The A·B·C of

e-····· School

The aim of this publication is to present the major professional solutions of e-projects having been present during the last five years in the Slovenian education. The projects have finished, but there are high quality, efficient and proven solutions that are remaining. They are results of rich developmental work of all the professionals who have been involved in the projects. The publication presents possibilities of didactic support in the form of workshops, consulting services and seminars for all those who are interested in the field and who would like to introduce the solutions into their teaching practice. We are also announcing two new e-projects, which will be going on by 2018, and their foreseen outcomes and solutions.
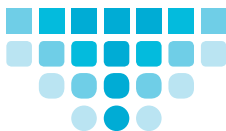
E-Education / the e-competent teacher standard, seminars and workshops on the way towards e-competency

The way towards e-competent teacher, school principal and IT expert is led through seminars. An individual finishes his/her way towards the e-competency when he/she has acquired all **six key e-competencies**:

- **C1** Knowledge and awareness of ICT, critical use
- **C2** Communication and on-line collaboration
- **C3** Search, select, process, and evaluate data, information and concepts
- **C4** Safe use of the web, ethical and legal use of information
- **C5** Design, produce, publish, adapt materials
- **C6** Plan, perform, evaluate learning and teaching by using ICT

The e-competency can be reached in two ways: **through seminars (SEM)** and **through independent assessment of competencies (SAMSEM)**.

Seminars SEM

There are 8-, 16-, and 24-hour seminars, which are a combination of live and on-line work ('blended learning') done in **e-classrooms**. This enables all the participants to learn experientially and collaboratively together in a group setting. All the seminars contain assessment of key competencies.

Independent assessment SAMSEM

Independent competencies assessment is aimed at skilled teachers, pre-school teachers, school principals and IT experts/coordinators, who can **check their e-competencies and skills without taking part in a seminar**. SAMSEM is carried out at certain times on-line in e-classrooms, where participants carry out all the tasks independently. Only participants who complete all the tasks are assessed. All the participants who successfully complete a seminar or an independent assessment get a certificate and a badge. The complete offer of seminars is available in the NEIS Catalogue of CPD 2015/16.

Seminars and workshops from **The Way towards E-competency** section have been developed within the e-Education project (2008-2013). They are aimed at professionals, who want to acquire key e-competencies and new knowledge, and who want to familiarize themselves with contemporary approaches to learning, teaching and school management.
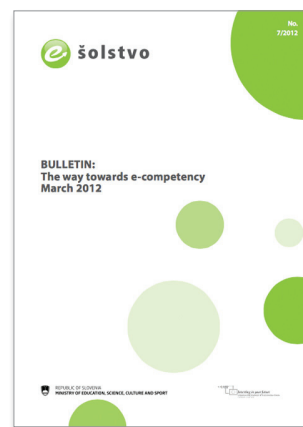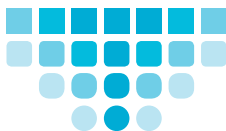
E-Textbooks for Science Classes in Primary School /

i-textbooks, monograph Slovenian i-Textbooks, basing points and guidelines for the preparation of i-textbooks
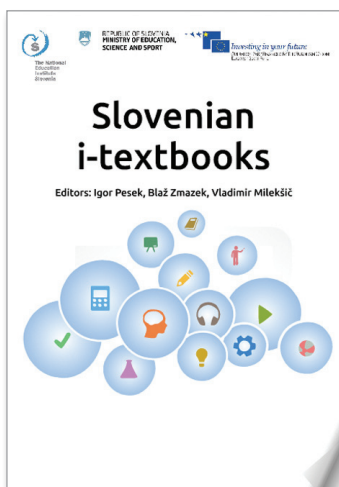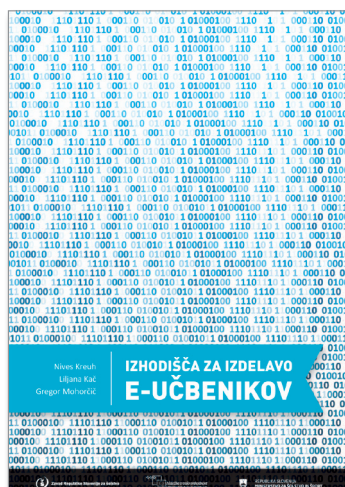
An interactive textbook is a e-textbook with interactive elements added, which can be of low, medium or high level. It is the **interactive elements** which give additional value to the textbook, because they form a more efficient and stimulating learning environment, which is not possible with common printed or digitalized textbooks, despite their being enriched with images and video.

Interactive textbooks already approved by the Council of experts of the Republic of Slovenia for General education are: **Physics, Chemistry, Mathematics, Natural Sciences, Natural Sciences and Technology for the 2nd and 3rd cycle of primary school (primary and lower secondary level), and the general upper secondary school.**

An interactive textbook is a textbook and a workbook in one. It is intended for students' independent learning, containing elements for acquiring new knowledge, as well as for revising, reviewing, evaluating and deepening the knowledge.

They are freely available at: **https://eucbeniki.sio.si/**.

Within the project **E-Textbooks for Science Classes in Primary School** (2011–2014) the existing e-materials for natural sciences and mathematics have been upgraded into didactically fresh interactive textbooks. Didactical basing points and guidelines for the design of interactive textbooks have also been prepared. Together with technical-organizational outlines, they are the basis for the further development of Slovenian i-textbooks. More at: **http://www.zrss.si/digitalnaknjiznica/slovenski-i-ucbeniki/**.

e-Schoolbag / i-textbooks for Social Sciences, Languages, Music and Fine Arts

The preparation of interactive textbooks within the project e-Schoolbag was based on the developed e-materials in the past and interactive textbooks in the project E-Textbooks for Science Classes in Primary School. In i-textbooks, low-level interactive elements are multimedia elements (images, video clips, sound, animations, simulations, etc.). Medium-level elements are various tests, such as true/false, multiple choice, gap-fill, etc.
Applets and didactic games are high-level interactive elements.

Within the project e-Schoolbag interactive textbooks for **grades 8 and 9 of primary school (lower secondary level), and the 1st year of general upper secondary school have been developed for the following subjects:**
• Slovenian,
• English as FL 1,
• German as FL 2,
• Geography,
• Music and
• Fine Arts.

Interactive textbooks are freely available at **https://eucbeniki.sio.si/**.
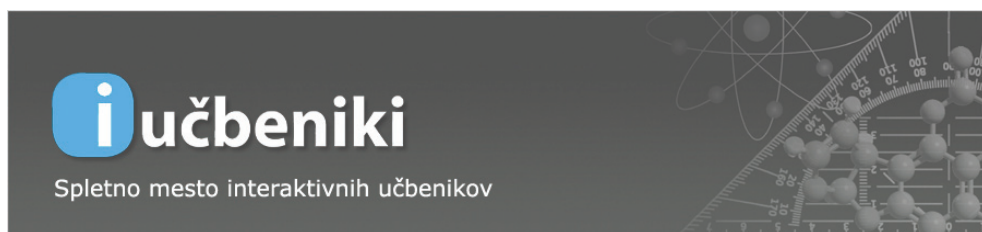
The basic purpose of the project **e-Schoolbag** (2013-2015) is the development of e-services and e-content in Slovenian language, testing them in pilot schools, establishing adequate infrastructure, as well as providing didactical and technical support for the application of e-services and e-contents in the teaching and organizational-managerial process in educational institutions.
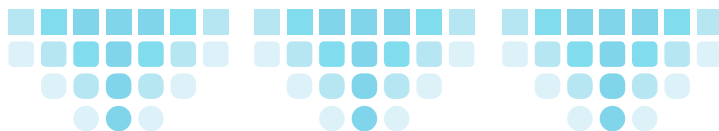
e-Schoolbag / E-module, Edustore, Clients, e-services
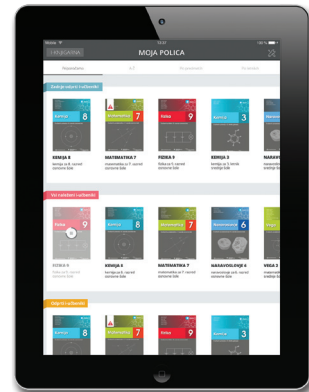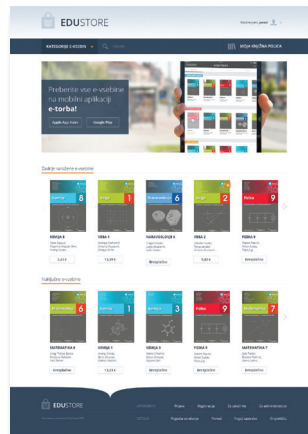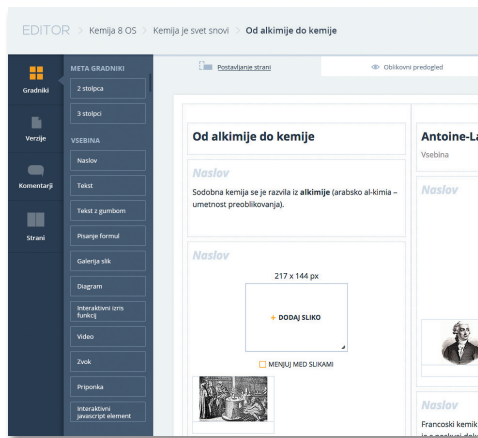
E-module
is a web editor, which has been designed for the preparation and production of up-to-date interactive textbooks and other learning materials.

Edustore
is a distribution channel offering a set of various e-contents. It can be used by teachers and other creators of e-contents, as well as publishers.

Clients
are services which provide access to e-contents for the Windows, Android and iOS operational systems and all kinds of mobile devices.

6

Within the project e-Schoolbag the following **e-services** have been developed and upgraded:

- filesender
- planner
- moodle

- VOX
- web
- cyclist

- clicker
- folder

- survey
- portfolio

E-module, **Edustore**, **Clients** and other **e-services** are licensed as freeware and open source software, so they are freely available. By means of them teachers can easily create and publish modern interactive learning materials.
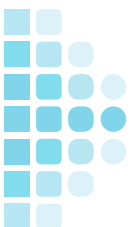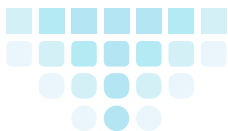
e-Schoolbag / a pilot project, two booklets

With the professional support of the NEIS consultants, teachers in pilot projects planned and carried out lessons, as well as developed, evaluated and supplemented the existing teaching and learning models with e-contents and e-services.

Their solutions have been documented in two professional publications.

Booklet I: **What Is in There for Us in the e-Schoolbag, a booklet of the closing conference of the project e-Schoolbag**. It brings an outline of work done in the project, methodical-didactical recommendations for the application of e-contents in the learning and teaching process, as well as some practical examples.

Booklet II: **What Is in There for Us in the e-Schoolbag, examples of application of e-contents and e-services in lessons of various subjects in primary and secondary schools, as well as the evaluation of the project**. It presents examples of teachers' lessons preparations, which include the use of e-contents and e-services for various subjects in primary schools and general upper secondary schools. The booklet contains also some findings of the project evaluation.
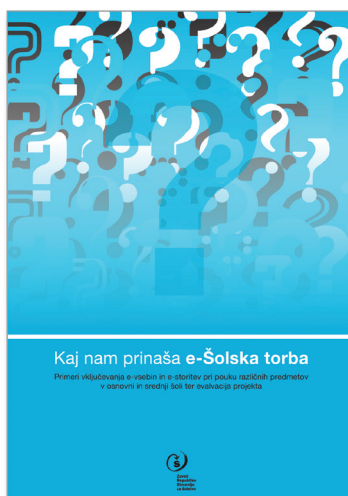
Both publications present the experiences of the contributing teachers, examples of different application possibilities of e-contents and e-services and the evaluation. They are available for all who would like to enrich their lessons with new findings or improve their knowledge and skills in teaching practice.

e-Schoolbag / a pilot project - evaluation

Feedback on the inclusion of e-content and e-services into learning process

According to the data gathered from almost 200 lesson observations of different subjects, which were carried out during the years 2014 and 2015, the observers reported the following:

More than a half of students use e-textbooks and e-materials sensibly when revising.
This outcome is probably a consequence of the fact that more than a half of teachers dedicate their time to the preparation of students for individual work and learning by means of e-textbooks and e-materials.

A lot more could be done for the application of e-contents in the area of individualization and differentiation.
In this particular area of learning and developing students' skills ICT should be applied more often and more targeted.

From the data analysis of 1,100 questionnaires (April 2014), with answers of students from 48 primary schools and 10 general upper secondary schools, we found out:

More than a half of the students surveyed like using e-textbooks, reading and learning new contents and doing tasks during lessons.
This positive attitude can be attributed to higher motivation of students when working with i-textbooks on e-devices.

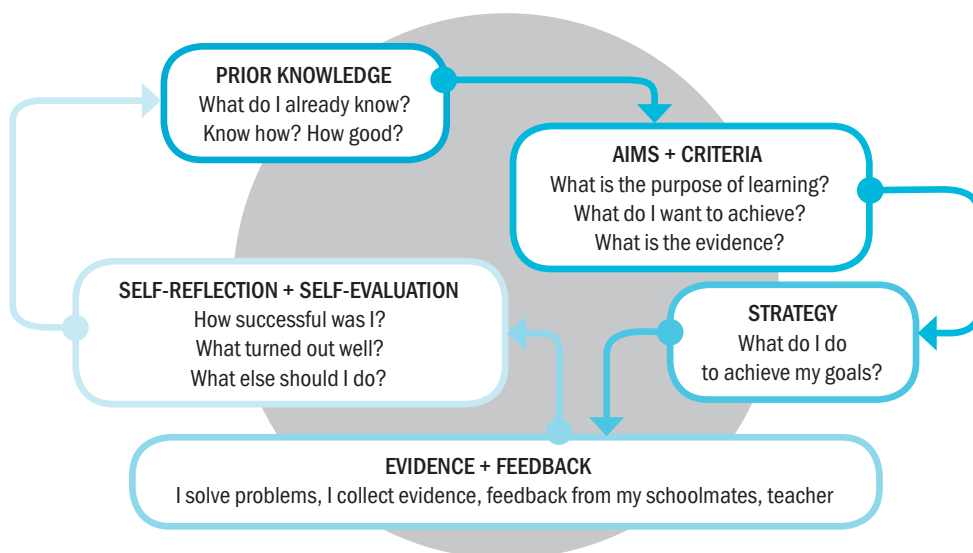**39% of students prefer printed textbooks when learning at home.**
We speculate that this is so because reading from an e-device is more demanding than linear reading from a printed textbook. Application of i-textbooks requires the students to adapt their way of learning, and this needs some additional time.

EUfolio / developmental e-portfolio, booklet, examples of promising practice, My learning

The developmental electronic portfolio is a student's personal learning space, in which he/she **plans and assesses his/her own learning and progress in gaining new knowledge and skills**. It is based on the philosophy of formative assessment of knowledge and skills. It can also be used by a teacher as a means of **support of his/her own professional development**.

PRIOR KNOWLEDGE
What do I already know?
Know how? How good?

AIMS + CRITERIA
What is the purpose of learning?
What do I want to achieve?
What is the evidence?

SELF-REFLECTION + SELF-EVALUATION
How successful was I?
What turned out well?
What else should I do?

STRATEGY
What do I do
to achieve my goals?

EVIDENCE + FEEDBACK
I solve problems, I collect evidence, feedback from my schoolmates, teacher

Materials – i.e. a collection of ideas on how to (by means of the e-portfolio) stimulate learning of various contents and four different key competences (critical thinking, working with information resources, collaboration and communication, and creativity) in the majority of subjects in primary school, are available at **eufolio.si**, whereas international examples can be reached at **http://www.eufolio.eu**. The booklet of examples of good practice of the Slovenian teachers is available in the Digital Library of the National Education Institute of Slovenia at **http://www.zrss.si/digitalnaknjiznica/eportfolio-of-student/**.

ePORTFOLIO
OF A STUDENT
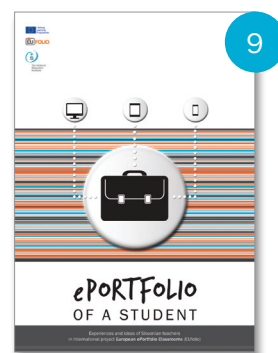
The **"My Learning" tab** (Mahara at **listovnik.sio.si**) contains a guide which leads the student through thinking about different viewpoints and stages of learning, thus enabling him/her to develop the skill of self-reflection and self-regulation, i.e. it acts as a stimulus for taking over the responsibility for the learning process and the learning outcomes.

Within the international project **European ePortfolio Classrooms – EUfolio** (May 2013–April 2015) we researched how teachers by means of developmental electronic portfolio can stimulate students to develop their skill of self-regulation and thus taking over the responsibility for student's own learning.

Innovative pedagogy 1:1 in the light of the 21st Century Competences / Guidelines for the use of ICT in individual subjects, a yearly (thematic) preparation template

In order to support planning students' learning activities, we prepared **guidelines for the use of ICT** (e-contents and e-services) **for individual subjects**, which consist of the following elements:

A Extracts from curricula regarding the use of ICT and incorporation of competences …

B Additional didactic guidelines for the use of ICT in the subject

**B1** An outline of selected (possible) students' activities with the meaningful use of ICT (+ links to illustrative, tested examples)

B2 A list of or access to existing e-materials and e-services for the subject)
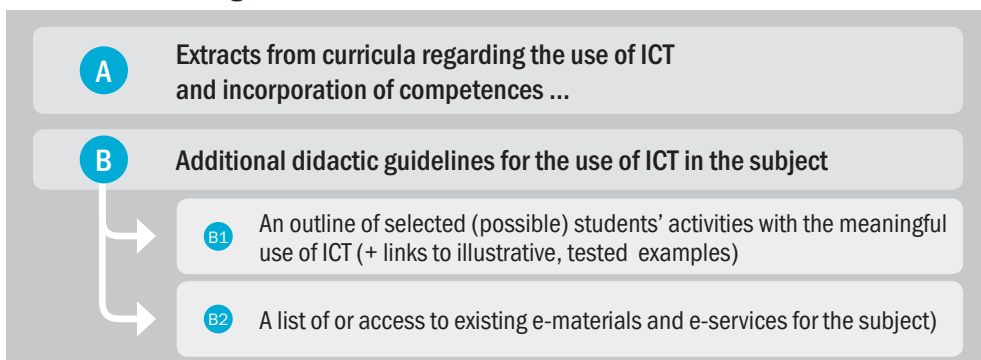
The guidelines are a "live" document and are constantly updated; they can be used for learning and teaching with ICT. In the e-school we would like to emphasize well-thought-out, functional, innovative ICT-supported students' activities which lead to better knowledge. The key role is given to planning the activities, so we prepared a slightly modified **yearly preparation template**, which has also served as the basis for the preparation of curricula for implementation, with the emphasis on ICT-supported activities of students.

| A yearly preparation template					
Objectives	Contents	Number of lessons	Students' activities (description with the main method) —> underlined - activities with ICT	Required ICT skills, e-contents and e-services	Auto-nomuous home work with ICT
M O N T H					

The central aim of the project **Innovative Pedagogy 1:1 in the Light of 21st Century Competences** (2013-2015) was to develop innovative approaches for the ICT-supported teaching. The results of the project (guidelines, curricula for implementation, examples of good practice) are available at **http://inovativna-sola.si**.
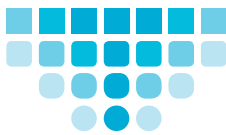
Creative Clasrooms Lab / learning scenario template,
virtual learning space, interactive didactic game, examples,
recommendations for teachers, website

Innovative learning scenarios for project-based collaborative work with the use of ICT in 1:1 pedagogy provide individualization, collaboration, interactivity, innovative use of ICT and openness of learning in time and space.

The template anticipates the following student's activities: design, research, planning, creating, searching for information, improvement and presentation. It is important with each of these activities that the teacher monitors the students' work (groups, individuals), guides them and encourages them to reflect, as well as that he offers them quality feedback on their work and knowledge.

MAKE
4

ASK
5

RE-MAKE
6

SHOW
7

DREAM
1

EXPLORE
2

MAP
3

11
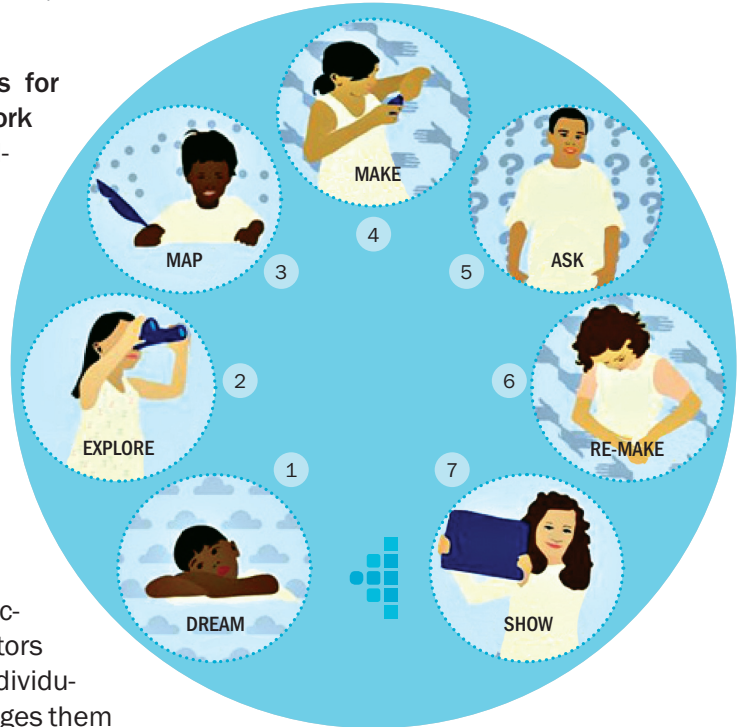
Based on tested and evaluated practice examples, **didactic recommendations** have been designed for teachers on how to apply ICT effectively when planning, implementing and evaluating project-based collaborative work, the main aim of which is to guide the students towards useful and permanent knowledge in the era full of unprecedented challenges.

Einstein, do not get angry
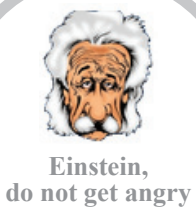
In order to support systematic reflection of students and teachers on the activities, a didactic game for checking knowledge called *Einstein, do not get angry*, has been developed (**http://el.fri. uni-lj.si/ludo/**).

Learning scenarios with the evaluation and other materials can be reached on the Creative Classroom website: **http://www.zrss.si/ustvarjalni-razred/**; the materials from other countries are available at **http://creative.eun.org/**.

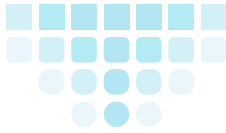# IN PROGRES ...

MENTEP / purpose, aims, expected results

MENTEP – Mentoring Technology-Enhanced Pedagogy (2015–2018) is a policy experimentation project which was designed and agreed between the European Schoolnet and 30 European school ministries. The output of the experiment will be a self-assessment tool for measuring teachers' technology-enhanced teaching competence, the system solution for such measuring, as well as design of teachers' professional development for the use of ICT across countries.

The teachers will be able to:

- **measure their technology-enhanced teaching (TET) competencies**, which will be comparable to teachers from other countries, and get feedback on their strong and weak areas in applying ICT for teaching
- **self-assess their progress** in acquiring TET competences
- use professional support in an **eco-system**, which will provide continuing professional development for them.

Project outcomes:

- **online self-assessment tool for measuring TET competencies** indicating their strong and weak areas in applying ICT for teaching
- an internationally comparable eco-system to support continuing professional development
- international actions in the field of teachers' professional development for the improvement of digital competences for teaching.

Project web page: **http://mentep.eun.org**/.

ATS 2020 / purpose, aims, expected results

The international project ATS 2020 – Assessment of Transversal Skills – formative assessment of transversal skills supported by ICT (2015-2018) is an upgrade of the EUfolio project.

In the project, teachers will develop **strategies by means of which they will be able to systematically stimulate and assess the selected transversal skills** (e.g. critical thinking, collaboration, communication, digital skills, creativity, etc.) supported by ICT.

Students will construct their **own developmental e-portfolio**, thus being involved in all stages of the learning process: from raising the self-awareness of prior knowledge, presenting skills, planning outcomes, setting the success criteria, co-planning of strategies, collecting evidence and feedback on their activities or products, to the interim and final evaluation of progress.

The expected project outcomes are a **variety of authentic tasks** oriented towards stimulating the transversal skills in various subjects, a number of current teaching preparations with corresponding teaching materials, a project website, teachers' evaluation reports about the project effects, video material with the emphasis on the students' and teachers' experience, etc.

Project web page: **http://www.ats2020.eu/**.

CG = Consultancy Subject/Education Group
RU = Regional Unit

CG

Slovenj Gradec
RU

CG

CG

Special
Education
Needs

Novo mesto
RU

CG

CG

Professional
Development

NEI
Management

CG

Murska Sobota
RU

CG

CG

Secondary
School
Education

Quality
and Research

CG

Nova Gorica
RU

CG

CG

Pre-school
Education

CG

CG

Primary
School
Education

CG

Koper
RU

CG

Administration
and Services

CG

CG

CG

Kranj
RU

CG

Ljubljana
RU

CG

Maribor
RU

CG

Celje
RU
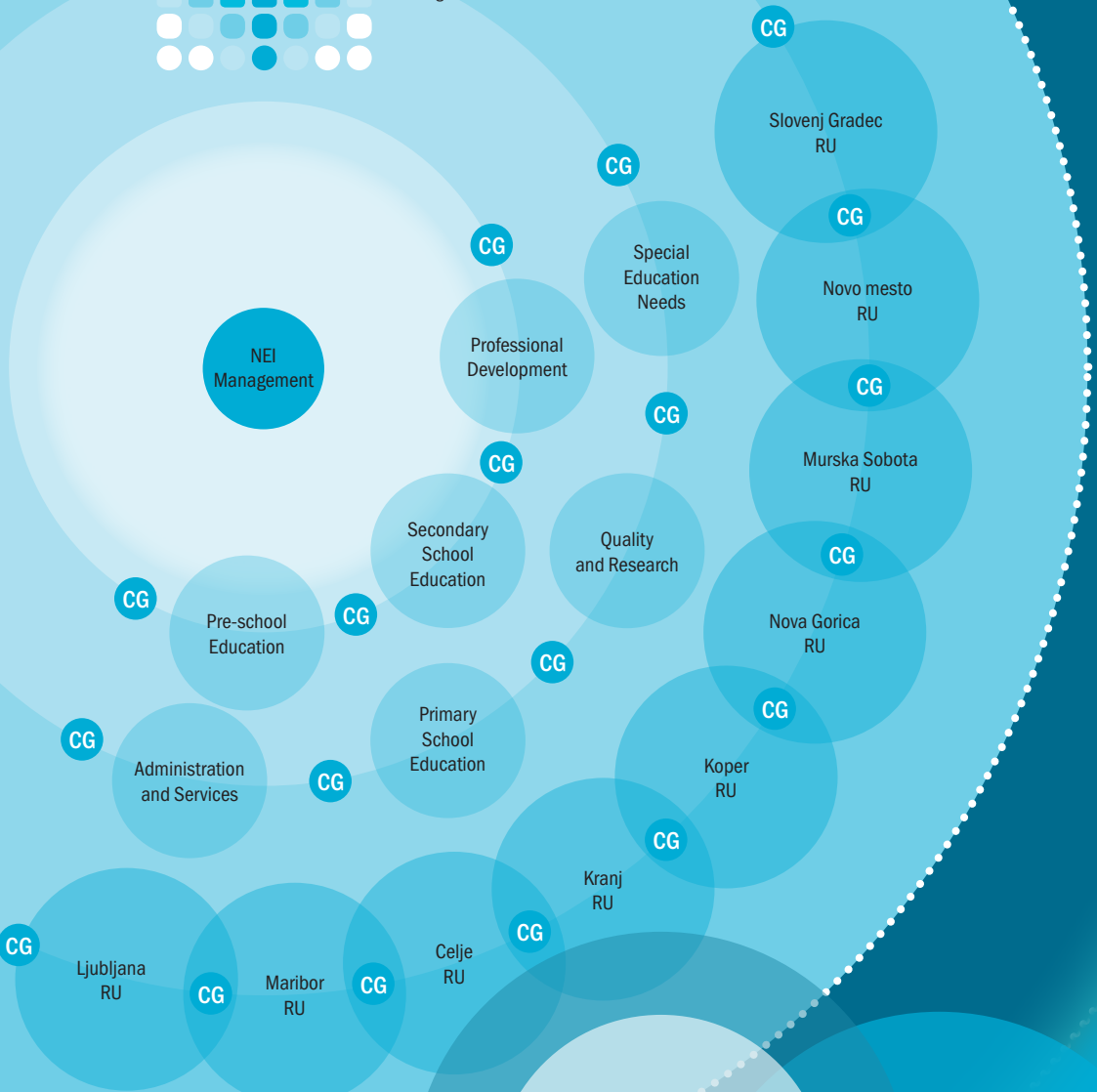
Kindergartens,
schools
and other
educational
institutions

IMPLEMENTION LEVEL

Ministry of Education,
Science and Sport
and other ministries

NATIONAL LEVEL

Higher Education,
public authorities
and other
institutes

International
networks
and organisations

INTERNATIONAL LEVEL

The National Education Institute /
About us

Who are we?

The National Education Institute of the Republic of Slovenia is the main national research and development institution in the field of pre-school, primary and general secondary education.

What do we aim for?

- To improve the knowledge and achievements
- To improve the results of learning and teaching
- To improve the quality of life-long learning

What do we do?

- Prepare expert documents
- Set up system conditions
- Develop quality education
- Encourage professional development
- Develop good school practice together with kindergartens and schools
- Monitor and evaluate novelties
- Collaborate internationally
- Cooperate with Slovenian schools and other educational institutions
- Perform other tasks in collaboration with the Ministry of Education, Science and Sport

Everything that constitutes our life and work is gradually gaining the prefix "e-". The pressure of e-lectrification is immense. Is the path already an objective?

* http://sirikt2014.splet.arnes.si/2014/05/sinergija-e-projektov/

www.zrss.si • @zrss_si

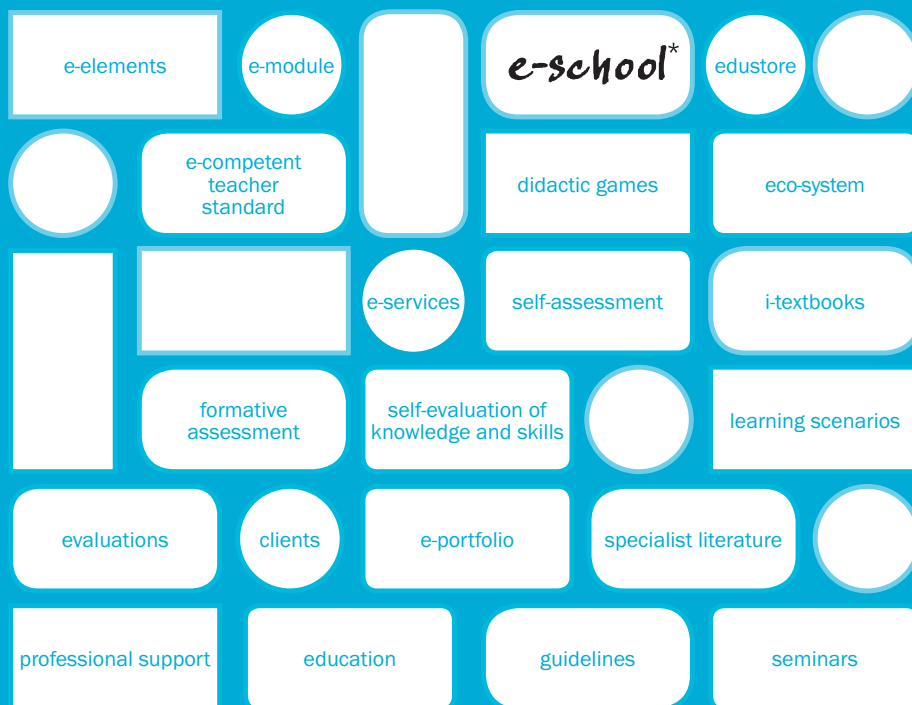**The National Education Institute Slovenia**

"Knowing is not enough; we must apply.
Willing is not enough; we must do."

J. W. Goethe

e-elements

e-module

e-school*

edustore

e-competent teacher standard

didactic games

eco-system

e-services

self-assessment

i-textbooks

formative assessment

self-evaluation of knowledge and skills

learning scenarios

evaluations

clients

e-portfolio

specialist literature

professional support

education

guidelines

seminars

*A diagram of all the solutions on the way towards the e-competent school

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MINISTRY OF EDUCATION,
SCIENCE AND SPORT

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OPERATION PART FINANCED BY THE EUROPEAN UNION
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