CASE STUDY

ICT MANAGEMENT AND ASSESSMENT MODEL FOR SCHOOLS

ESTONIA

http://keyconet.eun.org

European Commission
Key Competence Network on School Education
European Schoolnet
KeyCoNet (2012 – 2014) is a European policy network focused on identifying and analyzing initiatives on the implementation of key competences in primary and secondary school education.

On the basis of the evidence collected through literature reviews, case studies, peer learning visits, country overviews, videos and exchanges between network members, the project’s final objective is to produce recommendations for policy and practice regarding the enablers and obstacles to a holistic implementation of key competence development.

Among KeyCoNet’s current 18 partners in 10 countries (Austria, Belgium, Estonia, Finland, France, Ireland, Norway, Portugal, Spain and Sweden), are Ministries of Education/related agencies, universities/research institutes, European organizations, and practice related partners. KeyCoNet also has a growing number of associate members from other countries and stakeholder groups, steadily increasing our network’s scope and influence.
ABOUT THIS CASE STUDY

Part of a series
This case study is part of a series of case studies being produced by KeyCoNet, to highlight various initiatives concerning key competence development, taking place across Europe. Each case study analyzes the initiative’s implementation strategies in depth, and will feed into the network’s recommendations for policy and practice on how to implement a key competence approach in schools most effectively.

How and why was this case selected?
Each year the KeyCoNet network identifies initiatives concerning key competence development across Europe, and a case note is produced providing basic information about each one. Following this, network partners participate in an online selection according to pre-established criteria, as well as an in-depth face-to-face discussion, in order to select the most interesting initiatives to develop into case studies.

The Estonian ICT management and assessment model described in this case study was developed to ensure that schools use their limited ICT resources intelligently, develop the digital competence of their staff, as well as use ICT optimally for teaching and learning purposes. The network considered this Estonian pilot project interesting because of its focus on sharing best ICT management practices between participating schools, with the ultimate aim of ensuring that ICT is effectively embedded into everyday school life, so that it is naturally at the heart of all teaching and learning processes. The involvement of schools’ internal self-evaluation combined with feedback from external ICT consultants was also considered of interest. Moreover, it is one of the few initiatives collected that specifically targets the professional development of school management, ICT and administrative staff, as well as teachers and students. Interestingly, as the case study illustrates, school principals appreciated the remarkable impact the project had on enriching their general management skills, and also helping them better understand their influential role in the successful functioning of their school.

Which methodology has been used?
Case studies are the main tool used by the network to probe beneath the surface of each selected initiative and provide a rich context for understanding the implementation issues involved. The initiatives selected by the network differ in many ways, according to the nature of the key competences addressed, the implementation process used, the number of students and teachers directly concerned, the type and number of actors involved, and the duration and stage of development etc. A multiple-case study design, whereby each initiative generates its own case study, but uses one single prism for a common analysis, was therefore chosen. This method makes it possible to explore diversity, as well as the enablers and obstacles to the initiative’s implementation, as perceived by the initiators and stakeholders interviewed. Moreover, through a multiple-case study design it is possible to identify choices, strategies, characteristics, situations or contexts leading to success or failure in a recurrent manner. This will particularly contribute to fuelling the set of recommendations for policy and practice at institutional, local, regional, national and European level, for the effective implementation of key competences in school education.

Each case study included interviews with the initiative’s coordinators and stakeholders, as well as desk research. In some cases, where considered feasible and fruitful, focus groups were also organized. In this particular case study, questions were based on the semi-structured structure laid out by the KeyCoNet project, but were adapted to the specifics of this case. Interviews were carried out via Skype. In each case, three people were interviewed: the head teacher, the school’s IT consultant and the head of the ICT management programme. The survey involved the targets of the project, namely representatives of the school, as well as the coordinator of the programme (the person who was coordinating the ICT management and assessment model programme) who understands and perceives the programme and its developing trends as a whole.
# Basic Information

<table>
<thead>
<tr>
<th>Country:</th>
<th>Estonia</th>
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<tbody>
<tr>
<td>Title of initiative:</td>
<td>[EE] <em>IT juhtimise pakett koolidele</em> [EN] ICT management and assessment model for schools</td>
</tr>
<tr>
<td>Coordinator/ Organization:</td>
<td>Eesti Kvaliteediühing (Estonian Association of Quality); Initiative was started by Tiigrihüppe Sihtasutus (Tiger Leap Foundation)</td>
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<tr>
<td>Type of initiative and channels used for implementation (e.g. curriculum reform introduced through legislation etc.):</td>
<td>Curriculum reform – ICT should be used as a teaching and learning tool in all main subjects. Informative seminars in regional centres, TLF website.</td>
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<td>Partners:</td>
<td>Schools (administration and ICT departments)</td>
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<tr>
<td>Scope: (student/teacher/school level; local/regional/national):</td>
<td>Teachers, school level and local</td>
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<tr>
<td>Learning context: (formal or non-formal):</td>
<td>Formal and non-formal</td>
</tr>
<tr>
<td>School education level/s: (primary, lower secondary, upper secondary):</td>
<td>All education levels: primary, lower secondary, upper secondary</td>
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<tr>
<td>Target groups:</td>
<td>School administrations, ICT department (or person responsible for ICT in schools)</td>
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<td>Time frame: (start and end date):</td>
<td>Start: May 2011 (developing the assessment model) 2012 – pilot year 2013 – full programme</td>
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The ICT Management and Assessment Model for Schools project was developed by Tiigrihüppe Sihtasutus (the Tiger Leap Foundation) with the aim of encouraging and improving the use of ICT resources in the teaching and learning process. The project also enables the sharing of best ICT management practices between schools with the help of external ICT management consultants. The main competence developed through the project is digital competence, with school administrations establishing and working towards the achievement of new ICT goals for their schools in order to support learning; the project also helps to develop a sense of initiative, and problem solving, risk assessment, decision taking and school management skills.

Every school that takes part in the project completes an online self-assessment regarding its ICT management, following which members of the school administration and ICT department are offered ICT management training and all participants receive a best practices in ICT management handbook. Following this training schools undergo a deeper process of self-assessment regarding their ICT management and are provided with an external ICT management consultant who provides feedback and advice according to the results of the self-assessment. External consultants help to identify the gaps between schools’ self-assessment and external assessment. All ICT personnel who have participated in the initial training will then have the chance to become an external consultant for another school, giving them an opportunity to discover best practices in ICT management from other schools and to gain a better insight into ICT management in general.

In the national curricula for secondary schools and high schools adopted in 2010, it is stated that teachers must use up-to-date study materials and tools that are based on information and communication technologies (ICT). This requires the schools to be informed on the field of ICT, on teaching and learning with ICT tools and also on supervising and managing ICT resources.

There is a great deal of information on the field of ICT and many ICT management models, but these do not fit directly into the school context. For this reason school managers need a more adapted approach; schools need an approach that is in Estonian and that is adapted especially for them. In 2011, the Tiger Leap Foundation launched a programme on managing the field of technology and self-evaluation in schools. This programme consolidates the understanding of what is happening in the field of ICT management, helps schools to understand their actual level and to use their restricted resources in an effective way and provides schools with examples of best practice from the field of ICT management.

The ICT management model was created in cooperation with ICT auditors, ICT managers and school representatives. The model focuses on the technology management field and is based on six criteria: leadership, strategy and planning, employees, resources and safety, processes and services, and results.

In 2012, the ICT management model and programme successfully passed the piloting phase, in which 12 schools across Estonia participated.
On 1 May 2013 the Tiger Leap Foundation, which originally managed and ran the piloting of the ICT management programme, was merged with two other organizations which, all together, now form the Information Technology Foundation for Education. The ICT management model is now being developed by the Estonian Association for Quality (Eesti Kvaliteediühing). Due to these changes, training programmes and external evaluations are not taking place according to the announced timetable for 2013.

1. CONTEXTUAL INFLUENCE

Which contextual factors have been perceived as enablers to the implementation of the initiative, and why?

One of the most important enabler for developing a complete ICT management model for schools arose in part from the changes made in the curriculum and from new demands that were put forward for teaching and learning at a national level. The idea also developed from the feedback we received from schools concerning the problems and obstacles that have emerged when using ICT (shortage of devices, age of devices, usage frequency of the devices, teachers’ need to improve their ICT skills, etc.). When all these problems are brought together, a common denominator can be found: ICT management. As many schools had similar issues, the decision was made to create an ICT management model in order to enable schools to develop their capability, knowledge and skills.

Another enabler of the programme is a need to support schools in using limited ICT resources in a well-planned way, to show the schools methods of self-development and to provide them with examples of best practice in ICT management. Participating in the programme enables schools to understand their level of ICT management and to improve their level through training, self-evaluation and feedback from consultants.

The enabler of the initiative is also educational policy. The Ministry of Education and Research’s aim is to encourage and spread the use of different ICT tools in the teaching and learning process. The goal of the ICT management and assessment model for schools is to develop the ICT competences of school personnel, especially the schools’ administration and management (head teachers, head of ICT etc.) as well as teachers. Through educating the teachers we are also educating the students.

It is also counted as an enabler that today, ICT is the main supporting structure in all organisations and is depended on by all of the main and supporting processes in all organisations, including schools. The main goal of schools is to support learning and the learning process now depends on ICT. Examples of supporting processes that depend on ICT include providing schools with tools and planning school work. If the ICT in the main and supporting processes functions correctly, then the school’s main and supporting processes also function well.

In order to bring this idea to life, approval was required firstly from the board of the Tiger Leap Foundation, and then from the Estonian Ministry of Education and Research. As the programme was financed by the Ministry of Education and Research as well as the Tiger Leap Foundation, it was crucial to obtain their support in the first phase of the project. Therefore it was important to analyse through all the aspects of the initiative and be able to explain every single step made in the initiative.
Which contextual factors have been perceived as obstacles to the implementation of the initiative, and why?

The biggest obstacles have been encountered because of the organizational changes and budget constraints. On 1 May 2013 the Tiger Leap Foundation, which originally managed and ran the piloting of the ICT management programme, was merged with two other organizations which, all together, now form the Information Technology Foundation for Education. The ICT management model was given over to another organization and is now being developed by the Estonian Association for Quality (Eesti Kvaliteedijuht). Due to these changes, training programmes and external evaluations are not taking place according to the announced timetable for 2013.

2. SUBSTANCE RELATED ISSUES

Which substance related issues have been the most difficult ones to fix when deciding on the content of the initiative, and why?

For the school teams, the most difficult aspect was understanding the main concepts of ICT management, such as “processes” and “services”. Since school management in Estonia is still very traditional, it was difficult for the school teams to comprehend which are the processes that occur at school (e.g., printing is a process that can be optimised), and which are the services that a school offers, should offer and is able to offer. School heads do not fully understand their role in technology management. They presume that ICT is the responsibility of ICT consultants or ICT teachers and underestimate their own role in this area. They also underestimate the importance of their position as the school’s leader and as a role model for teachers; this affects the other members of the school – not just teachers but also students.

3. PARTNERSHIP RELATED ISSUES

Which key aspects should be taken into consideration when defining the partnership?

The most important aspect for partners in the ICT management and assessment initiative is that all the partners (school teams, school ICT consultants and ICT management experts, mostly from private sector) have some common basic knowledge about ICT management and school context. The importance of understanding how schools work, what are their needs and goals is important to create an initiative that works well and is focused on the real needs of schools.

4. STRATEGY RELATED ISSUES

Which aspects of the strategy implemented for the initiative have proved to be particularly effective, and why?

At the end of the pilot year, feedback was requested from participating schools, as well as from ICT consultants who had participated as external evaluators in schools and ICT management experts. School ICT consultants expressed the highest level of satisfaction, since they had the chance to attend the training session for con-
sultants and also to visit other schools, witness their activities and learn from their experience. They also gained experience in external evaluation, which is something different from their everyday work at school.

The level of satisfaction of the ICT management experts was also high, but, according to their own feedback and the feedback provided by schools, it would have been beneficial for them to receive further training in addition to the one compulsory and one optional training day. The feedback showed that, as a completely new model was created for the ICT management and assessment model, more emphasis should have been placed on getting to know the model and more practical case-based examples should have been presented. This would have given those working outside the general education system a better overview of what is going on in schools and of the schools’ real needs and capabilities.

**Which aspects of the strategy implemented for the initiative have proved to be most problematic, and why?**

The most problematic part of ICT management and assessment model was related to trainings. According to the feedback, in the future more emphasis should be placed on training all three parties (school teams, school ICT consultants and ICT management experts) and the training sessions should focus on explaining the basics of the topic, so that the knowledge and understanding of all parties would be based on the same foundation. Creating common basic knowledge enables participants to move forward in the programme at the same pace and ensures that evaluation results are comparable.

### 5. **SYSTEMIC ASPECTS**

**To which extent has the initiative been designed as a systemic one from the starting point, i.e. introducing changes in several areas related to the student curriculum (such as teacher training, assessment, school organisation, etc.)?**

In the spring of 2011, an expert group of 15 members was created. The group included ICT management experts from the private sector, school representatives and representatives of the Tiger Leap Foundation. The experts developed an ICT management model, a self-evaluation test, a booklet on ICT management and a training programme on ICT management for schools. A system of external experts/consultants was also developed within the expert group, with a training programme allowing the expert group to understand the school context, how to assess schools, what are the needs of schools, etc., and a more thorough self-evaluation form for schools and an external evaluation form for the experts that were sent to schools were drawn up by the expert group.

In March 2012 the search for schools willing to participate in the pilot project began. Twenty schools across Estonia originally registered, with 12 schools completing the pilot year.

Two one-day training sessions were organised for the ICT management experts from the private sector and the external consultants. For the ICT management experts it was compulsory to attend at least one training session (the other was optional), while both training session were compulsory for the external consultants. The training sessions focused mainly on introducing the specifics of ICT management in schools, presenting the ICT management
model, establishing the external evaluation process and explaining the evaluation according to the model.

For the schools taking part in the pilot project, the start of the process meant that they had to put together a team in their school that would implement the ICT management project. The team had to have up to five members, including the principal, head teacher and the head of ICT (ICT manager, ICT consultant etc.). In addition, having a teacher in the team was considered as an added value as this gave the team’s work a pedagogical perspective. As ICT management is strongly connected with the topic of management, the principal had to be involved in all phases. The principal, together with the head of ICT, was required to critically evaluate the school’s situation in terms of ICT management and introduce the changes needed.

For school teams, and particularly for the principal, participating in the ICT management programme added to their management competences. The six main criteria which the ICT management model (fig. 1) was based on (leadership, strategy and planning, employees, resources and safety, processes and services, and results) are not only applicable to the field of technology but are also transferable to other fields of management. Therefore, the model presented in the ICT management programme could also be implemented as a general management model.

What have been the obstacles and/or challenges encountered during the implementation because of the systemic aspect of the initiative?

Twenty schools began the pilot year, but only 12 schools completed it successfully. One of the reasons that schools did not finish the programme was the requirement of attending the training sessions and carrying out both self-evaluations (the initial short evaluation as well as the more comprehensive one). As some schools were, for different reasons, unable to fulfil these demands, they withdrew from the pilot project.

Have some parts of the original design of the initiative (from the systemic point of view) been abandoned and why?

It was originally planned that the ICT management model would be offered to all interested schools in 2013 but, due to budget constraints, this was not possible. It was also planned that an annual ICT prize would be awarded and that a close cooperation with local municipalities would be introduced, in order to ensure that they were aware of the importance of ICT management in schools and to enable them to better understand the needs of schools.
6. EVALUATION RELATED ISSUES

In case a simultaneous/real time evaluation process has been part of the initiative:

What have been the obstacles to implement it, and why?

Schools taking part in the pilot project had to put together a team in their school that would implement the ICT management project. After putting their team together, schools had to carry out the self-evaluation, for which there was a web tool on the ICT management and assessment model for schools website. The first self-evaluation test consisted of about twenty questions that gave the school an initial overview of what ICT management is all about, how it fits into the school context and the ICT management level in their school. For school teams not familiar with ICT management concept, the self-evaluation test tended to be superficial.

What have been the difficulties or risks that have been solved/avoided thanks to the simultaneous evaluation process, and why?

After the self-evaluation, team members were required to read through the booklet on ICT management before taking part in a two-day ICT management training session. This practical training session presented different practices from various schools, gave participants the chance to discuss questions from the self-evaluation test and placed a great deal of emphasis on the work of school teams.

A school visit by a three-person group consisting of external evaluators and consultants also took place. This group was made up of one ICT management expert (from the private sector) and two ICT consultants from other schools. The external evaluators came to the school, studied the school’s self-evaluation form and discussed issues of ICT management together with the school team. After the visit, the external consultants filled in the external evaluation form and the schools received oral and written feedback on their technology management. The feedback indicated what was done well in the school, what could be done better and also suggested some concrete steps that the school could implement in order to ensure that their ICT management was more systematic and would better fulfil the needs of the school.

After attending the training session, the schools were asked to carry out a comprehensive self-evaluation on technology management, for which they could also use a form on the programme’s website.

7. ACHIEVEMENT OF INITIATIVE’S AIMS

Have the original aims of the initiative been achieved?

For the participating schools, the most valuable lesson was learning to perceive ICT management as a whole and to understand its supporting role in the everyday work of the school. Having the chance to learn from the experience of other schools was also seen as important, since this is something outside the norm of regular school work. Schools and principals work separately and do not
exchange their knowledge and experience with each other. The fact that school heads and school personnel in the ICT management team could, using the knowledge they gained, explain their info-technological needs (including hardware) to school administrators (local municipalities) was also seen as an important added value.

Since participation in the programme developed their perception of the field of technology, school heads also began to understand the importance of regular training. For example, five principals from participating schools adopted a regulation according to which all teachers have to regularly attend training sessions related to the use of ICT in school.

For schools, the most important aspect of the programme was learning to evaluate themselves accurately without over- or underestimating their capacities (fig. 2 and 3). Schools stated that they would have liked more in-depth feedback, including more specific guidelines and examples, following the visit from the external evaluators. The feedback they received from the evaluators consisted mostly of numbers, but the schools did not know how to interpret these numbers in order to plan their next steps and to improve the situation within the school. Since the evaluators were not well acquainted with the context of the schools, the school teams would have liked more contact with them, in order to analyse the process and results of the evaluation in greater depth.

According to the interviewees, participating in the programme was also beneficial as people at school had to work closely with each other, which is not usual in their everyday work. They discussed the info-technological needs, possibilities and obstacles that are associated with education (also with reference to the schools’ hardware) with the school head.

As the ICT management programme focused mainly on management issues, participating in the programme had a remarkable effect on the work of the principals, who began to understand the

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**Figure 2: ICT management assessment model**

**Figure 3: ICT management assessment in-depth model**
influence of their actions on the schools’ operation, teaching and learning.

In addition, the ICT management programme ensured that the schools’ ICT documentation (guidelines etc.) was reviewed. It was also concluded that this documentation should be renewed on a regular basis, since the field of information and communication technology is a rapidly developing one.

The biggest benefits of the ICT management programme were thought to be the opportunity to learn from the experience of other schools and to receive a visit from external experts who gave useful feedback on the state of ICT management at school.

The ICT management programme proved to all the participating teams that schools need to work on ICT every day so that existing resources (both hardware and software) are used in an effective and sustainable way.

8. NEXT STEPS

What is planned next for the initiative?

In June 2013 a new and improved version of the ICT management booklet was published, where examples of best practice from the pilot schools were added. In addition, examples of documents were added to the booklet for other schools to use and adapt to their own needs.

The material on ICT management in schools is freely available to all.

At the moment, the biggest obstacle facing the ICT management programme is the fact that, due to organisational changes in the Tiger Leap Foundation, the programme is now managed by the Estonian Association for Quality, which does not have the budgetary resources required for the programme. The main obstacle to the continuation of the programme is therefore connected to the lack of financial means.

Additional information about the ICT management and assessment model for schools

Homepage: http://www.itjuhtimine.ee/et


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Since its founding in 1997, European Schoolnet has used its links with education ministries to help schools make effective use of educational technologies, equipping both teachers and pupils with the skills to achieve in the knowledge society.

In particular, European Schoolnet pledges to:

- Support schools in achieving effective use of ICT in teaching and learning
- Improve and raise the quality of education in Europe
- Promote the European dimension in education

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