

**THE BLENDED LEARNING ENVIRONMENT  
WITHIN THE ROYAL NETHERLANDS AIR FORCE,  
IN AN ORGANIZATIONAL PERSPECTIVE**

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**ABSTRACT**

The Royal Netherlands Air Force (RNLAf) has created a “split level” blended learning environment in which the initial training will take place at its central training school in Woensdrecht and in which follow-on and refresher training courses will take place at the RNLAf airbases throughout the country.

The central training school is responsible, not only for the military training and basic skills, but also lays the foundation for more complex skills such as problem solving, decision making, operating and maintaining technical systems in dynamic, multi-task environments. The airbases are responsible for the specific work/task related training.

Various developments urged the RNLAf to reconsider its training strategy. We opted for the fundamentals of Advanced Distributed learning (ADL), not forgetting the importance of conventional instructional methods. This, in essence, means creating a “Blended Learning Environment”.

Creating a “Blended Learning Environment” that effectively integrates learning and working requires developing a “learning architecture” for each level of the educational components; one that incorporates those elements necessary for its success. This, in turn, has major consequences for any part of the organization that wants to implement such a program.

In this paper we will discuss the design and functioning of a learning organization, as conceived by the RNLAf and the lessons learned from pilot projects. The central questions addressed are (1) what elements are necessary to create a blended learning environment within a technology-driven organization? (2) How is blended learning implemented? (3) What organizational changes must be made to incorporate blended learning?

**ABOUT THE AUTHORS**

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### **INTRODUCTION**

The RNLAf is a technology driven organization in which various state of the art flying platforms are being operated and maintained i.e. F-16 MLU, Chinook and Cougar helicopters with glass cockpits, C-130 J Hercules, etc. After the decision to abolish the draft system, which was taken in the mid 90's, the RNLAf became a fully professional organization. Until then the organization was able to select the most capable and most qualified young men to perform their draft period. All necessary military and technical training was done at the various Air Force schools. Civil and military technical education was at a high level and apart from the selection possibilities from the draftees, there were always enough applicants to fill all the slots. With the abolishment of the draft and a general declining interest for technical studies it became more and more difficult to fill the vacancies. Various reorganizations over the last couple of years reduced the overall numbers. This somewhat compensated for the declining number of people with a technical education. Nevertheless measures were necessary to cope with the arising problems. In this paper we will address these measures from the organizational point of view and we will limit ourselves to the technical training. We will do this by first explaining how the present system operates, followed by the way in which the RNLAf is trying to reorganize its training and education system by implementing "Blended Learning".

### **THE CHANGES IN SOCIETY**

In the current system the RNLAf was used to get technical personnel that were educated at a relatively high level. Trade schools were able to generate enough trained students to fill the vacancies in the so called "manufacturing industry". Holland had its own aircraft industry (Fokker) and apart from that there were enough other manufacturing plants that were always in demand for highly skilled people. Competition for those skilled craftsmen was big, but

the draft always secured that there were enough people that wanted to stay in the RNLAf after their draft period. After the draft was abolished and also more and more manufacturing industry left the country to settle down in places with lower wage demands, the interest for technical studies gradually declined. This was further aggravated by the fact that the birth rate declined and technical jobs were seen as dirty work. This of course was intensified by the fast growing interest for the Information and Communication Technology (ICT) sector.

Apart from all these effects, the educational system went through various tremendous change processes. All of this created great problems for the Air Force and more and more training was done inside the Air Force. In the following we will elaborate a bit more on this.

### **THE CURRENT SYSTEM**

After the various reorganizations that have taken place the Air Force presently has integrated all its schools, with the exception of the officer training which takes place at the Royal Military Academy, in one school. On this school both military and professional training is conducted. Soldiers, corporals and non commissioned officers (NCO's) all start with military training. After that everybody conducts a professional training. For maintenance personnel this training encompassed all the possible tasks that could be envisaged during the foreseen career. In practice this meant that the training was lengthy (for NCO's it was almost a year). Most of the training was knowledge based. Skill training was very limited and the instructor was mainly determining what was being taught. This method of training was also conducted in the civilian school system. Practical experience was to be gotten while working at the airbases. Part of that practical experience was taught in a so called "On the Job Training" period (OJT) at the units after completion of the school training. Although there was a clear structure for that and OJT supervisors were available, slowly the day-to-day

operations became more important and there was a decreasing emphasis on the practical part. This resulted in a slow but steady decline in the quality of maintenance personnel. Fortunately the organization recognized this and was in this instance also helped by changes in the educational system. Furthermore the economic situation was such that there slowly was an increasing shortage of skilled personnel. What were the changes in the educational system?

#### **CHANGES IN THE EDUCATIONAL SYSTEM**

In the civil education system over the last couple of years several changes took place. More and more there was a focus on new emerging trades like ICT, less attention for technical studies, smaller classes and also more and more the participation of an increasing number of children from immigrant families. Most of these children have problems with the native language. Furthermore there was a change from knowledge based learning towards putting learning in a practical context. This change is influenced by modern learning theories like constructivism. In order to achieve this, a big part of the education was shifted towards the employers, introducing practical periods. In the professional education students would be ready with their secondary education at age 15/16. At this age they were looking for employment but were too young to be employed by the RNLAF.

#### **THE REACTION OF THE AIR FORCE**

In order not to lose these rare and ever scarce people, the Air Force offered them learning contracts. Under these contracts additional technical training was provided by the schools, the Air Force had an agreement with. These contracts would normally be for two to three years. In these years there were also lengthy practical periods in the Air Force. In order to accommodate those practical periods, the RNLAF provided practical training positions. These positions, learning docks, were equipped with aircraft (F-16's, helicopters) and experienced maintenance personnel were added for supervision. The advantage of this approach is that the students, although not yet under contract, are offered a position after successfully completing their training. This approach guarantees also that the RNLAF has a great influence on the behavior of the students and that students who do not meet the criteria are excluded. It also shortens the period these students have to be on the Air Force school.

#### **CHANGES AT THE RNLAF SCHOOL**

Given the changing level of the students that were entering the school, further driven by a change in the personnel system that initially would only offer short term contracts (4-6 years) to the newly acquired personnel, the school also started changing its training system. Where training originally would give all the necessary background information for the whole of the career, the introduction of short term contracts required a change. Job classifications were changed and students are now trained according to the principle of "Just-in-Time/Just-Enough". Knowledge based training is replaced with skill based training. On top of the civil education the Air Force adds basic skills, gives students the opportunity to orient themselves on their future job and then prepares them for their first job by means of specific type oriented training. This training differs per type of aircraft. A workplace-oriented practical training period completes the training. This whole initial training stage is completed with a practical exam. In this exam the students have to show their ability to perform their assigned tasks. All of this means that there are several positions at the entry level in which relatively uncomplicated work is done, both in line and base maintenance. After this initial training the employee starts to work as a corporal. Follow-on training for other positions at the initial level are done at the units. After requiring several of these initial skills, also based on the quality of the personnel involved, follow-on contracts are possible as well as progression into higher ranks.

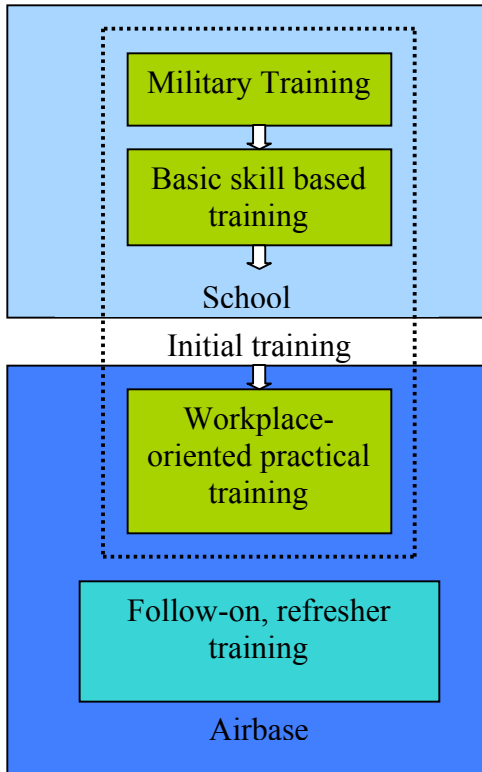


Figure 1. Training Model RNLA

**THE INTRODUCTION OF BLENDED LEARNING**

After this explanation of the changes that took place in the RNLA as well as in society and the educational system, it is now time to further elaborate on how the RNLA sees the implementation of this. First of all, we would like to state that we see E-Learning as a subset of Blended Learning. The use of E-Learning, Computer Based Training and simulation can be defined as technology-delivered learning. Blended learning should not be seen as a totally new approach. It is a combination of several delivery methods including web-based training, Self-paced Learning (using CBT's) as well as Instructor-led Training (using Computer Aided Instruction (CAI)). Blended Learning is a learning methodology that combines both technology based and traditional teaching methods.

According to Lundy (Lundy 2002) of the Gartner Group enterprises are in various stages of E-Learning deployment. He states that adoption of E-Learning varies based on several factors. In his opinion much of the adoption relates to the overall experience of the enterprise with the technology itself. In the **awareness phase** pilot programs are initiated to learn and test the potential success of this training method.

Cultural issues will arise and will need to be addressed in the full rollout. In the **experimentation phase**, multiple business units often embark on similar missions. Custom content is often fairly basic. In the **enterprise deployment phase**, an overall infrastructure is implemented, including an LMS. Content investments rise substantially, resulting in interesting learning objects that keep student attention. Lundy states that the management can use this phase to focus on transformation by identifying the critical skills that various groups need, ensuring successful completion. In the last phase (**extend the reach**), the enterprise is ready to reach beyond its borders to leverage content investments.

The following stages of technology-delivered learning can be described (Berge et.al. 2000):

**Stage 1:** Sporadic courses. This stage is characterized by effective use of project management processes.

**Stage 2:** Infrastructure to support distance learning events established. The organization's technological capability and infrastructure supports distance learning. Stage 2 is more on program management.

**Stage 3:** Established distance learning policy, supporting stable and predictable learning events. This stage shifts to organization development and cultural change.

**Stage 4:** Distance training and learning institutionalized with practices aligned with business objectives and systematic assessment and evaluation of the distance training and learning program. In relation to this phase Howard (2000) mentions that "Sustainable distance training and education has been institutionalized as characterized by policy, communication, and practice that are aligned with business objectives. The training business unit has established a distance education identity and conducts systematic assessment of events from an organizational perspective". In summary this stage is about organizations' strategic planning to guide cultural change and resource allocation.

The RNLA can be situated in the experimentation phase. Based on the experimentation we are now starting to establish infrastructure. For the last three years the RNLA has been focusing on the emergence of training technology, introduction of emulation programs, Computer-Based Training (CBT) as well as developments in E-Learning or Advanced Distributed Learning (ADL). Apart from the fact that new personnel, coming from civil society, is raised in the Information Technology Era, best practices show that introduction of learning

technology enhances learning and that efficiency gains can be reached as well cost reduction. After studying what has been going on in this field, a policy paper was written in which all the changes that are previously described were written down as well as how the RNLAf should cope with all of this. It was recommended that the RNLAf should introduce the concept of Blended Learning.

### **BENEFITS OF BLENDED LEARNING**

In the discussion about the pro's and cons of blended learning the traditional arguments for in-class training versus on-line, or technology based learning have included the immediate availability of an instructor for the students, and the higher status that formal certificates have when delivered through classroom training. But in the case of blended learning the cons can be overcome because of the integration of the "old" and "new" training approaches. A big didactical advantage of Blended Learning is that students are confronted with different kinds of learning situations that will enrich the learning process. Apart from the variety it also appeals to the changed way in which nowadays the younger generation is being educated. Some other benefits can be mentioned (Osgoode 2000):

**Reduces costs.** Lower costs are achieved through the use of learning technology solutions by reducing employee travel costs and the ability to train more people more often. Depending on the solution, the initial expense of designing and developing the learning can be less expensive, the ability to add students without having to add additional fees and the ease of updating when manuals do not have to be reproduced are all made for a strong business case.

**Experts are accessible.** Whether live or recorded, many learning technology solutions enable student's access to lessons learned and experiences from experts in the area of learning. Often, through e-mail and other collaborative exercises, the opportunity for student and teacher interaction increases.

**Reduces time.** Although I have yet to see substantial hard data on this point, many resources suggest that employee-training time was reduced due to the greater impact, flexibility or design of the solution.

**Consistency of content and delivery.** The consistency that can be included in learning technology design produces equal or higher quality learning opportunities.

**Flexibility.** Convenience of access, the ability to learn at the desk top or work site, the flexibility to return to learning resources multiple times and get help when needed are performance enhancing advantages of learning technologies.

**Collaboration.** With bandwidth issues less and less of a problem and networks more able to handle large volumes of content, the "just in time, just enough" statement can be a reality. Additionally, multiple sites can be networked enabling live and interactive group learning.

### **(ORGANIZATIONAL) CONSTRAINTS**

Although now the decision was being made that Blended Learning should be introduced, this did not mean that now everything was clear. A lot of things are happening on the E-Learning front and especially in this respect for the military setting the efforts of the ADL organization are very worthwhile. The ADL co-labs, ADL organization, introduction of the SCORM, etc. are all very necessary and useful developments. A lot has been achieved so far. Nevertheless there is still a long way to go. A lot is being said about E-Learning but in practice there is not a lot of ready-to-use E-Learning content available. Especially this is the case in the field of technical training software. This means that most of the content has to be developed by the RNLAf itself, the production of the training software can be outsourced. The management of the organization reacted very enthusiastically and at first the requirement was made to write an all-encompassing plan to deal with the complete transformation of the traditional training organization into an E-Learning environment. Everybody got completely scared when the impact of all of this became clear, not in the last instance as a result of the predicted costs. Given the fact that the financial implications appeared to be enormous, the decision was made to gradually implement Blended Learning. Since a lot of external providers were offering their services, most of the time at considerable costs and in the organization itself not enough knowledge and experience was available to do everything ourselves, it was decided to first start with a pilot. The main aim of the pilot was to get knowledge with regard to how to conduct such a program. In essence this means that as an organization you want to be a "Smart Buyer". In creating a Blended Learning environment not everything has to be done by the organization. Some trades are scarce and often there is a lack of trained and skilled resources. This means that a clear understanding has to arise on what can be done by

the organization and what should be outsourced. How did the RNLAf cope with all of this?

### **SUCCESS FACTORS**

Osgoode (Osgoode 2000) describes key success factors and lessons learned from organizations deemed to be "best-practice" in the use and implementation of learning technology solutions. She states that best-practice organizations:

- Are flexible in their use of several technologies that complement and supplement one another. There is no one technology that is best, or that meets all needs.
- Choose the appropriate technology based on their business needs and the results required. They are not technology-driven, but select the best technologies available to suit their needs, their situation, and their employees. As one put it: A technology should not wag the dog, but make possible what they want to achieve.
- Don't underestimate the importance of personal touch or human contact in learning. Either they combine CBT with classroom training, or they build into their CBT ways for trainees to have contact with trainers. Many also consider it important to provide contact with other learners and create a community of learners. This is done in different ways, such as email or conferencing. They also make sure that learners using technologies to learn on their own have access to point-of-need contact with a trainer/mentor/facilitator so that they don't get frustrated if/when they need help.
- Integrate the use of technologies for learning, collaborating and innovating, into the social culture of the company. Over and over again, it is emphasized that merely providing the technology is not enough; the determining factors of success are not the technical characteristics of the media used, but the social ones: the way in which they are proposed, designed, implemented, and integrated into the way the company functions.
- Technology enabled training and knowledge management initiatives are supported by management and the most successful have support built up support throughout the whole organization.

- Make technology-based learning, knowledge management, and performance improvement a way of life - an ongoing and central way of doing business not a once a year event.
- Build in baseline measures of the outcomes to be achieved so that the success of their attempts can be measured and improved upon. The best practitioners frequently say that their programs are a work in progress and know that they can do better.
- Keep it simple. They don't get carried away with all the bells and whistles, if these interfere with ease of use. Most companies have to scale down the technologies used to match the lowest technical (e.g. bandwidth) or other capabilities of their users. If the technology is too hard to use or does not work well, it does not get used or accepted as well as simpler, better functioning technology will.

### **BARRIERS TO SUCCESS**

Several barriers to success can be distinguished. The first barrier lies in the technology: bandwidth problems, problems with interoperability etc. Another barrier can be people issues. Employees should be motivated to use the technology. They should see the short term benefit. One of the great problems with change is fear for the change. Insufficient capacity can also be a major barrier to a successful implementation. Last but not least to be mentioned is a possible lack of sponsorship. This can be a major problem

We have chosen to use a brainstorming technique to create awareness for the innovation.

### **BRAINSTORMING**

Out of the numerous external providers one was chosen to lead the brainstorm session. In the session the management was present as well as the policy makers and not to forget the people from the schoolhouse. Furthermore some other external providers were invited such as publishers, software providers, etc. For this session a map was designed of a non-existing country called E-Learning. This map was used to portray all the possible venues with regard to B-learning. The end result of all of this was that the management got convinced that E-Learning needed to be implemented. Given the specific nature of most of the training that needs to be conducted training software is not readily available.

Everything therefore needs to be tailored. It was decided however not to outsource everything to external providers. The organization wanted to build its own expertise. It was decided to do a pilot where partners were invited to participate on a cost-sharing base. This meant that the Air Force was only partly paying for the overall costs. The most important goal of the pilot was not to have a complete and valid product. The main aim was to get expertise and to get a better insight in what is involved in going through the cycle of developing B-learning. The specific area of interest was to find out what specialties are required and also to see whether there was a way of establishing a methodology. "Last but not least" it was required to start building on a business-case model. With this model it should be possible to see what the Return-on-Investment (ROI) is for the invested money.

### CENTRAL ELEMENTS OF THE BLENDED LEARNING PILOT

In the RNLAf blended learning approach some central elements can be distinguished.

*Training design is based on an explicit instructional design model.* Traditionally the Instructional Systems Development (ISD) model is for the design of traditional training, but one of the lessons learned from the design of advanced training is that the ISD didn't suit our means (Boot & Smeulders 2003). Merrill (2002) concludes that ISD has recently coming under attack to suggestions that it may not be an appropriate methodology for developing effective instruction. As an answer to the critique Merrill has refurbished his approach with the "Pebble-in-the-Pond Model". This model is content-centered modification of more traditional ISD that facilitates incorporating first principles of design into an instructional product. The approach of Merriënboer has a lot of similarities with Merrill's model. Merrill (2001) states that van Merriënboer (1997) provides perhaps the most comprehensive recent model of instructional design that is problem-centered. The model integrates more directive approaches to instruction with problem-based approaches all in the context of what is known about cognitive processing. The model describes multiple approaches to analysis and how the products of these various analysis techniques lead to instructional design that all focus on whole task practice.

Van Merriënboer states that most examples of E-Learning are a step back compared with "traditional" training based on the social constructivist approach. Most examples of E-Learning can be seen as "computerized page turners".

1. Learning Tasks: concrete, authentic, whole-task experiences that are provided to learners in order to promote schema construction for non-recurrent aspects and, to a certain degree, rule automation by compilation for recurrent aspects. Instructional methods primarily aim at induction, that is, constructing schemata through mindful abstraction from the concrete experiences that are provided by the learning tasks.
2. Supportive Information: information that is supportive to the learning and performance of non-recurrent aspects of learning tasks. It provides the bridge between learners' prior knowledge and the learning tasks. Instructional methods primarily aim at elaboration, that is, embellishing schemata by establishing non-arbitrary relationships between new elements and what learners already know.
3. JIT Information: information that is prerequisite to the learning and performance of recurrent aspects of learning tasks. Instructional methods primarily aim at compilation through restricted encoding, that is, embedding procedural information in rules. JIT information is not only relevant to learning tasks but also to:
4. Part-task Practice: practice items that are provided to learners in order to promote rule automation for selected recurrent aspects of the whole complex skill. Instructional methods primarily aim at rule automation, including compilation and subsequent strengthening to reach a very high level of automaticity.

Van Merriënboer (2003) states that a sequence of learning tasks is the backbone of every training program aimed at complex learning (see Figure 2, which represents the learning tasks as circles). The learning tasks are typically performed in a real or simulated task environment and provide whole task practice: *ideally*, they confront the learners with all constituent skills that make up the whole complex skill. It is important to stress that learning tasks should engage learners in activities that require them to work with the constituent skills, this as opposed to activities in which they have to study general information about or related to the skills. For the non recurrent aspects of the complex skill and the

complex skill as whole (which is always non recurrent), learning tasks promote schema construction by inductive processing. That is, the learning tasks stimulate learners to construct cognitive schemata by mindfully abstracting away from the concrete experiences that the learning tasks provide. Learning processes like generalization and discrimination subsequently reconstruct schemata to make them more in accordance with new experiences.

*Training should be competency based.*

Competency-based training at the RNLAF is defined as training aimed at providing military personnel with a range of knowledge, skills and abilities which they can apply to efficiently and effectively fulfill their assigned tasks.

In competency-based training the performance of employee is central. It is a flexible and effective framework for human resource development, based on the analysis of the skills or activities of an occupation. An employee is competent when he is able to perform specified behavior in predefined way. A competency is defined as a mix of knowledge, skills, experience, attitude, and abilities necessary to fulfill a task or a job.

To be able to develop competency based training a 5 steps have to be undertaken: Identify the job profile; Identify the Job Competency profile; Identify the Qualification profile (starter); Identify the training profile and Identify the ability test.

Performance assessment criteria clearly define the acceptable level of competency for each skill required to perform the job. The individual's level of competency in each skill is measured against a performance standard established by the organization.

Competency management is realized by means of the 5 vector model (U.S. Navy). Based on this model we recognize three competency domains and two related domains.

*Training design and development should be based on international standards.* The RNLAF uses for instance the ADL SCORM Guidelines and the Joint Aviation Regulations as international standards within training development. The importance of standards is that it creates the possibility for reuse and cooperation.

## THE PILOT

In the pilot a small part of a maintenance course was selected. The scheduled runtime of the pilot was estimated to be four months. In actuality this goal was not completely met. The program lasted about two months longer. During the program an evaluation team was observing all actions taken. At the end of the program this resulted in a comprehensive document in which all the steps were being evaluated. The gain was that everybody was very critical. This was also noticeable in the final report. No one was spared and as a result of this there were a lot of lessons-learned. We have gained insight in the activities and problems of the different participants. The pilot did result in the development of a methodology and also the contours of a business-case model were drawn. What became clear though was that the organization by far was not ready for a full-scale implementation. Some instructors see the implementation of E-Learning as a restriction to their autonomy in the educational decision-making and even as a threat to their existence. Furthermore it became clear that, where in the past instructors used to develop their own courses mainly using Powerpoint<sup>®</sup> slide-shows, they lack the knowledge to work with much more complicated authoring tools. Although the RNLAF developed a SCORM-compliant authoring tool, the SCO-generator, it became clear that this tool was only partly helpful. The SCO-generator is a template-based tool. In this tool several pre-programmed learning situations are available for the developer of course material. Because of the set-up of the tool it is relatively easy to work with it. As a result of that there are however also limitations. These limitations became clear during the pilot. It means that when you want to develop course material, you need to have a toolkit of several content generating programs. Because of the complexity of those programs it is questionable whether the organization has the desire to have people with those skills available. Normally these people are hard to get and when you train people to that level, they are easy targets for the civil sector. In the pilot we used the emulation that is being developed for the maintainer training of F-16 technicians. It became clear that the emulation in itself is a powerful learning tool. Development of the emulation is however pretty expensive. Furthermore there are problems when you want to distribute the emulation over the network because of bandwidth. Regardless all these things though the pilot was very useful and a necessary step to make in the process of implementing an E-Learning environment.

## **THE NEXT STEP**

In the next step it is foreseen that the lessons learned from the pilot will be implemented. In order to achieve this goal it was decided to continue this next step with the same team that worked on the pilot. For the next step it was decided to convert a big part of the training program for ICT personnel of the RNLA. First of all this program was available and completed as a result of major overhaul of all the training programs at the Air Force school. Furthermore it involved the people in the introduction of Blended Learning that were necessary for a successful follow-on. In order to get E-Learning content distributed it is necessary to be able to use the existing network. It helps when you have some extra support from the people that are responsible for maintaining that network. Furthermore a project board was instituted. In this project board lead representatives from all the major players are involved. This guarantees that the project stays on course. The program that is presently being converted has a short runtime. Apart from the fact that this guarantees that time-lines will be met, it also makes sure that quick results are being produced. These results are necessary to convince the management of the value of what is going on. The motto: "Seeing is believing", makes sure that a strong support base is being created. This support base is necessary for the continuation of the program. In this next step it is also necessary to slowly start building experience within the organization in order to be able to determine whether and what the organization needs to build up with regard to expertise. The organization needs to be able to become less dependant on outside providers. In short this means that choices need to be made with regard to what qualities need to be acquired in order to decide whether things need to be outsourced or that the organization itself is capable of doing these things itself. The organization needs to become a "Smart Buyer".

## **ORGANIZATIONAL LIMITS**

Given how the organization is working, presently all the necessary actions have been taken by the headquarters. The ideas started to erupt from the brains of a few people in the staff. The policy document that was written on the implementation of Blended Learning, was adopted by the Air Force Council. The pilot that was done received some attention inside the Air Force. Not enough though to create the momentum for the continuation. Outside the Air Force however there was enormous interest in what was going on. This is mainly driven by the fact that there is still little or nothing done on the

implementation of complex Blended Learning. This outside interest resulted in the creation of a platform. In this platform both other government organizations are involved (Treasury Department, Police, the Department of the Interior, Department of Justice, etc.) but also private enterprises. In this platform information exchange is taking place from all the participants. This public/private initiative creates a group of players that are in the forefront of implementing Blended Learning. The unique combination creates an excellent forum for exchanging ideas and lessons learned. Everybody benefits from this cooperation, especially since the sharing of lessons learned prevents that mistakes are made again and the wheel is being reinvented. But most of all that money gets saved for all the players. It was and is not easy though to keep all the players together, given the differing interests of each and everyone. Also in the Air Force itself, there was a lot of resistance. Mainly this was coming from the financial people as a result of the strict rules that are applicable for acquisition of services and goods. This is the toughest challenge of all. Slowly however people realize that there are great benefits for everybody involved. Besides that, the market is so big and there are only a few big players that are able to serve the needs. The market realizes this and is therefore also willing to step in.

## **CONCLUSION**

In the organization it is now necessary to create a broader base for the further implementation of Blended Learning. This means that the Air force school needs to get involved and especially the instructors. It is absolutely necessary to get the support of the instructors. They see the implementation of Blended Learning as a challenge to their existence. Until now they were the ones that determined how the lessons were taught. They were deciding about the content and their role was dominant. They will have to learn that their role is not taken away from them but that it is changing. They will have to learn to become more the facilitator and coach in the whole learning process. This means that the organization will have to get them involved in the change process. Without their support it is going to be difficult to make the required changes. Despite all the instructors are still the ones that have the domain knowledge. They are the subject matter experts (SME's). What needs to happen is that this knowledge gets transferred. The instructors will have to see the benefits this brings to them. It actually increases their standing. They however need to see this. The best thing to get this achieved is to get them involved in the change process.

Slowly this process is underway. It is an essential part of the way ahead.

The other main hurdle on the road is that this whole change process is taking a long time. Presently the plan is being developed for the overall implementation of the Blended Learning environment. This plan needs to be ready in the second half of this year. Even if this plan gets adopted it will mean that it will take at least four to five years to get it completely implemented. In the organization this is a big risk given the fact that people tend to rotate every two to three years. Especially this is true for the upper level staff. This means that a structure needs to be developed that guarantees that continuation is secured. This is the first step in introducing Knowledge Management in the training organization. The advantage of doing the whole change process in incremental steps is that the developments that are taking place can be taken into account. Especially this is true for the rapid changes in the E-Learning community. Apart from this there are also still a lot of uncertainties. Standards are still developing, providers of products come and go and a lot of discussion is still going on with regard to what is feasible and what not. One thing is sure though. The direction to go is definitely the implementation of Blended Learning, because for our problems the Blended Learning approach provided the optimal solution. In order to make things happen it is necessary that there is a global forum where information is being exchanged and lessons learned are shared. The ADL initiative is in this way a very worthwhile platform. The RNLAf is willing to share its ideas and experience with other players that are willing to do the same. This article was written to share some of our ideas on this front. This article provides the organizational viewpoint. The development approach towards Blended Learning is addressed in a separate article (Boot & Smeulers, 2003).

## REFERENCES

- Berge, Zane, L. editor. (2000) *Sustaining Distance Training: Integrating Learning Technologies into the Fabric of the Enterprise*. Jossey-Bass.
- Boot, E and Smeulers, W.J. (2003) The Blended Learning Environment within the Royal Netherlands Air Force. In search for a systematic, integral development approach. *Interservice/Industry Training, Simulation and Education Conference (I/ITSEC)*.
- Howard, B. *Create a Learning Plan to Sustain E-Learning. Learning Circuits 2000*. Retrieved June 23, 2003, from <http://www.learningcircuits.org/aug2000/howard.html>
- Lundy, J. (2002) *E-Learning/Collaboration Scenario: Leverage Your Infrastructure*. *Gartner Symposium*. Retrieved June 23, 2003, from [http://symposium.gartner.com/docs/symposium/itx\\_po\\_orlando\\_2002/documentation/sym12\\_24b.pdf](http://symposium.gartner.com/docs/symposium/itx_po_orlando_2002/documentation/sym12_24b.pdf)
- Merriënboer, J. J. G. van, Kirschner, P. A., & Kester, L. (2003). Taking the load of a learners' mind: Instructional design for complex learning. *Educational Psychologist*, 38(1), 5-13.
- Merrill, M.D. (2002) A Pebble-in-the-Pond Model For Instructional Design. *Performance Improvement Journal*. Volume 41 / Number 7.
- Merrill, M.D. (2001) *First Principles of Instruction Utah State University*. Retrieved June 23, 2003, from <http://www1.moe.edu.sg/itopia/download/abstracts/Applying%20First%20Principles%20of%20Instruction%20to%20Technology-Based%20Education.pdf>
- Osgoode, K. (2000) *Key Success Factors and Lessons Learned in Workplace Learning Technologies*. *The Centre for Learning Technologies, Mount Allison University*. Retrieved June 23, 2003, from <http://teleeducation.nb.ca/content/media/03.2000/kyefactors/>