



Blending **academic** and **entrepreneurial** knowledge  
in technology enhanced learning



## BAEKTEL - an OER network

2nd Internet of Education workshop 2015  
Sarajevo, September 18, 2015

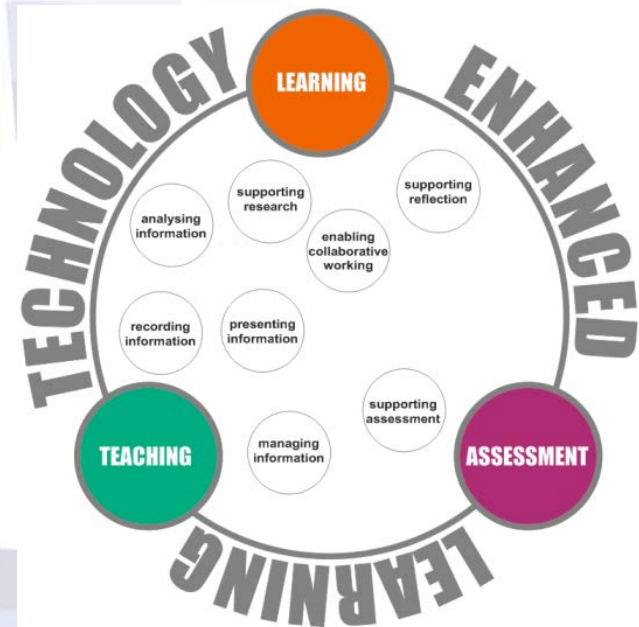
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# Overview

- Technology enhanced learning
- Open educational resources(OER)
- OER in Serbia
- Tempus project BAEKTEL - goals
- Publishing OER content in edX
- Finding OER content with ResourceSpace
- Conclusions

# Technology Enhanced Learning (TEL)

- Different educational activities in which ICT play an important supporting role
- Enhancing the quality of learning and learning results using modern e-Learning technology
- Design of efficient interactive TEL environments is a demanding task



# Open Educational Resources (OER)



- Educational content, research materials, best practice examples
- Freely accessible in electronic format
- Published under licenses that allow for their free use, reuse and distribution
- Targeted for students and self-learners

# Advantages of OER content



- High level of accessibility of learning materials
- Continuous and easy modification of content once it has been created
- Reduction of learning costs
- Convenient for creation of content for people with special needs
- Promote institutions and individuals who publish them

# OER in Serbia

- Not yet recognized in official documents
- Awareness of the importance of OER, opportunities they offer, methods of development and implementation, and the use thereof needs to be raised
- Existing regulations open the possibilities for the development of OER but need further improvement at the national and institutional level in compliance with OER regulations in Europe

# Information Society Development Strategy in Serbia up to 2020

- Adopted by the Government of Serbia in 2010
- Fosters application of information technology in education
- Emphasizes the development of digital educational content as one of the main goals to be achieved
- Refers to the introduction of modern concepts of e-learning and open distance learning

# Education Development Strategy in Serbia up to 2020

- Adopted by the Government of Serbia in 2012
- Criticizes traditional tendencies of the education system for independence from other systems and promotes its openness
- Specifically targets openness and accessibility of higher education
- Provides opportunities for legal regulations for the realization of ideas related to OER



# The Law on Higher Education in Serbia

- Declares openness of higher education towards all citizens and general public as one of its main principles
- Complies with the European system of higher education specifically promoting academic mobility of faculty and students
- Provides a starting point for the development and implementation of OER through alignment with successful European practices and academic mobility

# Initial activities towards OER

- In 2005 Wikimedia Serbia was founded with the aim to allow free exchange of knowledge and participation in gathering educational content
- Within Wikimedia Serbia the Creative Commons Serbia project was launched and national CC standards were adopted in 2007
- Khan Academy Serbia has started the translation of Khan Academy instructional videos in 2013, mainly on mathematics, but also from other fields, but the project is now stalled
- In 2013 the Balkan Distance Education Network (BADEN) became the Epprobate (first international quality label for eLearning courseware) national partner for WB region
- In March 2014 University of Belgrade library Svetozar Markovic organized a seminar of open access to education, open education and massive open online courses
- By the end of 2014 University of Belgrade Center for eLearning and distance education was established

# TEL at the University of Belgrade



Centar za  
Elektronsko  
Učenje  
Univerziteta u Beogradu

- Several faculties at the University of Belgrade already use Moodle open source software for blended learning
- University of Belgrade Center for e-Learning and Distance Education was established in 2014
- Main goals:
  - Development of a quality assurance system for university distance learning study programs
  - Development of competency standards needed for educators in the domain of educational technology
  - Creation of national and international development programs for distance learning and related projects
  - Development of distance learning programs for persons with special needs
  - Development of electronic textbooks
- The services of the Center can be used by other educational institutions and business enterprises

# Tempus project BAEKTEL – main goals

- *Blending Academic and Entrepreneurial Knowledge in Technology Enhanced Learning* (<http://baektel.eu/>)
- Development of a TEL environment for creating publishing and searching OER content by academic and entrepreneurial organizations in different formats and different languages
- Universities create educational content intended for lifelong learning of employees within enterprises
- Enterprises create best practice examples intended for enhancing the academic education of students
- Enable search of available content described by metadata



# BAEKTEL consortium

- Six Western Balkans universities: Belgrade, Kragujevac, Niš (RS), Banja Luka, Tuzla (BH), Mediterranean (MN)
- Three EU Universities: Basilicata (IT), Iasi (RO), Ljubljana (SLO)
- Two large companies operating in the region: NIS -Gasprom Njeft (RS), ArcelorMittal Prijedor (BH)



# Publishing of OER content

- edX- open access platform for publishing OER (<http://edx.baektel.eu>)



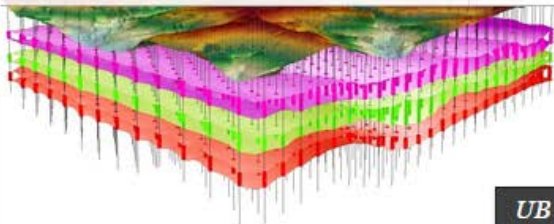
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*for anyone, anywhere, anytime*



GIS2014 ArcGIS: istrazne busotine i 3D vizualizacija →



UB

2 Upoznajmo edX →



G15 Geostatistička procjena eksploatacionih rudnih rezervi →



Sl.9. 3D model - presjek bušotina i rudnog tijela

ArcelorMittal

# OER content in edX

## 1. UVOD

## 2. 3D PRIKAZ BUŠOTINA

## 3. KREIRANJE GEOLOŠKIH I RUDARSKIH POVRŠI

### 3.1. Gridovi i triangulacija

### 3.2. Kreiranje rasterskih površi

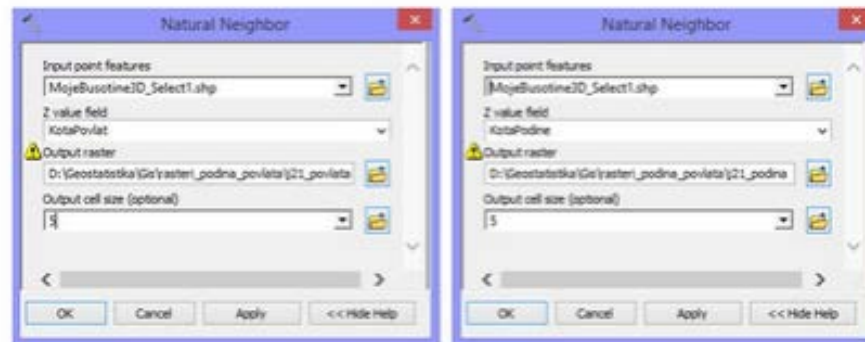
### 3.3. Kreiranje DSM-a i DTM-a

### 3.4. Kreiranje rastera podina i povlata slojeva

## 4. ARCSCENE: 3D VIZUALIZACIJA RASTERA



Dvoklikom otvorite alat Natural Neighbor da bi izvršili posljednja podešavanja. Polje Input point features je već popunjeno varijablom MojeBusotine3D\_Select1.shp, pošto smo prethodno izvršili povezivanje. U Z value field unesite KotaPovlat, u Output raster definišite putanju na folder Rasteri\_podina\_povlata i dodajte naziv j21\_povlata, Output cell size postavite na 5. Za objekat Natural Neighbor (Z) izaberite KotaPodine i za naziv postavite j32\_podina (Slika 3.21). Slika 3.22 prikazuje izgled krajnjeg modela.



Slika 3.21 Popunjavanje Natural Neighbor tool-a



# Advantages of edX platform

- Easy creation and modification of lessons, videos, tasks, texts....
- Combining of different components in one lesson
- Wide range of tasks in different formats
- Detailed description of learning materials
- Monitoring of student progress



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# Searching OER content

- ResourceSpace – open source software for managing digital content (<http://meta.baektel.eu>)



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MANUAL  
Manual for teachers

## Simple search

Search using descriptions, keywords and resource numbers

- All resources
- Photo
- Document
- Video
- Audio
- Course
- Tests

### Keyword

### By date

Any year

Any month

Clear

Search

> [Geographic search](#)

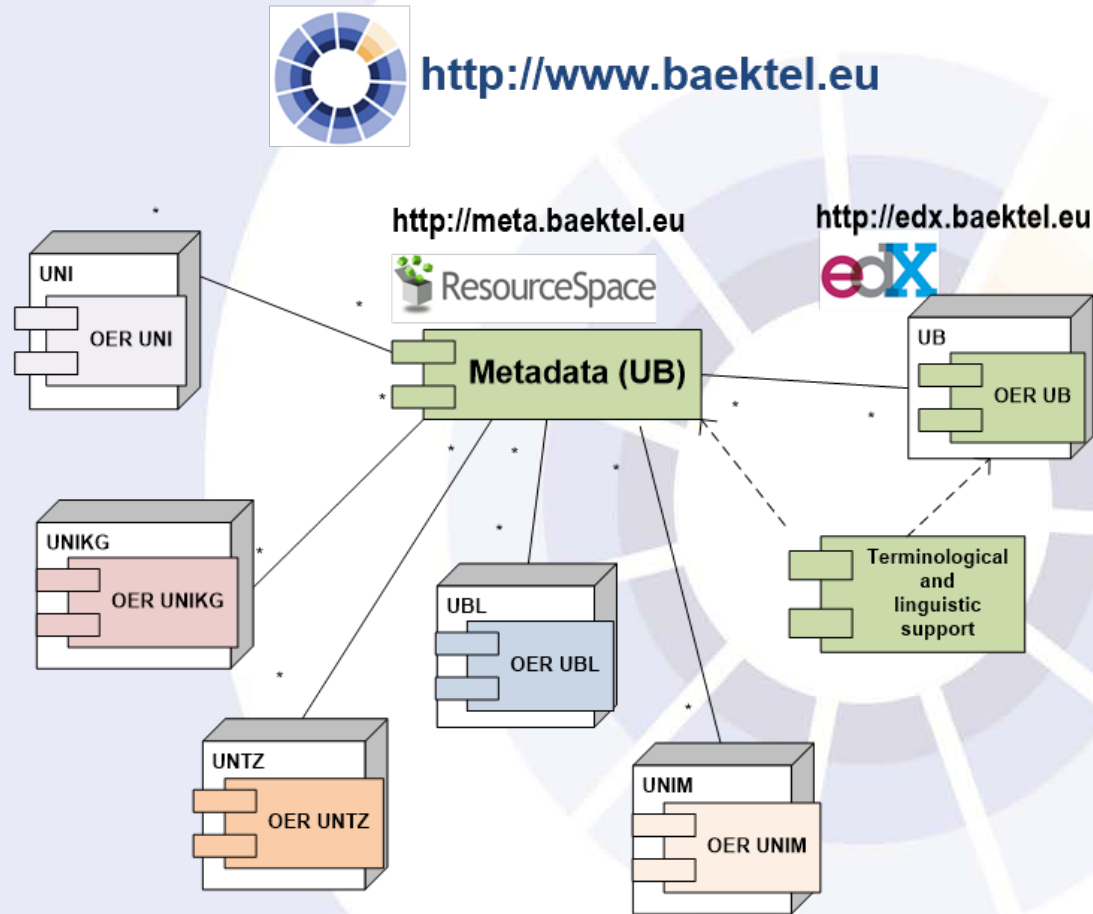
Welcome to the BAEKTEL metadata portal

# ResourceSpace characteristics

- Intelligent search – ranking of resources by each keyword used in the search
- Possibility of grouping resources
- Distribution of access rights according to user groups
- Multilingualism – interface exists in several key languages
- Flexible metadata scheme



# Conceptual map of BAEKTEL network



# Metadata



- „Data describing other data“ or “data about data”
- If OER are perceived as data then their descriptions are metadata
- Metadata for OER facilitate their search, acquisition, use and reuse
- Typical OER metadata are: title, author(s), version, date of creation, technical requirements and educational context, goal,...

# Metadata example



No.	Proposed Elements	Vocabulary	Mandatory/ Optional	Cardinality
1	Title	-	Mandatory	Not-Repeatable
2	Creator	-	Mandatory	Repeatable
3	Description	-	Optional	Repeatable
4	Language	Vocabulary (eng, rus,srb...)	Mandatory	Repeatable
5	Date	-	Mandatory	Not-Repeatable
6	Format-	Vocabulary (Electronic Document, Paper only, Document, Slides, Website, CD-Rom/DVD, Audio, Video)	Mandatory	Repeatable
7	Interactivity Level	Vocabulary (very low, low, medium, high, very high)	Optional	Not- Repeatable
8	Context	Vocabulary (School, Higher Education, Training, other)	Optional	Repeatable
9	Intended End User Role	Vocabulary (Learner, Teacher, Manager, Supervisor)	Optional	Repeatable

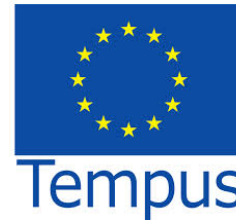
# Conclusions

- TEL opens new possibilities for enhancing higher education through implementation and promotion of e-learning platforms as well as OER
- In Serbia OER recognition and development is still in its initial phase
- University of Belgrade recognized the importance of introducing new technologies into HE and established its Center for e-Learning and Distance Education for their systemic implementation
- The BAEKTEL project is expected to contribute to the enhancement of the quality of HE by publishing OER in cooperation with interested companies



# BAEKTEL

Blending academic and entrepreneurial knowledge  
in technology enhanced learning



Thank you for your attention

Grazie per la vostra attenzione

Vă mulțumesc pentru atenție

Hvala za vašo pozornost

Hvala na pažnji

Хвала на пажњи

