion boards to maximize the benefits of social media. In the future, a competency system that links tens of thousands of NFPA competencies to appropriate activities, quiz items, content and records will be implemented.

## **Research and Development**

On the recommendation of the City's IT Branch, the RFP specified a hosted arrangement with an option to install. This has proven to be a wise decision for a number of reasons, the most important of which is the City's ability to take advantage of Desire2Learn's research and development activities. The learning environment includes a full suite of tools that are deployable to the course level based on course needs as noted above. Although products offered by other LMS providers are quickly becoming out-of-date, the social media and innovations of Desire2Learn products, such as IMS Learning Tools Interoperability (LTI) capabilities, ensure Desire2Learn's product viability. Customers will find it interesting to note that Desire2Learn discourages expensive customizations. Instead,

Desire2Learn encourages customers to post product requests. These are reviewed and often incorporated in future releases of the product for all clients.

## **Ensuring Success**

Although Desire2Learn's technology is robust, implementing a technology is much more than ensuring technical operability. For example, user adoption of new technologies does not follow a linear path (Romiszowski, 2004). Specifically, although course management systems have been around in academic and corporate environments since the mid-90s, not-for-profit corporations such as municipalities have been slow to adopt course management systems (Davis, Carmean & Wagner, 2009). Therefore, case studies of successful adoptions are important decision-making tools that help educate others of the selection process and the criteria by which to compare LMS providers.

One of the barriers to adoption is the failure to understand user needs and perceptions. Management needs to see results as noted in usage, return on investment (ROI) and satisfaction measurements. Management goals do not, however, automatically entice end-users. In the Fire Rescue world, this was particularly self-evident. Edmonton Fire Rescue Services is a para-militaristic organization and its training is traditional in its methodology. Many Edmonton fire fighters were concerned that “internet training” would replace critical practical training events (City of Edmonton Strategic Services, 2003). In fact, many training officers were hostile to the project.

## Strategies

Innovations come and go. This seems to be particularly true in education (Romiszowski, 2004). To avoid the pitfalls associated with novelty, this implementation focussed on four key strategies:

### USE OF PROJECT CHAMPIONS

While e-learning as a concept was championed by management; true adoption of technology does not come from above but is driven by the mainstream adoption of the majority. There was keen interest by some early adopters but the majority of EFRS staff lagged in their interest and use of the LMS.

To facilitate wide spread adoption, a call went out to the operations staff asking for participation in what was called an LMS Support Team. This team consisted of 8 – 10 fire fighters, mostly younger staff members, who participated in training sessions and, using communication and paging functions and other basic navigation questions, took the LMS related training out to the fire halls throughout Edmonton . The early training sessions were focussed on familiarizing senior captains, who were mostly older EFRS staff and usually less familiar with digital technologies. The training sessions were later expanded to include all operational staff.

The use of project champions also included the selection of subject matter experts (SMEs) on course development projects. The involvement of the SMEs provided a level of credibility to the course development projects. Their involvement provided an internal stamp of approval and was an important aspect of user acceptance. Senior staff members who were well known and respected as fire fighters and captains acted as content experts and project champions.

### KEY RESOURCES

The value of an LMS is not in itself but in how it is used. Because the training staff was inexperienced with online learning, the emphasis in the LMS deployment phase was to go live with key resources that could demonstrate the value of an LMS and web-based technologies in general.

Fire fighters are obviously interested in fighting fires, particularly those that pose a challenge and danger to themselves or others. One resource that was launched was of an incident that posed a particular challenge due to the building construction and ventilation strategies required. Using a limited amount of video, pictures, a few animations showing fire growth in a contained attic, discussion questions and an audio track of radio communication at an incident, a pseudo-simulation was produced for less than \$25,000. The pseudo-simulation enables fire fighters to vicariously review an incident and decision making points relevant to tactical priorities.

Additionally, for fire fighters, the care and operation of fire trucks is very important. The vehicles also contain features, such as air brakes, water supply and laddering, all of which are complicated and have great impact from a servicing and response point of view.

XML flash templates were used as a foundation to organize flash video files accessible through a customized collapsible menu. The menus were organized around themes relevant to mechanical equipment: maintenance, operation and troubleshooting. The menu lists were customized to each vehicle. Each listing launching a Flash video on relevant procedures. The XML frame can be re-used for any vehicle EFRS has and virtually any piece of equipment.



Figure 1 | Strategies of Fire Fighting Simulation



Figure 2 | Equipment Template

## AGILE LEARNING & PROJECT MANAGEMENT

Industries and professions have different methodologies for dealing with stakeholder engagement, flexibility and change. In the project management world this is known as agile project management. In the teaching field, this is known as teaching to “the teachable moment.” Early into the project, it became quite clear that traditional approaches with detailed scope plans would not work in this implementation. As one influential stakeholder stated “You’ll have to develop this and we’ll let you know if we like it.”

So instead of detailed scope documents, technical plans or curricula, the project manager focused on meeting stakeholder expectation through consultation with key stakeholders and responding with prototypes of what could be done with the LMS. One key stakeholder, a specialist in emergencies with hazardous materials, mentioned a particularly dangerous close call in an accident involving a railcar carrying the chemical styrene. He expressed the desire to get information about the call, with information about the chemical and the incident photos. From this conversation, a course site devoted to “Post-Incident Reviews” was generated that allowed the posting of incidents, photos and discussion forums. One fire fighter notes:

*“I think the format is done quite well. I usually talk about the PIR (Post-Incident Reviews) with my crew. The Lessons Learned is particularly good. We have had some questions about these and their conclusions. It is a great way to get informed about what happened at a fire when you have been off last block (shift).”*

Edmonton Fire Rescue Services | Fire Fighter

The site also demonstrates the flexibility of the LMS. When a Deputy Chief wanted to incorporate a tool that would enable the branch to collect information associated with unsafe incidents happening internally, the survey tool was used to create a link called “Edmonton Near Miss Submissions.” In the future, this tool will provide a means for EFRS members to submit information about incidents that are potential safety issues for fire fighters. This information can be used to guide operations, training and protocols.

## BLENDED LEARNING

Blended learning has proven to be an effective instructional model allowing for pre- and post-activities, critical thinking, and individual and group learning. One example of how blended learning has successfully been incorporated in Edmonton Fire Rescue Services is within the medical specialty. When a 911 call comes in to report a medical emergency, a crew from the nearest fire hall is usually the first on scene. In case of many emergencies, such as with heart attacks or strokes, the first few minutes are crucial. It is, therefore, critically important that fire departments ensure that their crews engage in an ongoing continuing education program with respect to medical education and recertification in accordance with provincial certifying bodies.

The training officers in the medical portfolio launch a new program every three months with required pre-study materials. All fire fighters are asked to complete a pre-study portion with an online exam before a scheduled practical in-service is conducted at each fire station in the city. One fire fighter noted:

*“Last year’s recert (recertification) came at a very opportune time. We had just finished our recertification online when the medical trainers came to present the latest version of CPR and any changes EFRS would be implementing. The next morning we were just finishing our daily checks when a 911 call came in and we were dispatched to a 29E Cardiac Arrest. We arrived on scene first and began the CPR protocols. When EMS arrived the process was well underway and the transition was seamless. Fire fighters will most likely perform CPR many times in their career, but to have the refresher immediately before the call was definitely a bonus.”*

Edmonton Fire Rescue Services | Fire Fighter

## Results to Date

As mentioned earlier, senior management – even within a not-for-profit organization such as a municipal government – needs to see results associated with usage, ROI and satisfaction measurements.

The following points highlight the milestones for the e-learning project using the Desire2Learn LMS as implemented in Edmonton Fire Rescue Services as of June 2010:

- 15 core course sites created for 1,100 staff with three more to be released in 2010

- Three of the above course sites have been used for compliance training: Medical, WHMIS and Introduction to Enviso (The City of Edmonton's Environmental Program). Completion rates are 90 – 97%<sup>1</sup>
- Total training days saved in 2009 alone were 605 (see Table 1: Training Days Saved Through E-learning). Using a formula to calculate costs associated with taking a fire fighter off-shift and replacing that fire fighter (\$1,334.03/ fire fighter/day), cost avoidance<sup>2</sup> for the year was \$807,087, of which \$128,067 was direct cost savings
- Cumulative cost avoidance from 2006 to end of 2009 was \$1,499,972. Based on these data, the City will recoup its investment in the project by the end of 2010
- The number of logins also show a significant adoption by this user group as it indicates logins for self-interest as well as for required training (see Table 2 LMS Usage Based on Login Patterns 2009)
- High satisfaction overall with the library of resources available to use. (See Table 3 Feedback on LMS Support Sessions 2008). Early on, the project adopted an overall framework expressed as follows: E-learning: Useable, Useful and Interesting. This provided the implementation strategies noted above that have sustained the project.

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<sup>1</sup> 100% compliance is difficult to achieve in a given time frame due to WCB, LTD.

<sup>2</sup> Cost avoidance within Edmonton Fire Rescue Services is based on the average hourly rate + benefits + a formula to replace that individual taken out of service to attend training.

### Use of Desire2Learn in the Future

The purpose for introducing the Internet and the Desire2Learn Learning Management System was to address a significant training need that would overcome the barriers of cost and logistics. The implementation of an e-learning training methodology, and the results attained over the past three years, has proven the value of this technology as a corporate training tool.

The road ahead also provides new challenges that cover a number of exciting areas for Edmonton Fire Rescue Services. The Desire2Learn platform provides a leading edge technology with which to achieve our goals. In the future, EFRS will:

- Develop a strategy to use Desire2Learn Competencies tool as a platform to link the NFPA's standards as training objectives to training activities and assessments.
- Use Desire2Learn Learning Repository to link post-incident reports, photos, maps and videos to similar incidents when they occur in the future. Experience gained in incidents will be more easily archived and retrieved in the future. This will facilitate learning across platoons, crews and generations
- Pilot the use of social media in discussion forums and blogs within the Post-Incident site as a means to facilitate informal learning
- Investigate the feasibility of incorporating high-end simulations within the EFRS learning environment. This may mean introducing flash-based scenarios that have limited interactivity in the short-run. In the long-run, we

see the possibilities of using immersive simulations in simulators or open-source environments, such as Second Life, that can be seamlessly accessible through Desire2Learn and integrated LTI-enabled companion tools

### REFERENCES

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Edmonton Fire Rescue Services. (2004). Strategic Services Branch, Emergency Response Department Report. *Fire Rescue Services Results of 2003 Training Survey*. (Internal Document)

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## APPENDICES

TABLE 1: TRAINING DAYS SAVED THROUGH E-LEARNING

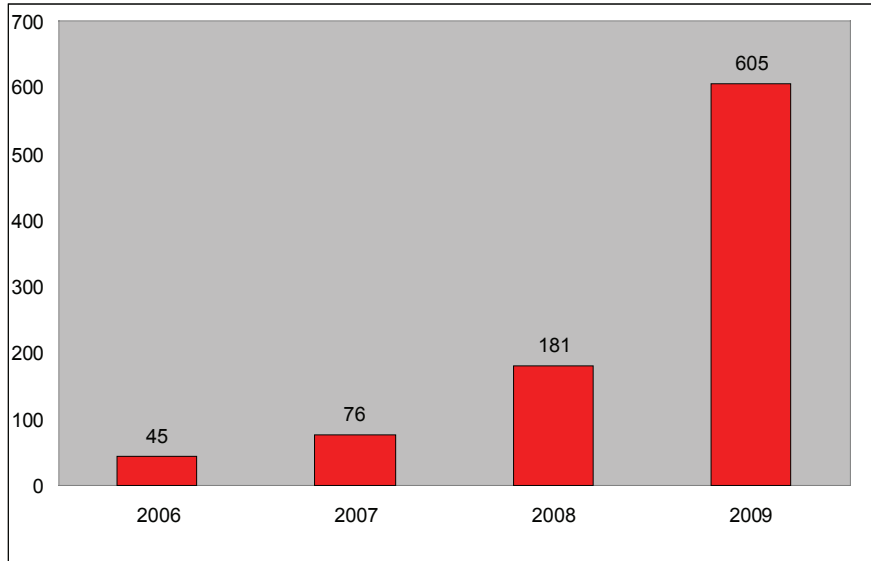


TABLE 2: LMS USAGE BASED ON LOGIN PATTERNS 2009

### LMS Usage Based on Login Patterns 2009

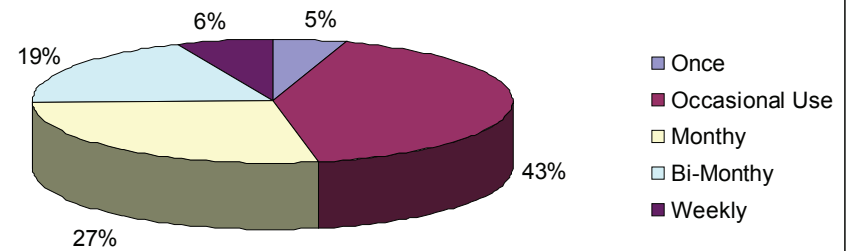
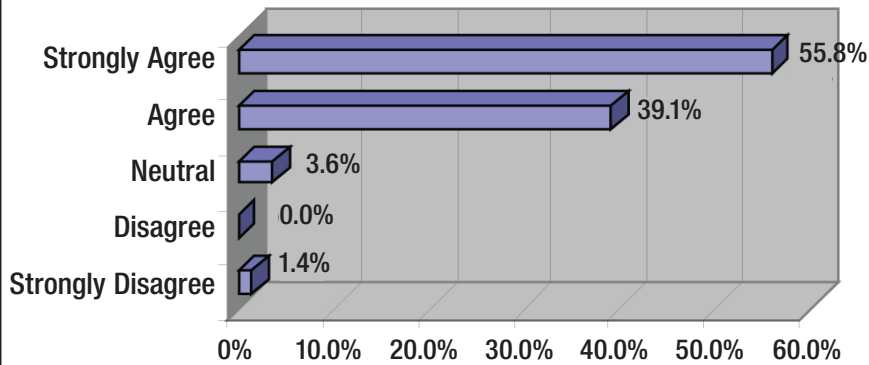
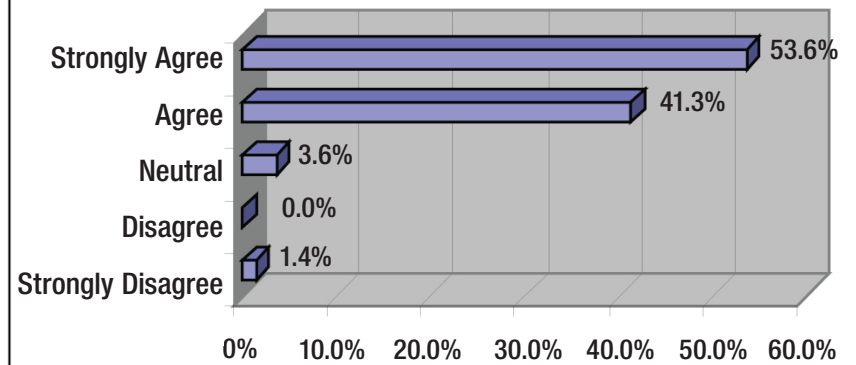


TABLE 3: FEEDBACK ON LMS SUPPORT SESSIONS 2008

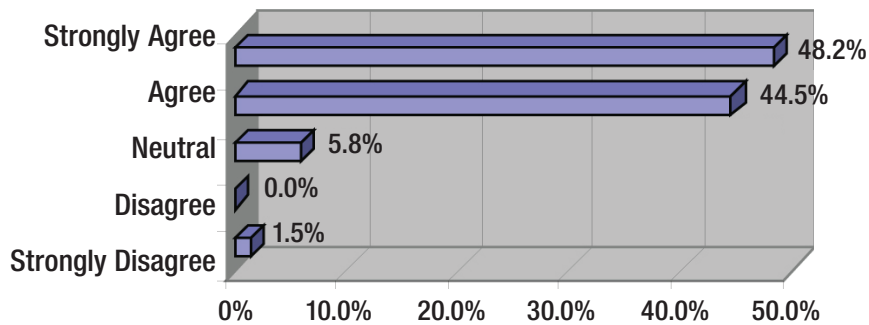
### The e-learning resources were easy to use



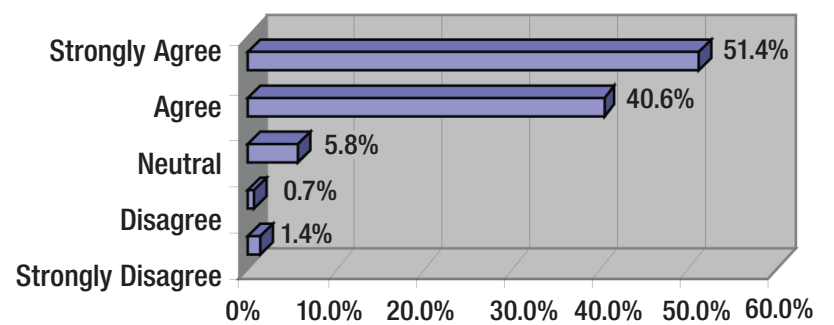
### The e-learning materials were useful



### The e-learning resources were interesting



### I will use these resources



# CONTACT US

## About Us

Desire2Learn includes Desire2Learn Incorporated and its subsidiaries.

Desire2Learn is a global provider of enterprise eLearning solutions enabling leading institutions and organizations to create teaching and learning environments that support them in realizing their vision.

## Desire2Learn Incorporated

**Phone:** 1.519.772.0325 (Worldwide)

**Toll Free:** 1.888.772.0325 (North America)  
0.808.234.4235 (United Kingdom and Europe)  
0.800.452.069 (New Zealand)  
0.808.656.210 (Australia)

**Fax:** 1.519.772.0324

**Email:** [ContactUs@Desire2Learn.com](mailto:ContactUs@Desire2Learn.com)

**Web:** [www.Desire2Learn.com](http://www.Desire2Learn.com)

