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## **THE IMPORTANCE OF E-LEARNING IN TRANSFORMING ORGANISATIONAL STRATEGIES: A CASE STUDY**

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### **Background**

A number of organisations are introducing eLearning in training and teaching practices aimed at employees and/or customers. The adoption of eLearning methodologies and techniques often requires some level of adjustment by the adopting organisation and the participants. Bates suggests three reasons for introducing technology for learning in organisations: “the need to do more with less; the changing of learning needs in society; and the impact of new technologies on teaching and learning” (2000, p.8).

The reason why a change in an organisation, a plan or vision should be developed must be communicated to staff (Bates, 2000, p.48). The staff participation is crucial in change management and in the acceptance of change. In the context of integrating technology for learning in an organisation, some concepts assume a clear importance.

The notion of Open Educational Resources (OER) and its effect in learning facilitation assumes an important role in this research work. These are open materials, available online that can be used for learning, teaching and research (D’Antoni, 2007, p.1) and their use allow more flexibility throughout the learning process; OER can be used not only online, but also in classroom teaching. Notions such as the importance of experience in adult education (Knowles, 1980) and the establishment of links between what the learner already knows and what he is about to learn, covered in the definition of Meaningful Learning (Ausubel & Fitzgerald, 1961, p.501), assume considerable importance, particularly when it comes to their potential in Work-based Learning (WBL) systems.

WBL is the “multiplicity of approaches by which one can learn through work” (Lemanski et al., 2011, p.2). WBL is “where students are full-time employees whose programmes of study is embedded in the workplace and is designed to meet the learning needs of the employees and the aims of the organisation” (Sodiechowska & Maisch, 2006, cit. Lemanski et al., 2011, p.5). According to Usher (2000, p.230), WBL values the learner and the organisation. Currently, organisations have a much more complex reality and have to be successful and more competitive. There is a demand for qualifications as the proof of competencies or salaries based on performance (Mumford et al., 2010, p.18). In the scope of this transformation, it is

becoming more normal that workers are life-long learners (Margaryan, 2008). Research shows that WBL can be formal, informal, structured and unstructured.

According to the 70:20:10 model, 70% of what people know is learned informally (Jennings & Wargnier, 2011, p.14). This model tells us that 70% of what we learn is learnt through tasks, 20% through people and 10% through courses or readings (Jennings & Wargnier, 2011, p.14). Therefore, learning is not a formal isolated task.

In the scope of WBL and learning through experience and social interaction, for this work we also based our attention on the Five Principles of Instruction of Merrill (2002, pp.44-45):

1. Learners are engaged in solving real-world problems;
2. Existing knowledge is activated as a foundation for new knowledge;
3. New knowledge is demonstrated to the learner;
4. New knowledge is applied;
5. New knowledge is integrated into learners' new world.

Therefore, for this research, we also considered the idea of a Learning Organisation, proposed by Peter Senge (1990). A Learning Organisation is an organisation that constantly adapts itself and evolves to remain competitive. For Senge, learning is part of a bigger system than the learner himself. Learning goes beyond the individual plan; learning is social. Kerka (1995, cit. Smith, 2001, 2007), suggests that Learning Organisations offer learning opportunities and use learning to reach their goals; these organisations relate individual performance to the organisation's performance. In situations of extreme change, only the fastest ones, the ones that show flexibility and productivity can be successful (Senge, 1990, p.4).

## **Project and organisation's description**

This research project aims to determine whether, and how, the introduction of eLearning practices in a training organisation, or an organisation with a strong training component, represents a disruptive process and whether it leads, or empowers, the transformation of the organisation's strategies. The research takes, as a case study, the RIPE NCC, and is composed by two complementary parts. The first part focuses on the analysis of the introduction of eLearning in the organisation, with all the contextual aspects inherent to such a process. The second has its focus on studying the impact of eLearning in changing organisational strategies.

The RIPE NCC is a not-for-profit membership based organisation, founded in Amsterdam, The Netherlands, in 1992 and it is one of the five Regional Internet Registries (RIRs). Its main goal is to guarantee the fair distribution and management of Internet Number Resources (IP addresses – IPv4 and IPv6 – and Autonomous System Numbers – ASNs) in its service region, which covers Europe, the Middle East and Central Asia. The RIPE NCC distributes Internet Number Resources to its members, called Local Internet Registries (LIRs). These are mainly Internet Service Providers, domain and hosting companies or telecommunication companies in its service region.

As part of its Internet coordination activities, the RIPE NCC also provides training courses to the members. The trainers travel throughout the service region to deliver onsite training courses on Internet related topics. The target audience for training courses consists of network operators, network administrators or managers that need to deal with the RIPE NCC and that are located in the organisation's service region. The Training Department delivers an average of 86 courses per year, covering about 52 countries. Although a big part of region is covered, there are still a number of countries where it is not possible to travel to, given their unstable political situation.

Classroom training is a major investment of the RIPE NCC. Given the limitations of onsite training courses, organisations should adopt training methodologies that are more consistent with the technological evolution and its integration in the learning process. This raises the question of how to introduce eLearning practices at the RIPE NCC and how to verify if, and in what ways this change can transform the organisational strategies.

Therefore, we proceeded with the gradual implementation of an eLearning system and, afterwards, developed two surveys: one was meant for the RIPE NCC Management Team and Executive Board; and the other one, for the members who participated in Webinars.

### **Research methods**

In this work we combined two research methods: case study, as we focus on a specific organisation, and Design-Based Research (DBR). The choice of DBR is due to the fact that it is an emergent research method for learning environments, in which the researcher can also be designer. This allows for more flexibility during the research period, given the fact that the researcher can change and adjust the teaching and learning process design during the research and, "in some cases, a new framework may emerge" (Wang & Hannafin, 2005, p.10).

### **The case study Development**

The introduction of eLearning practices at the RIPE NCC was gradual and we split it into four stages.

#### ***Stage 1: Improving the quality of the OER***

In this stage we wanted to improve the quality of the videos, which the organisation was already producing, and make them more meaningful for the learners. We started developing videos according to the following criteria: centred on real life tasks/problems; consider different learning styles; use of plain English; short and specific videos (one topic at a time); use of a persona or cartoon that could add some humour to the learning process. In the videos related to the RIPE Database, we developed a character named Debbie who is representing the RIPE Database robot. Debbie's role is to explain concepts to the learners.

### ***Stage 2: Implementing the Webinars***

Due to the unstable political situation in some countries of the RIPE NCC's service region and the fact that developing videos for all the content one needs to learn about the RIPE NCC is very time consuming, we developed Webinars to help those members who cannot attend the local training courses. In order to verify if there was any interest in Webinars, we used a survey for needs' analysis, which helped us making decisions about the integration of Webinars with the regular training activities. We added a few questions about Webinars to a survey we send at the end of every year to all the onsite training course participants of that year. The goal of this survey is, generally, to verify if the knowledge they acquired in the courses was useful for their jobs. This survey was sent in January 2012 to all the participants of 2011. The interactive Webinars, with the duration of one hour, were implemented and launched as a new service in March 2012, being very well accepted by the RIPE NCC's membership.

### ***Stage 3: RIPE NCC Academy implementation proposal***

Given the success of the Webinars, we started considering adding a new eLearning service that would fit the members' learning needs. One of the main features of this model is the certification of the LIRs' knowledge; since currently, in the onsite training courses, the LIRs receive a certificate of participation and many demonstrate the interest in seeing their knowledge certified. The RIPE NCC Academy is an eLearning service, using a Virtual Learning Environment (VLE). The learning process will be organised through formal online courses, available 24/7 and that will lead to a certificate of knowledge. The content and the course activities will follow a problem-based learning approach. This project aims to provide more learning opportunities for the members, to include more members and members outside the places of the onsite training courses, to offer a virtual environment that aggregates all content that is useful for the members to perform better at their jobs, to certify knowledge and skills and to increase the recognition of the RIPE NCC services. The RIPE NCC Academy is now being implemented and its launch is planned to quarter 2 of 2014.

### ***Stage 4: The impact of eLearning in the RIPE NCC's strategies***

In the literature, we found several definitions of organisational strategies, and in this work we chose to define them as the bridge between the objectives, the goals and the actions to reach those goals: "corporate strategy is what makes the corporate whole add up to more than the sum of its business unit parts" (Porter, cit. Meyer & Volberda, 1997, p.25). As for the RIPE NCC's organisation strategies, in this work we considered the strategic pillars of the organisation: Strong Registry; Trusted source of data; and Strong and stable Community. In order to answer the research questions, we used two surveys to verify the impact of eLearning in changing the RIPE NCC's strategies. One of the surveys was sent to Senior Management, Middle management and the Executive Board of the RIPE NCC, as they are more aware of the strategies of the organisation than any other employee. This survey was sent to 22 individuals:

7 Senior Managers, 10 Middle Managers and 5 Executive Board members. We obtained 17 answers.

The other survey was sent to the participants of the Webinars since 2012, to verify the impact that using eLearning has in the way they perceive the RIPE NCC. This survey was sent to 1510 individuals and we obtained a total of 65 answers. The sample is not entirely representative of the Webinar participants as a whole, but we consider that these are the people that were more motivated to help us carry on our research. It's also important to notice that not all the 1510 individuals actually participated in the Webinars. Not everyone who registers to a Webinar participates in it. As the login is anonymous, we cannot control who registers and attends and who doesn't. Therefore, and bearing this in mind, it was decided to send the survey to all the members who registered in the Webinars.

## Results and general discussion

We used the technique of content analysis to treat the qualitative data. As the goal of this research is to verify if, and in what ways, the introduction of eLearning can be disruptive and lead to the change of organisational strategies, based on the answers to the open questions of both surveys, we created a grid to help us present the data obtained. The RIPE NCC's strategies were used as categories and, according to the answers, we described the subcategories. After that, we proceeded to the presentation and the discussion of the results based on the predetermined categories and subcategories.

Table 6: Content analysis grid

<b>Categories</b>	<b>Subcategories</b>
A – Strong Registry	A1 – Services' quality improvement
	A2 – Services' value
	A3 – eLearning implementation
	A4 – RIR quality
	A5 – Knowledge certification
	A6 – Publicity
	A7 – Perception
	A8 – Commodity and costs' reduction
B – Trusted source of data	B1 – Learning opportunities
	B2 – Content and format
C – Strong and stable Community	C1 – Physical borders absence
	C2 – Support
	C3 – RIPE Community integration
	C4 – Communication and interaction

With regard to the investment made, both members and the managers of the organisation are satisfied and, in their opinion, we should continue working to offer more and better eLearning

practices at the RIPE NCC. The members of the RIPE NCC and the Management Team (MT) and the Executive Board (EB) believe that the eLearning improves the quality of the educational services offered, making them more prominent and relevant. Most of the MT believes that the RIPE NCC members became closer to the RIPE NCC with the provision of this service. In turn, the members consider that eLearning is an important service that helped them to understand better the reality of the RIPE NCC and it has increased their interest in wanting to know more about the quality of eLearning, covering more content and using different presentation formats.

According to the MT and EB, eLearning has a higher positive impact on the communication and interaction between the RIPE NCC and the members, than the members themselves think it has.

Regarding the effect of eLearning in changing the way the members perceive the RIPE NCC, both MT and EB, and the members agree that this service has a positive effect on how the members and the RIPE community see the RIPE NCC. According to the value of the membership, both groups consider that eLearning has made the members feel more valued. The question that arises is if and how these advantages of introducing eLearning practices affect the transformation of organisational strategies. Furthermore, if the introduction of eLearning practices does not lead to any change in the organisational strategies, can they function as a vehicle or a tool to achieve the vision and strategies of the RIPE NCC? Throughout this research, we asked these two questions, which we examined through data analysis. For that reason, we organise the discussion of the results according to the strategic pillars. Based on the data retrieved from the answers of the MT / EB and the members, how does the introduction of eLearning practices transform each of the strategic pillars of the RIPE NCC?

### ***A – Being a strong Regional Internet Registry***

Regarding this pillar, eLearning has had a positive impact on the quality of the training services, in general. It is also important that eLearning addresses other issues, related to the activities of other departments, so that there is greater cohesion in services. The improvement in the services' quality makes the RIPE NCC be seen as a stronger organisation. There is also the feeling that the introduction of eLearning values, not only services for members, but also the very fact of being a member of the RIPE NCC. All these variables affect the perception that, not only the members, but the community in general, have of the RIPE NCC as an organisation. With the introduction of eLearning practices, throughout the RIPE NCC service region, the members have equal learning opportunities. They can learn in the workplace or at home, after the working hours, and at no additional cost. According to the members, this helps establishing the RIPE NCC as an RIR with a stronger position in the Internet industry. Thus, the introduction of eLearning practices carries out what the RIPE NCC intends to achieve with their strategies.

In general, both members and the MT/EB are satisfied with the implementation of eLearning. For some managers this was a rather late implementation, but still necessary. As for the members, they are receptive to more learning opportunities of this type, and they also claim that their perception of the RIPE NCC was improved after using this service. The great advantage of eLearning is that the members can view short videos, or participate in a one hour long Webinar from their workplace, or even from home. The way eLearning at the RIPE NCC is organised allows for the clarification of small doubts by the members.

There are issues, though, that must be dealt with. For example the need for more advertising of eLearning so that more people get to learn about this service and can get to use it; the future possibility of certifying knowledge; and continuing to implement eLearning practices in a structured way. These issues, once solved, will further strengthen the position of the RIPE NCC.

### ***B – Being a trusted source of data***

The primary function of the RIPE NCC is to be a registry (Regional Internet Registry), hence the need for the existence of validity and reliability of the data provided. The introduction of eLearning practices can affect this pillar, by providing the same learning opportunities for all members. If the members know about the RIPE NCC and its services, about the RIPE Community and about how the process of developing Internet policies works, then that is basis for the participation in the RIPE community discussions. In addition, eLearning allows the individuals to learn how to correct the data in the RIPE Database, related to their own organisation, so that this data can be as accurate as possible. Thus, eLearning does not just help the RIPE NCC to reach its goals and vision, but it also leads the members to become active participants in adjusting and transforming the organisational strategies. This is done through the availability of more learning opportunities.

### ***C – Keep a strong and stable RIPE Community***

The support given to both members and the community (since the availability of the OER is addressed to all); the education of more members, eliminating the limitations of physical boundaries; the fact that there are more/alternative channels of communication that make the interaction and the communication between the RIPE NCC and the members easier, and offers more ways to receive feedback on the RIPE NCC services, make the RIPE community more cohesive and stronger. There are more opportunities and more ways and tools to learn. As noted previously, this can lead to greater participation in the community, not only regarding the influence one can have on the direction taken by the RIPE NCC, but also the possibility that one can have of interaction with the rest of the community. In addition to helping strengthen the community, eLearning can also help rejuvenating it (and this is a goal of the RIPE NCC).

After analysing the data in the light of each pillar, we can conclude that the introduction of eLearning practices in the RIPE NCC can help reach the strategies. However, it is by providing

more learning opportunities and to more people, that the members and the community can perceive the RIPE NCC more positively. This can lead to the RIPE NCC becoming a stronger RIR. Through the availability of more learning opportunities, the members can have a higher chance for more participation in the community discussions. The involvement of all participants in this discussion process, may affect the strength of the community. Since the RIPE NCC members can decide what direction the organisation should take, the more knowledge they acquire about the organisation, the faster they can influence the decision making process. It is precisely in the development of more learning opportunities, and the inclusion of more people, located in all the countries of the RIPE NCC service region, that eLearning can lead to changes in the organisational strategies. Therefore, we can conclude that the introduction of eLearning acts in the transformation of the RIPE NCC's strategies, not only by improving the communication between the members and the organisation, but also by improving the impact and perception of the RIPE NCC and, specifically, the RIPE NCC's training services.

## **Conclusions**

Based on the indicators shown in this research, we can conclude that the introduction of eLearning practices represents a disruptive process, which can lead to the transformation of the organisational strategies. Taking into account the temporality of this process, the results indicate that a change may happen. However, in this research we did not have enough time for a short or long-term verification. Regarding the advantages of this study, we highlight not only the advantages listed by the members, which result from the usage of the eLearning practices, but we also highlight the advantages that this research can bring to other organisations. As the RIPE NCC is one of five RIRs, the success of the practices developed in this study, may lead to their adoption (or the adoption of similar practices) by the remaining RIRs. As for clues to future studies, the grid developed for the content analysis, in order to verify the impact of the eLearning strategies in the transformation of the organisation's strategies, may be used in similar studies, expanded or adapted. The choice for the development of this research is also due to the fact that there were not, in the current literature, many examples of introducing eLearning practices in similar contexts. Also the regional scope and cultural diversity make this an interesting study from the standpoint of practical implementation of eLearning in an organisation, and from the point of view of educational research, since this study has practical implications in individuals from 76 different countries, located on different continents. Regarding the introduction of eLearning practices, this research, may also be an example, for corporate and/or not-for-profit organisations. One limitation of this research is its contextual specificity. The RIPE NCC is very particular organisation, with specific and complex ways of working, which makes it difficult to generalise the results to other institutions that do not have the same or similar characteristics. Another limitation is that, for our needs analysis for the implementation of the Webinars, we have only considered the participants of the onsite training courses. This is considered a limitation, due to the fact that the trainers cannot travel everywhere in the region because of the political situation in some of the countries. But the people from those countries



are also part of the target audience of the eLearning. The fact that these countries did not hold any onsite course, excluded them from the needs analysis. Issues such as the time difference between countries in the service region are taken into account. However, the praying times were not considered. The difficulty of integration of the eLearning practices in some of the cultures in the RIPE NCC service region can also be seen as a limitation of this study, such as the fact that, to date, the eLearning service offer is only available in English. As this research took place in a very particular organisation, despite the limitations noted, we expect that it will contribute, positively, to the research and the development of eLearning in organisations with similar characteristics to the organisation object of this case study, and to workplace learning and eLearning practices, in general.

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