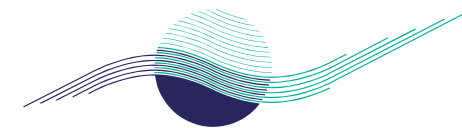




REPUBLIKA SLOVENIJA
MINISTRSTVO ZA IZOBRAŽEVANJE,
ZNANOST IN ŠPORT

Letni posvet koordinira:



Andragoški center Republike Slovenije
Slovenian Institute for Adult Education

Letni posvet o izobraževanju odraslih 2020

17. in 18. november 2020, prek spleta, web.acs.si/lp2020

Umetna inteligenca in prihodnost vseživljenjskega učenja

Mitja Jermol

UNESCO katedra o odprtih tehnologijah za prosto dostopne izobraževalne vire in odprto učenje,

Institut Jožef Stefan

Mehanistični (Taylorjev) sistem



Letni posvet o izobraževanju odraslih 2020
<https://web.acs.si/lp2020>



Izzivi vseživljenskega izobraževanja

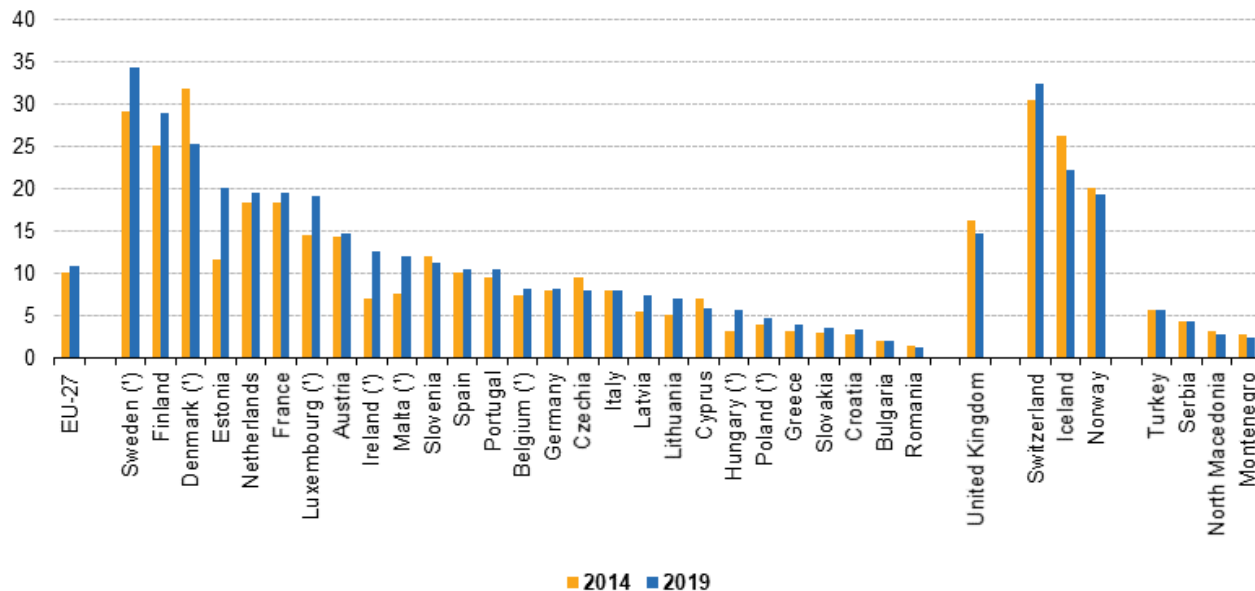
- Učni izzivi:
 - Motivacija: nuja proti želji
 - Relevantnost in veljavnost potrdil o znanju
 - Težave pri razumevanju vsebine in pomankjanje predznanja
 - Tesnoba učencev glede uspešnosti, pomankjanje samozavesti in vztrajnosti
- Planiranje časa – delo, družina, prosti čas, izobraževanje
- Tehnični izzivi:
 - pomankjanje digitalnih kompetenc
 - otežen dostop do primernih učnih vsebin, ItKT infrastrukture in orodij
- Izzivi povezani z delom in službo:
 - Preobremenjenost na delu
 - Organizacijske ovire
- Izzivi povezani z učiteljem/predavateljem
 - Nizka učinkovitost in pogostost komunikacije
 - Pomankjanje motiviranja in usmerjanja
 - Občutek izolacije: samoučenje vs. skupinska in socialna interakcija



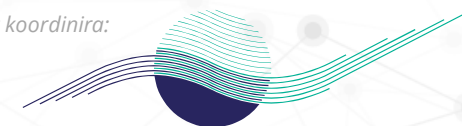
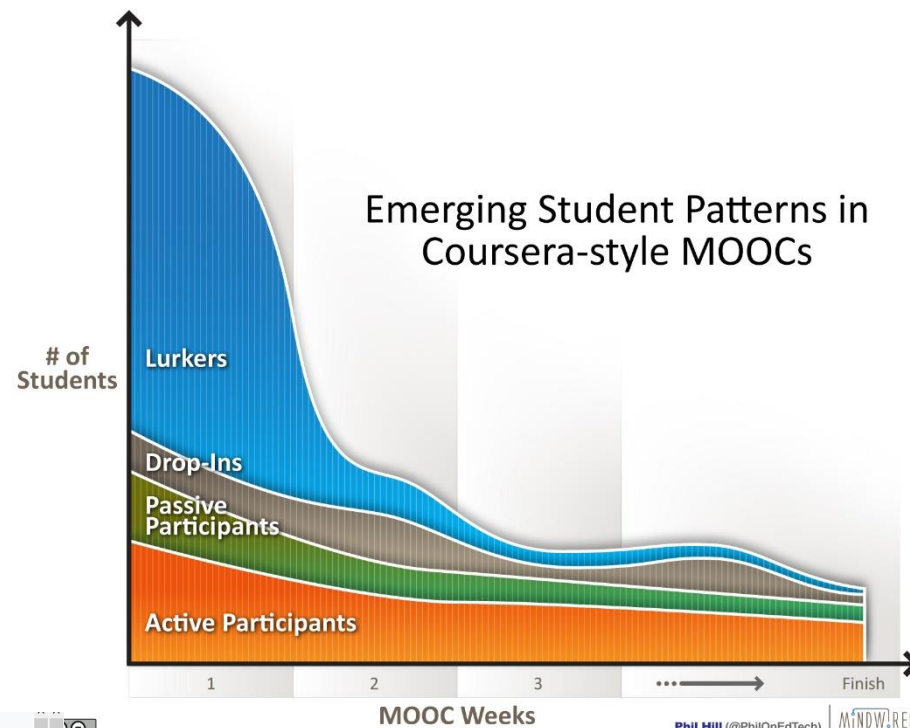
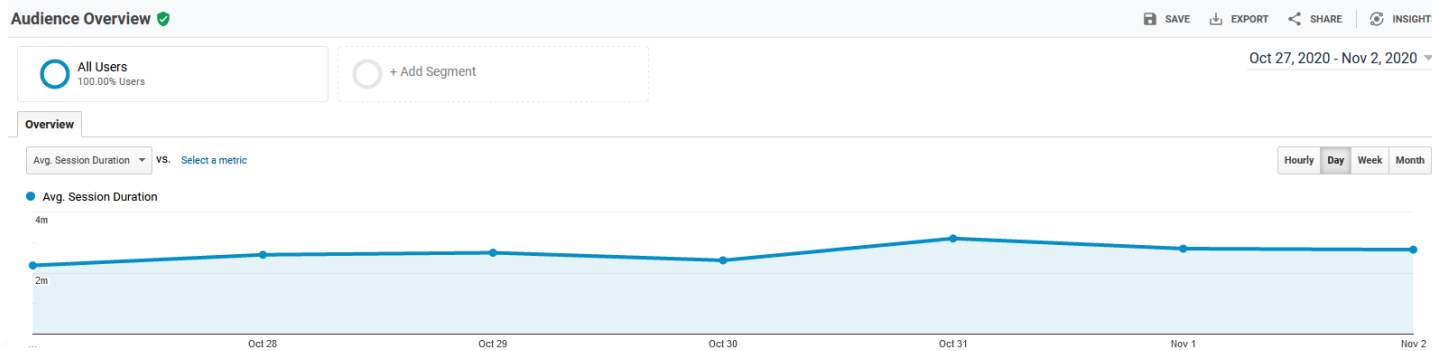
Posledice

Adult participation in learning, by country, 2014 and 2019

(% of population aged 25 to 64)



Source: Eurostat (online data code: sdg_04_60)



Kaj pa če

Sistem:
profiliranje,
specializacija

VzI

AC

SS

PrS

PS



Oseba:
personalizacija

Adaptivno (socialno) učno okolje



Letni posvet o izobraževanju odraslih 2020
<https://web.acs.si/lp2020>

Letni posvet koordinira:



Andragoški center Republike Slovenije
Slovenian Institute for Adult Education



Odprto izobraževanje

Motivacija in cilji

Odprte Univerze

Odprta akreditacija

Odprto nagrajevanje

Odprti poslovni modeli

Prosto dostopni učni viri

Odprte licence

E-Učbeniki

Odprte organizacije MOOCs

Odprtokodne rešitve

Integrirane institucije in okolja

Odprta inteligentna okolja

Odprta zakonodaja

Odprti softver

Prosti dostop

OER

Odprti kurikulum

OCW

Letni posvet koordinira:

Individualizacija

Letni posvet o izobraževanju odraslih 2020
<https://web.acs.si/lp2020>



Transformacija izobraževanja

FORMALNEN

MASOVNI

POENOTEN

RIGIDEN

KVANTITETA

MEHANISTIČNI (PODAJANJE)

VODEN



KOMBINIRAN

INDIVIDUALIZIRAN

VEČJEZIKOVEN, VEČKULTUREN

DINAMIČEN

KVALITETA

SOCIALNI (IZMENJAVA)

VKLJUČUJOČ



ODPRT

Odprta infrastruktura (fizična in virtualna)
Odprti izobraževalni viri
Odprta programska oprema
Odprte organizacije

Odprti učni načrti
Odprte politike
“Odprte glave”

ROBUSTEN

Varen in zanesljiv
Učinkovit
Vseprisoten

Vključujoč

TRANSPARENTEN

Transparentni programi
Transparentni procesi
Transparentne institucije

Transparentne relacije
Transparentne odločitve

ADAPTIVEN

Prilagojeno posamezniku in kontekstualizirano učenje
Nevsiljiv
Podporen, proaktiven in posamezniku v pomoč

PERSONALIZIRAN

Oseben in varen

Internet izobraževanja

Politike

Formalno okolje, pravila, organizacija, zagotavljanje in ocenjevanje kakovosti, financiranje ...

Modeli dodane vrednosti

Certificiranje, kvalifikacije, competence,...

Programi

Učni programi, učni načrti, akreditacije, ...

Metode in storitve

Izobraževalna orodja in storitve, orodja za sodelovanje in izmenjavo, učna analitika, didaktika, metodologije, učni prisopi in modeli,...

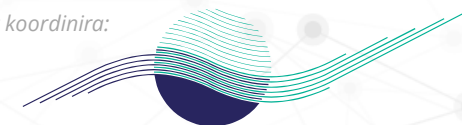
Vsebina

E-vsebine, učbeniki in učna gradiva, podatki in referenčna gradiva, TV oddaje, audio knjige, članki, ...

Infrastruktura

Informacijska infrastruktura, stavbe, inštitucije, učna okolja,, naprave in senzorji, laboratoriji, ...

Letni posvet koordinira:



Andragoški center Republike Slovenije
Slovenian Institute for Adult Education



Infrastruktura na svetu (ocene)

Število **šol**: 1.2 million

Število **visokošolskih inštitucij**: >20.000

Število **učiteljev**: >80 million

Število **komercialnih učnih okolij**: >700

Število **oddaljenih laboratorijev**: >1500

Število **knjižnic**: >400.000

Število **knjižnih naslovov**: 130 million / 1.5 million učenikov

Število **odprtih izoraževalnih virov**: >2 miliarde

Število **Wikipedia** člankov: >5.7 million

Število **DBpedia** entitet: >4.5 million, >4.2 million in ontology, >5 billion RDF

Število **Cyc** konceptov: 450.000

Število **znanstvenih člankov** na leto: >2.5 million

Število **člankov** v medijih na dan: >2 million

Število **online učnih repozitorijev**: > 8.000

Število **TV kanalov**: > 27.000

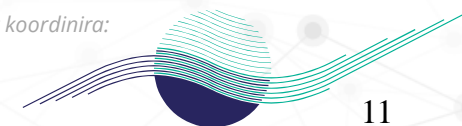
Število spletnih strani: >1.8 miliarde

Število.....

Registered sites	101,943
Countries	229
Courses	16,046,801
Users	138,286,280
Enrolments	620,032,477
Forum posts	291,154,649
Resources	141,972,412
Quiz questions	983,250,787

Letni posvet o izobraževanju odraslih 2020
<https://web.acs.si/lp2020>

Letni posvet koordinira:

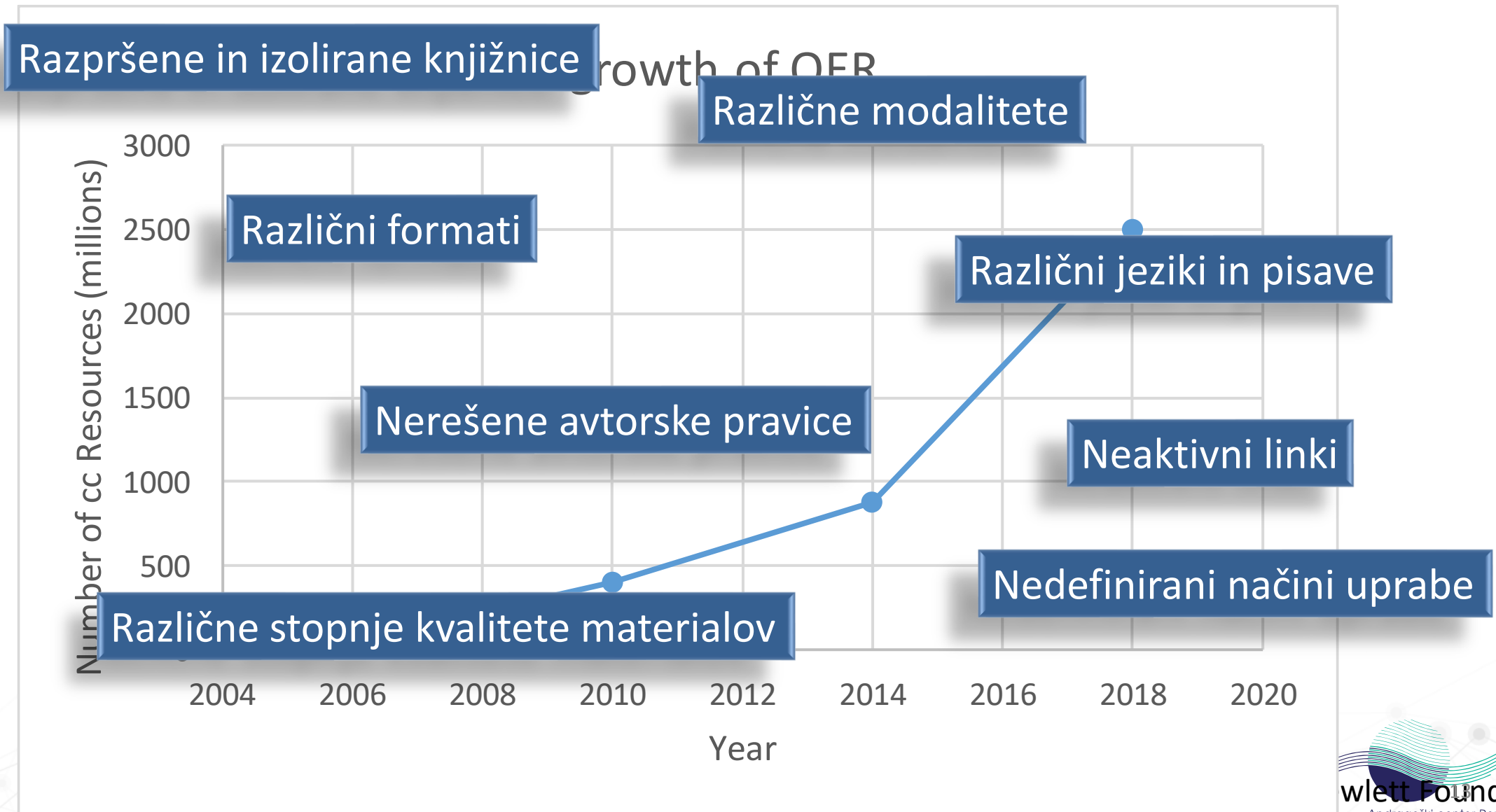




- Več kot 2 milijarde OER (Odprtih izobraževalnih virov)
- Vrsta orodij in aplikacij (>800 app, >150 OI okolij,...)
- Certificiranje in mikro magisteriji
- Večina univerz in visokošolskih inštitucij sprejela strategije odprtega izobraževanja
- Strategije in modeli odprte znanosti, raziskovanja in odprtega inoviranja
- Države sveta spreminjajo zakonodajo

Letni posvet
<https://web.ucs.si/pz2020>

Odprti izobraževalni viri

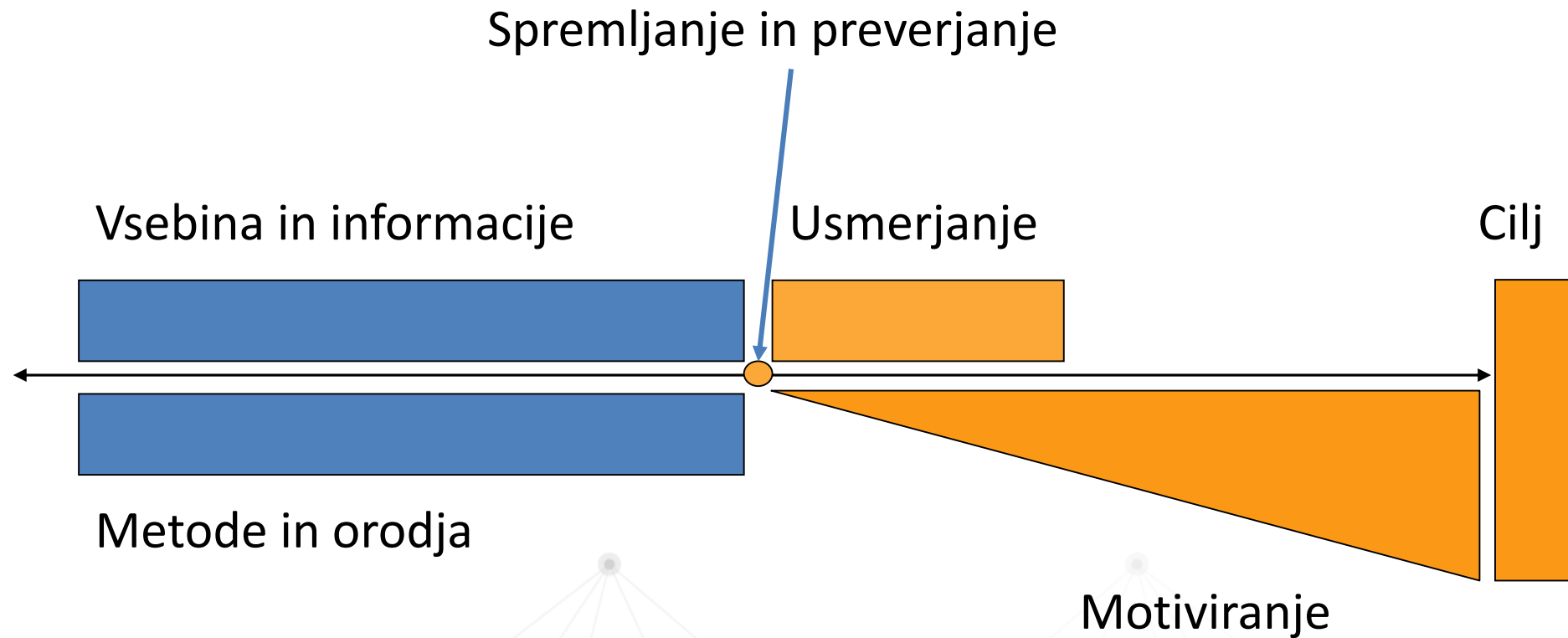


Politike: UNESCO OER Recommendation

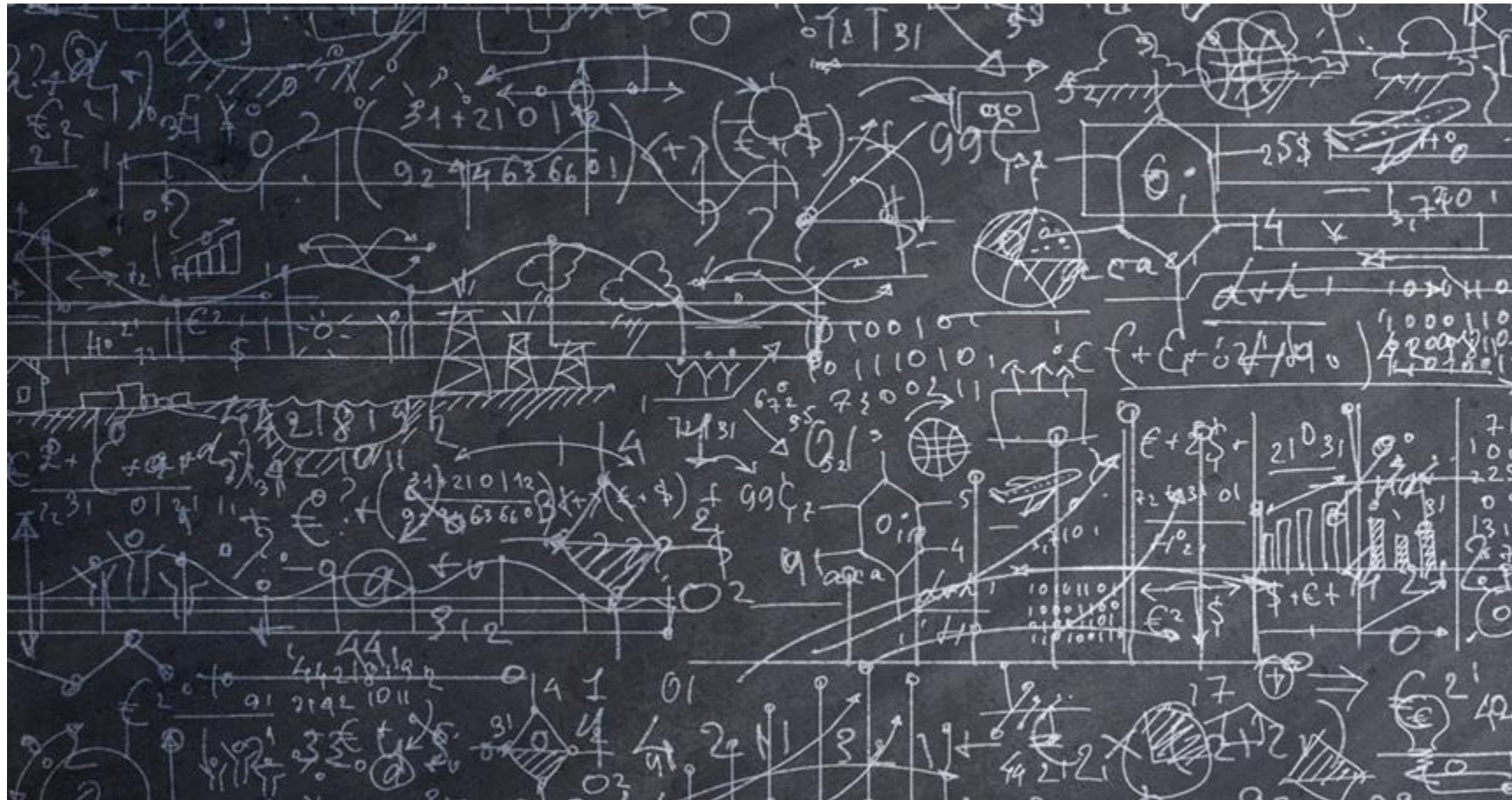
AREAS OF ACTIONS

- This Recommendation addresses five objectives:
- (i) Building capacity of stakeholders to create, access, use, adapt and redistribute OER;
- (ii) Developing supportive policy;
- (iii) Encouraging inclusive and equitable quality OER;
- (iv) Nurturing the creation of sustainability models for OER; and
- (v) Facilitating international cooperation.

Personalizacija



Kako obvladovati vso to kompleksnost?



Letni posvet koordinira:

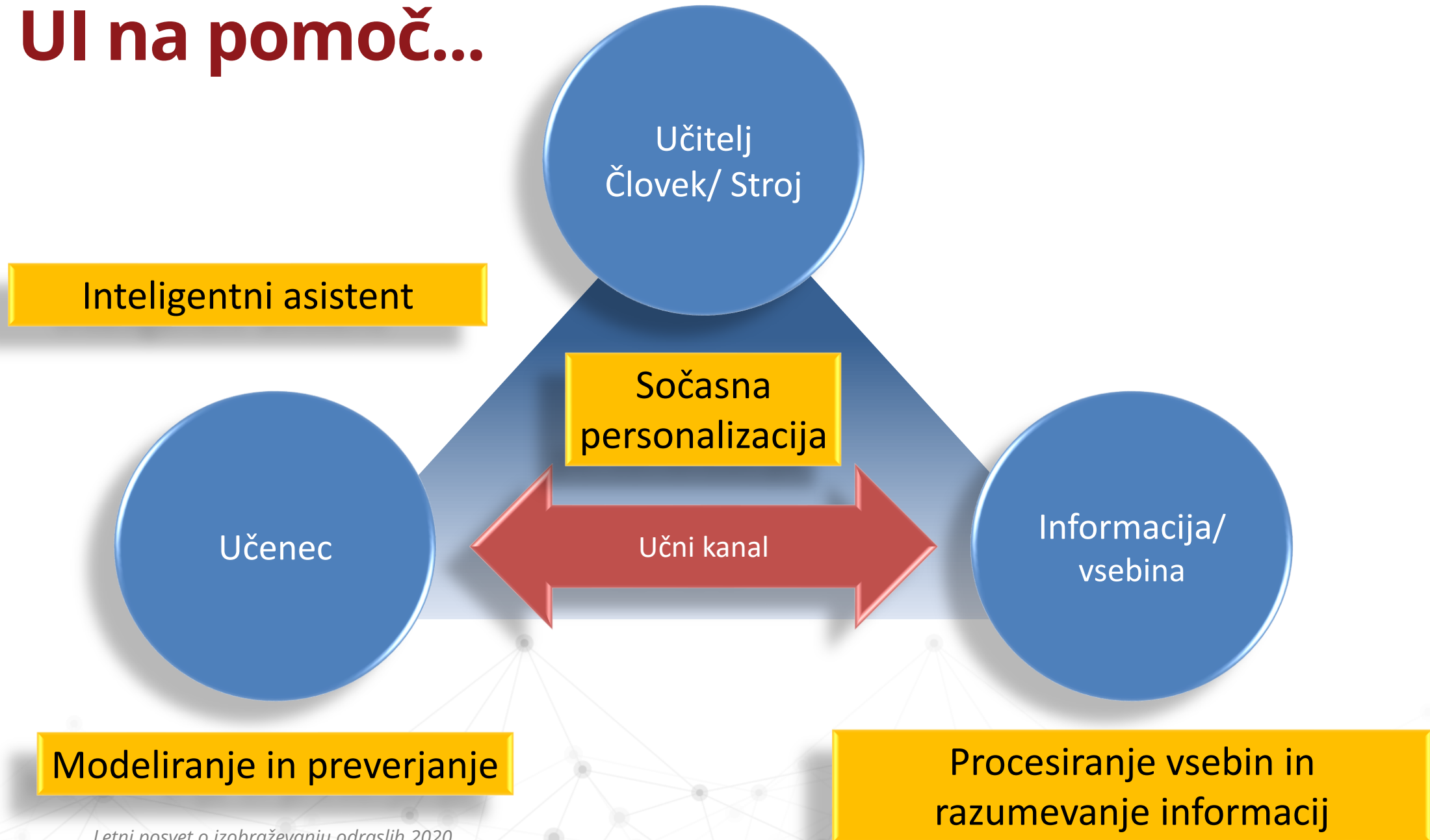


Letni posvet o izobraževanju odraslih 2020
<https://web.acs.si/lp2020>

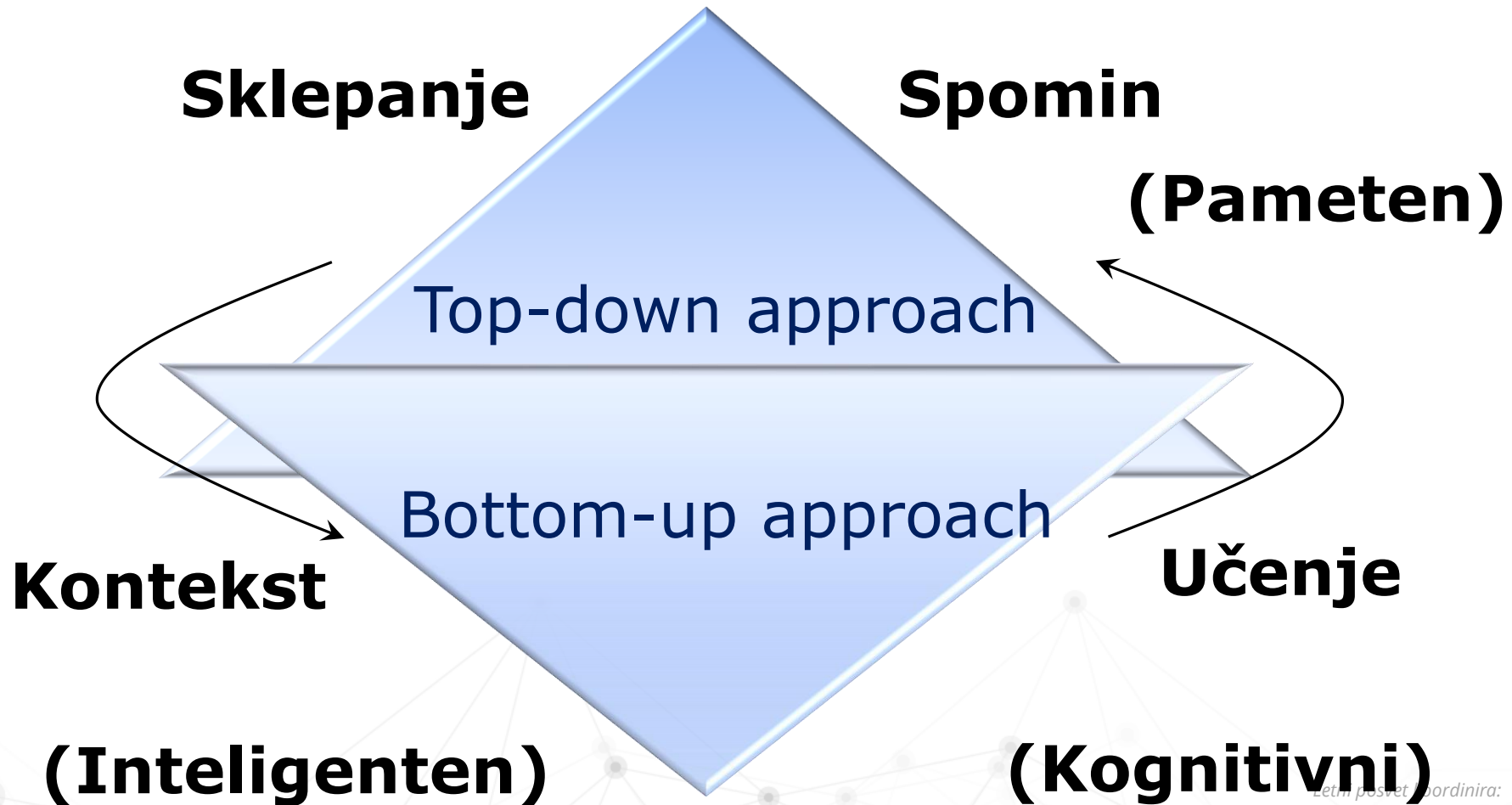
Andragoški center Republike Slovenije
Slovenian Institute for Adult Education

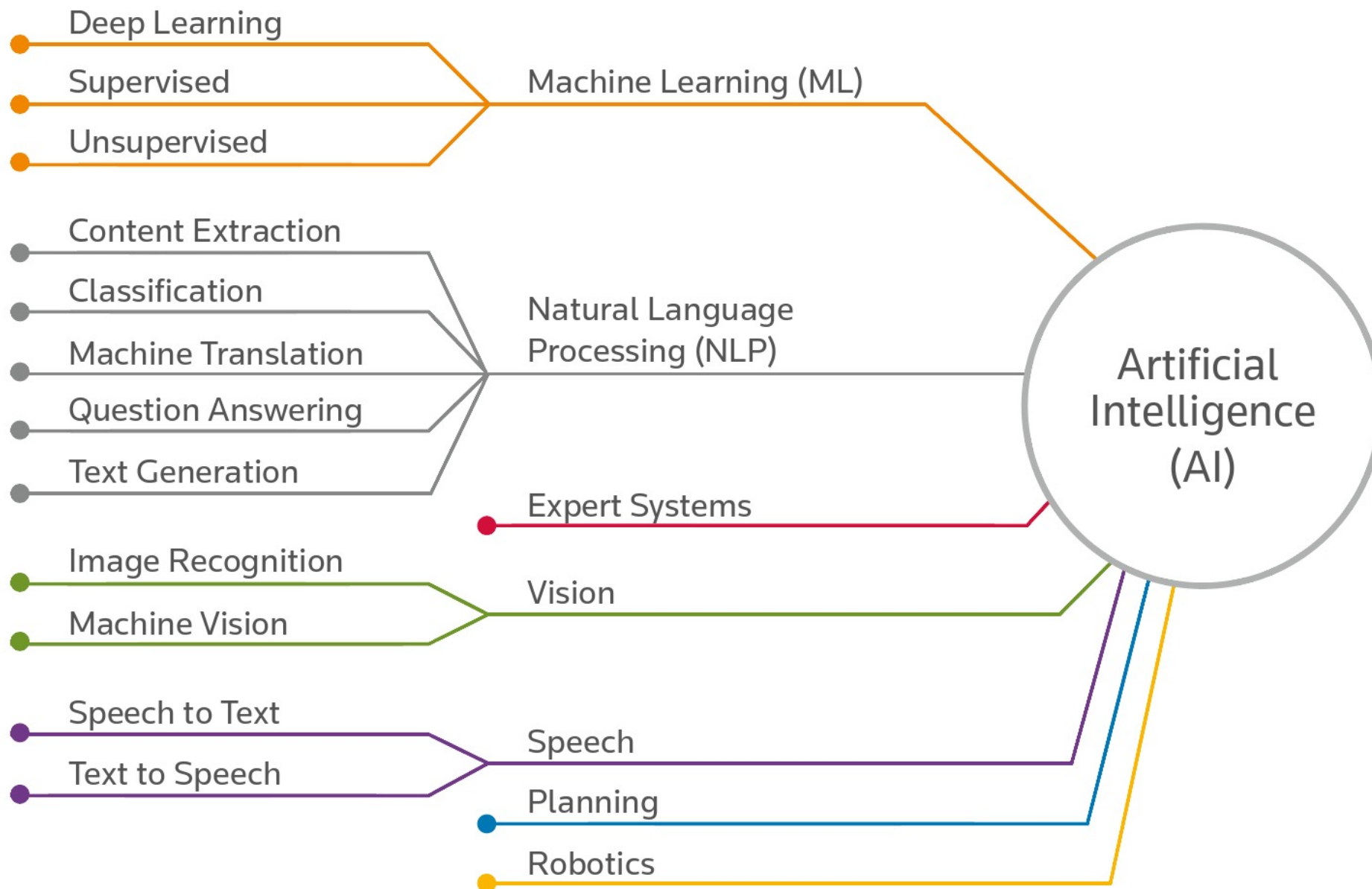


UI na pomoč...



Algoritmi UI





Kaj pa če...

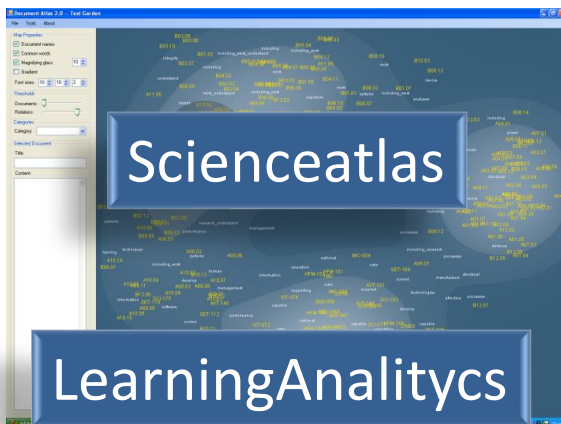
TextGarden

Exploredu

Eventregistry

Searchpoint

x5Learn



LearningAnalitycs



QMiner

User modelling and understanding, social network modelling

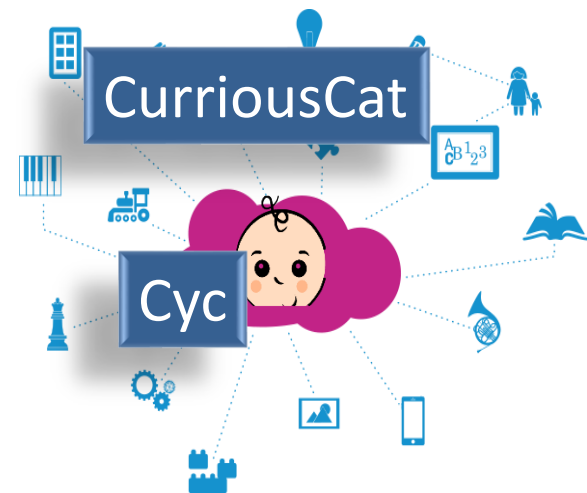
- ... and from career paths migrations of workforce among budget users could be computed and visualised.



JobAnalysis



Career path



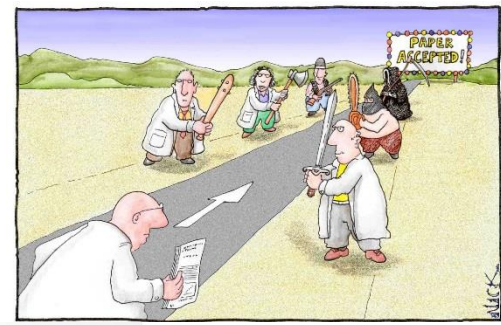
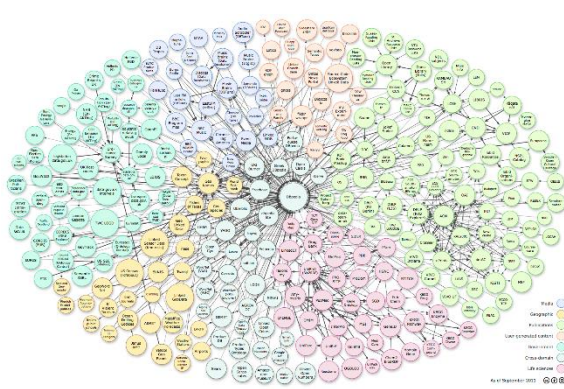
Cyc

Adaptive learning, education and social environment

Automatic ingestion, cleaning, fusion, structuring, preprocessing

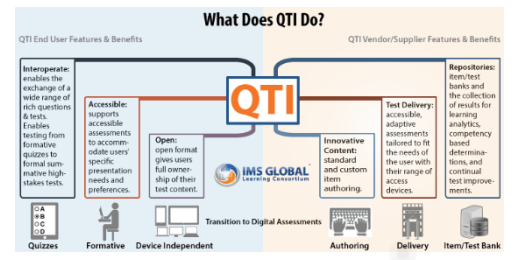
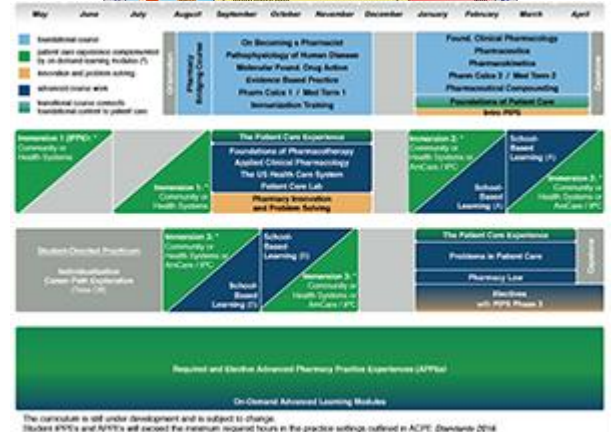
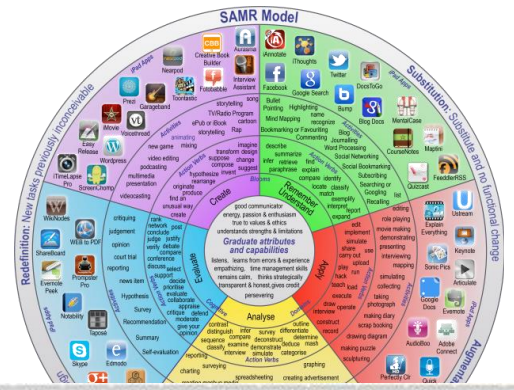
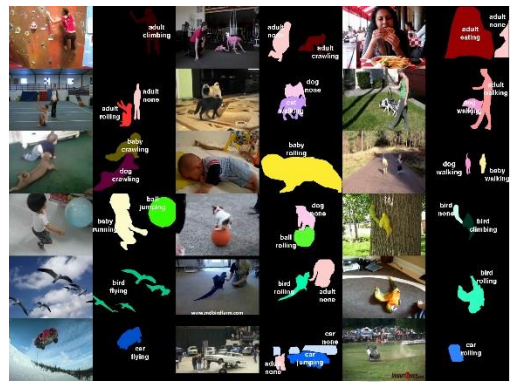
Odprta knjižnica izobraževalni virov

A SLOVENIJA
VINO ZA IZOBRAŽEVANJE



TOP AUTHORS

<ul style="list-style-type: none"> Walter H. G. Levin, 517078 views Erk Demaree, 161712 views Gilbert Strang, 134178 views Charles E. Leiserson, 120235 views David Mackay, 104394 views Donald R. Sadovay, 99141 views Jure Leskovec, 98616 views Mikaela Keller, 73976 views Sam Roweis, 68691 views 	<ul style="list-style-type: none"> Arthur Mattuck, 61487 views Michael Berthel, 59451 views Christopher Bishop, 59396 views Iain Murray, 59225 views Geoffrey E. Hinton, 56553 views Marko Grobelnik, 55370 views Zoubin Ghahramani, 51458 views Michael J. Jordan, 43686 views Yee Whye Teh, 43117 views 	<ul style="list-style-type: none"> Sylvia T. Ceyer, 39512 views Nando de Freitas, 38543 views Robert A. Veinberg, 38296 views Bernhard Schölkopf, 37497 views Tom Mitchell, 37155 views David Blei, 37016 views Alexander J. Smola, 36587 views Chi-Jen Lu, 35386 views Isabelle Guyon, 35632 views
---	--	--



Automatic ingestion, cleaning, fusion, preprocessing

Cross-lingual, cross-modal Semantic processing

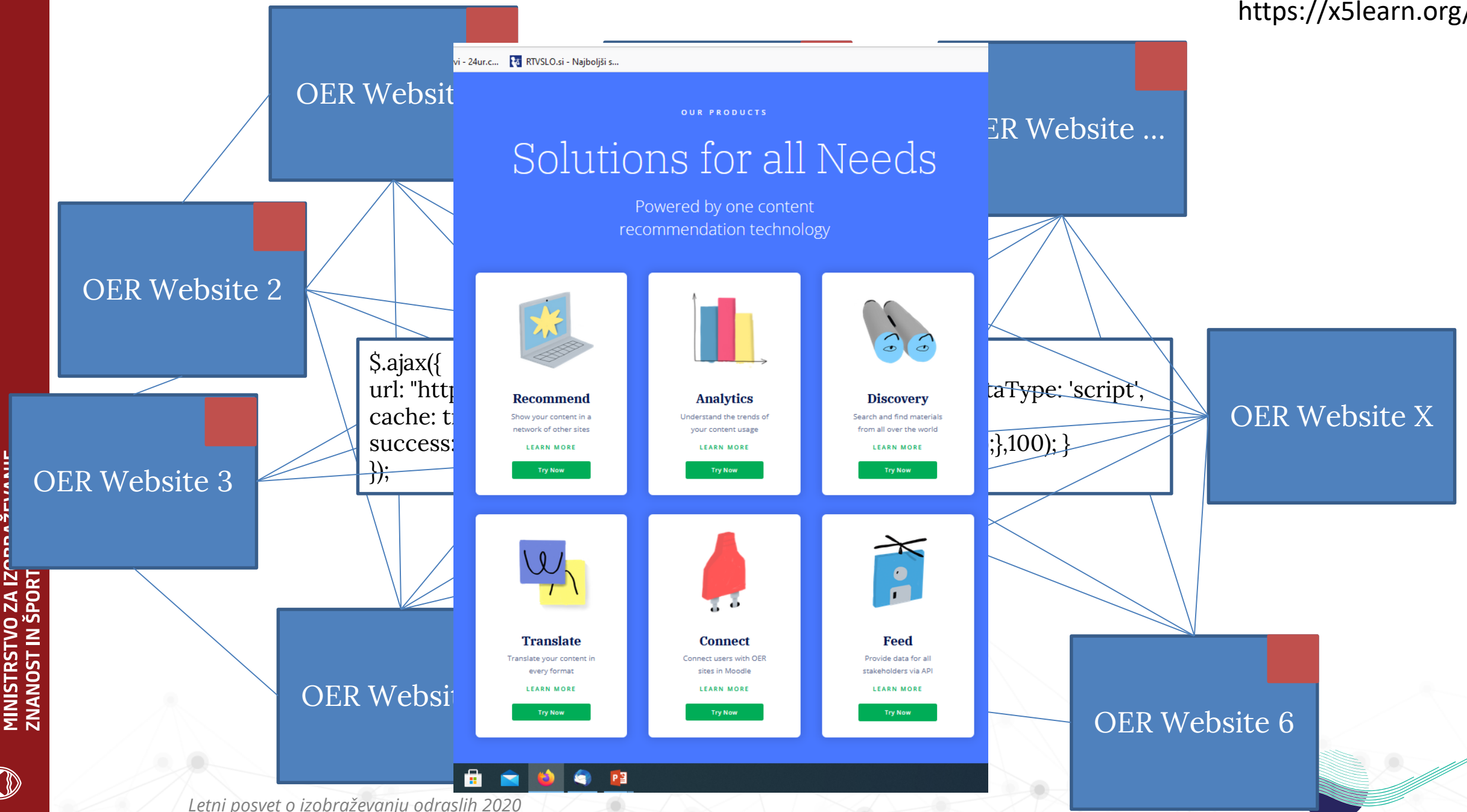
Resources quality processing

Didactic design and pedagogical processing

Innovation

Research

<https://web.acs.si/p2020>



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Understand the trends of your content usage
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Discovery
Search and find materials from all over the world
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Translate
Translate your content in every format
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Connect
Connect users with OER sites in Moodle
[LEARN MORE](#)
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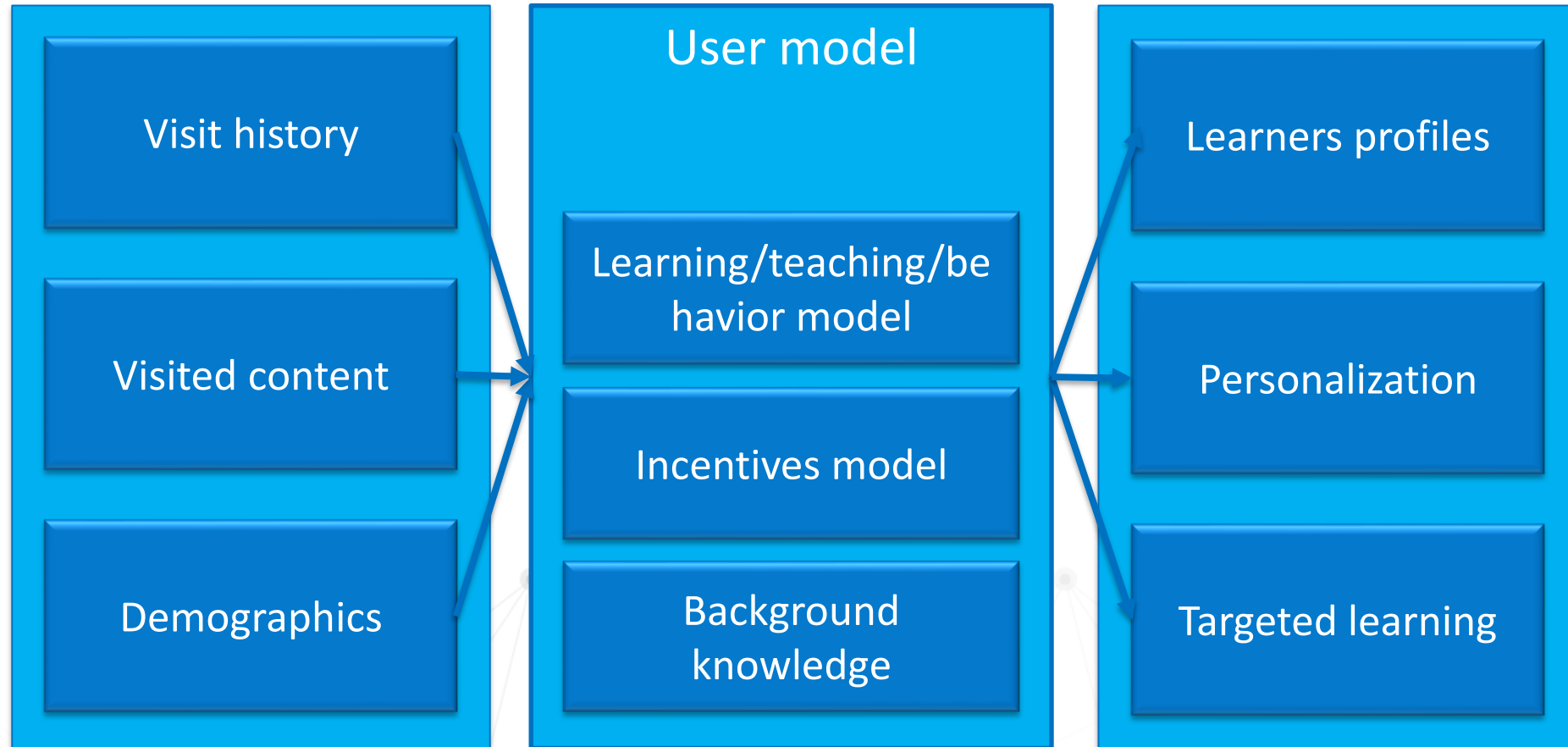
Feed
Provide data for all stakeholders via API
[LEARN MORE](#)
[Try Now](#)

User modelling

Observe

Model

Apply



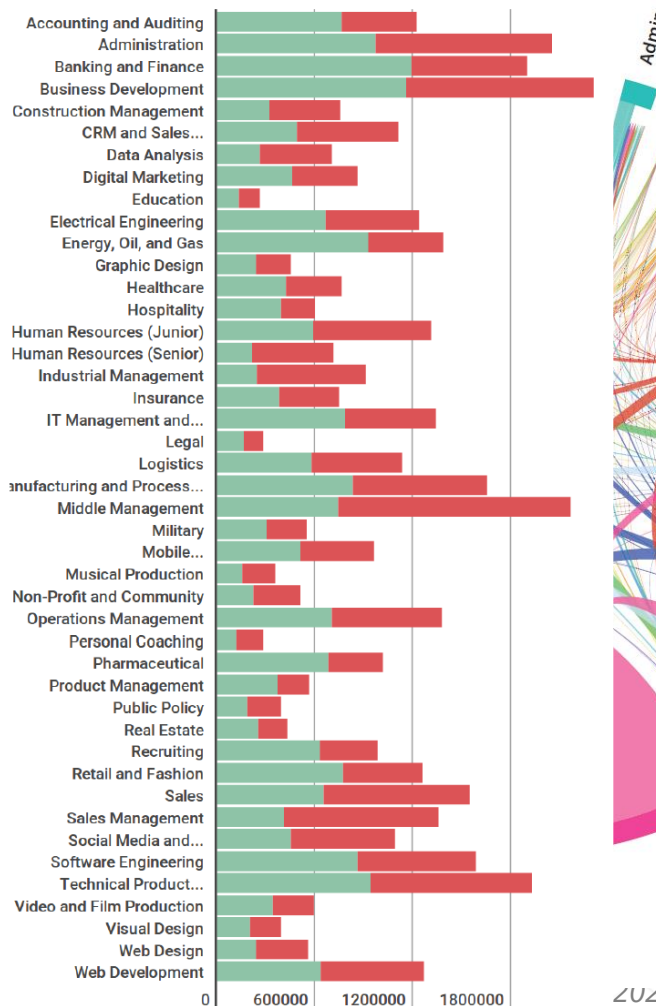
Letni posvet koordinira:

Letni posvet o izobraževanju odraslih 2020
<https://web.acs.si/lp2020>

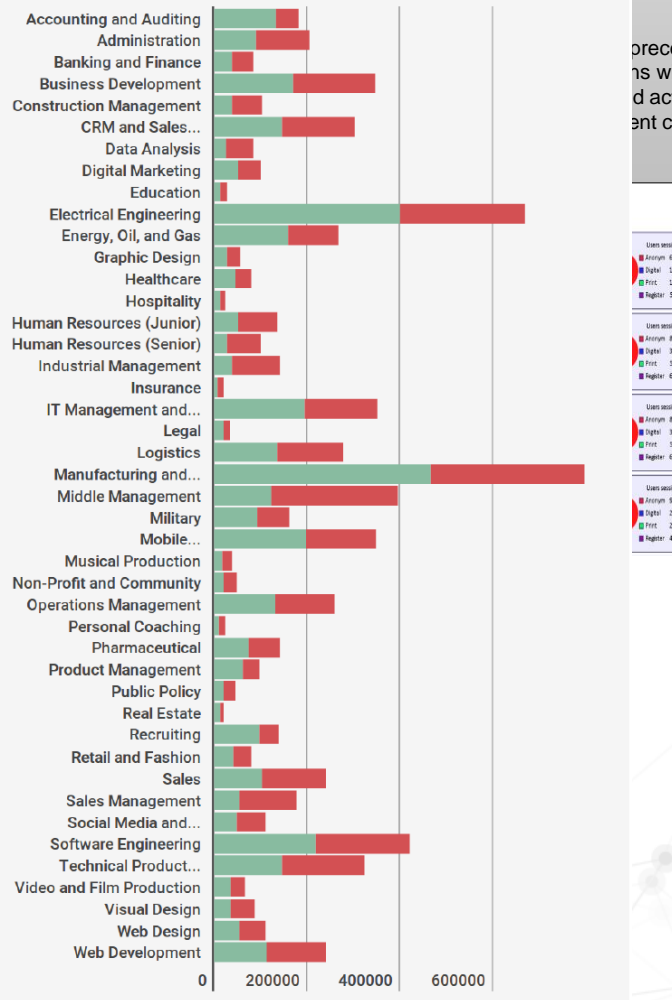
Modeliranje posameznikov



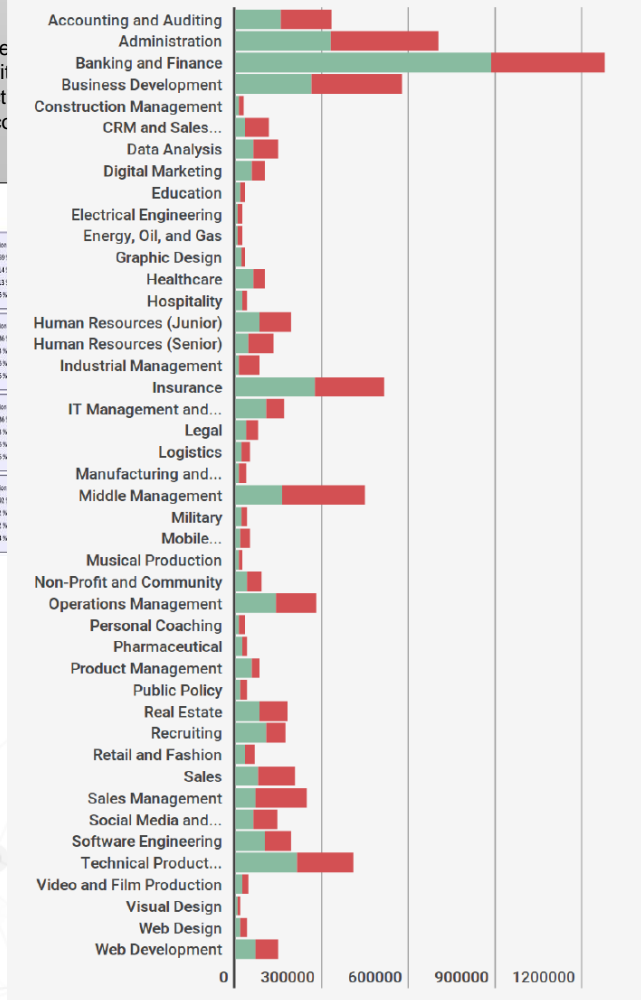
Overall Skills Distribution



Manufacturing Industry (NAICS 33) Skills Distribution



Finance Industry (NAICS 52) Skills Distribution

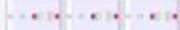


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90-100%

Less than 10%
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20-30%
30-40%
40-50%
50-60%
60-70%
70-80%
80-90%
90-100%



Izračunavanje kompetenc

- ... and from career paths users could be computed



dunja mladenić

[Home](#) [About](#) [Help](#)

eng slv

The dataset consists of 35272 researchers, 5716 projects, 682905 publications and 17190 video lectures.



Dunja Mladenić

Institute 'Jožef Stefan'
Jožef Stefan International Postgraduate School

[Get Collaboration Diagram](#)

[Get Competence Diagram](#)

Dunja Mladenić

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[All-to-all](#)

[Organizations](#)

[Temporal](#)

[Get Competence Diagram](#)

Engineering sciences and technologies

Computer science and informatics

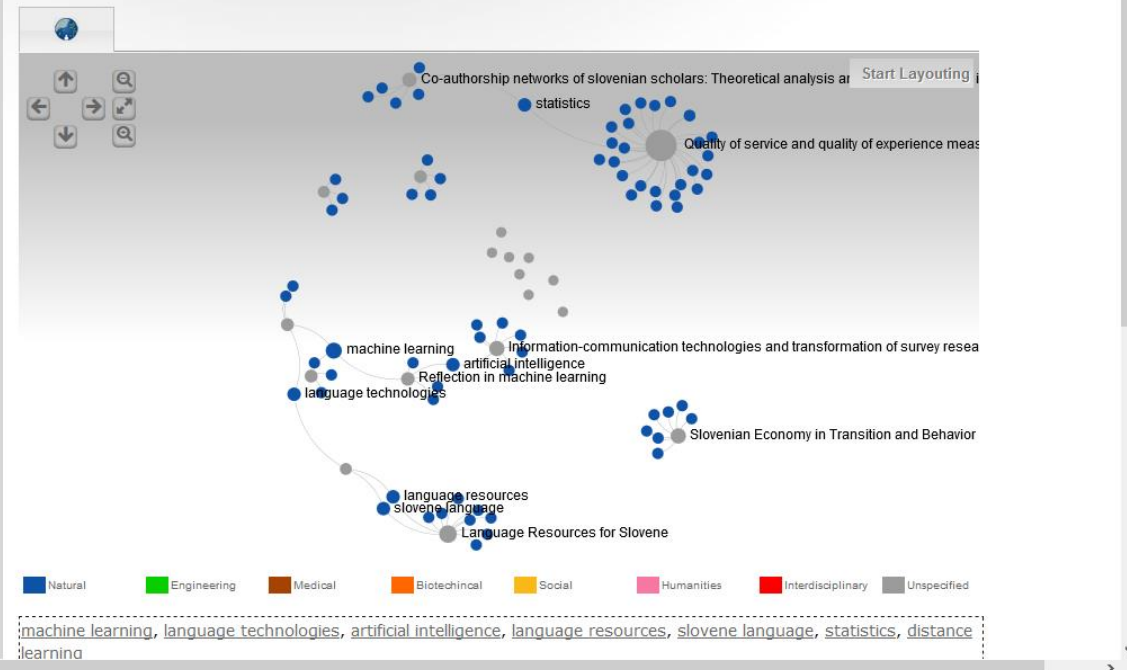
Science:

Engineering sciences and technologies

Computer science and informatics

Keywords:

Artificial intelligence, intelligent systems, machine learning, data-mining, text-mining, intelligent agents, learning from the Web, intelligent data analysis



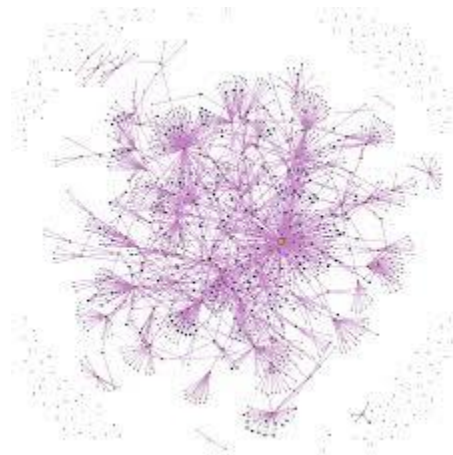
Letni

https://web.acs.si/ip2020

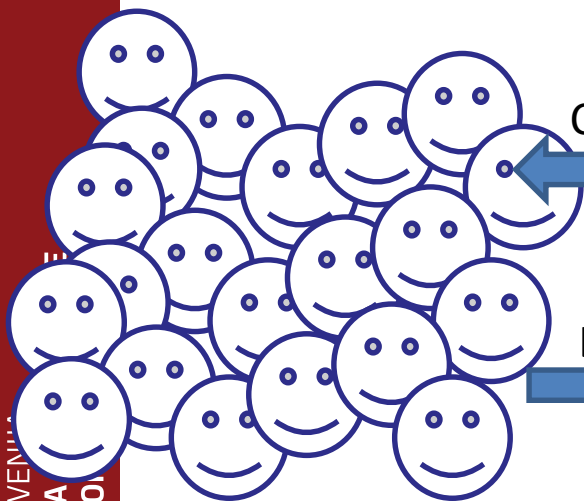
250,000

8,000

UI asistent

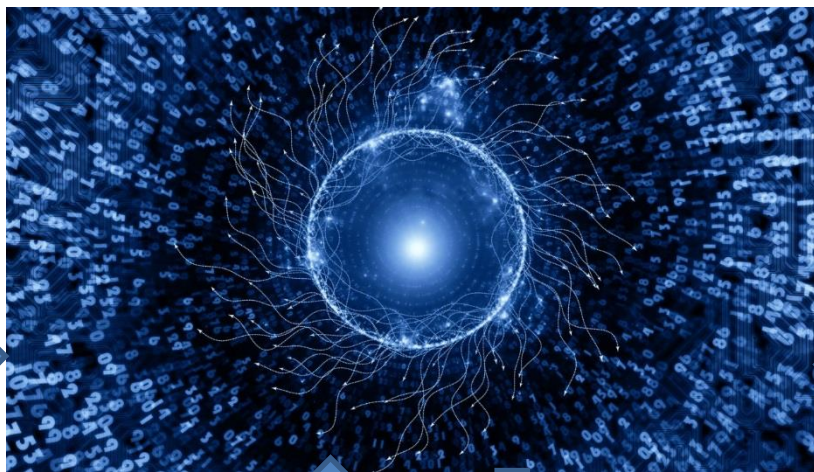


OPEN SOURCE AND OPEN KNOWLEDGE AI



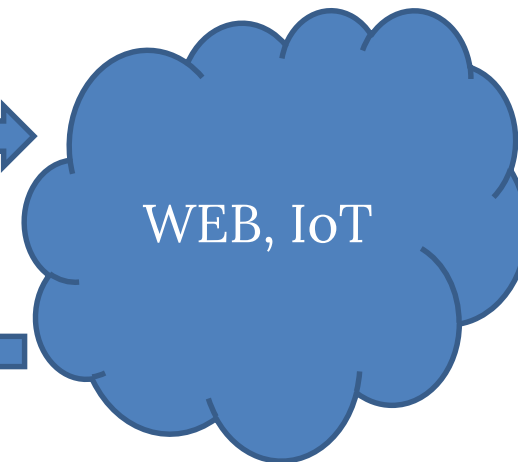
Checking

Learning



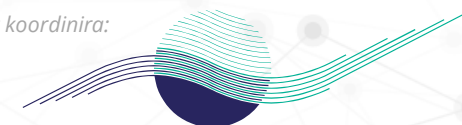
Checking

Learning



Teaching

Learning



Avtomatsko generiranje učnih poti

LEARNING PATHWAYS

The learning pathway in showing the courses that will give you the skills related to the query.

PERSONALIZE YOUR PATHWAY

Mathematics of computing

- Data Science Math Skills

Computing methodologies

- Data Scientist Basic

Big Data (Data Science) applications design

- Open Data Science

Business Process Management

- Process Mining: Data science in Action



ONLINE COURSES

You are currently using guest access ([Log in](#))

Home » Courses » Learning pathways

Learning pathways

Data Analytics

Data Science Engineering

Data Management

Business Process Management

[All pathways »](#)

Latest courses

- Fundamentals of Data Science (Non-Technical)
- Data Science for Digital Marketing
- Process Mining in Healthcare
- Fundamentals of Machine Learning

[All courses »](#)

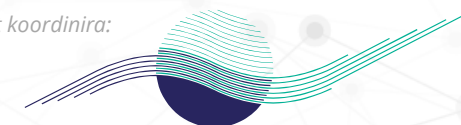
Data science learning pathways

Here you can find selected data science learning pathways that lead to certain data science roles and teach the essential skills associated with these roles. You can follow these learning pathways, track your progress, customise them and add your reflections.

- Data Analytics**
Use appropriate statistical techniques and predictive analytics on available data to deliver insights and discover new relations.
- Data Science Engineering**
Use engineering principles to research, design, develop and implement new instruments and applications for data collection, analysis and management.
- Data Management**
Develop and implement a data management strategy for data collection, storage, preservation, and availability for further processing.
- Business Process Management**
Use data management and mining techniques in order to analyse and improve business processes.

Letni posvet o izobraževanju odraslih 2020
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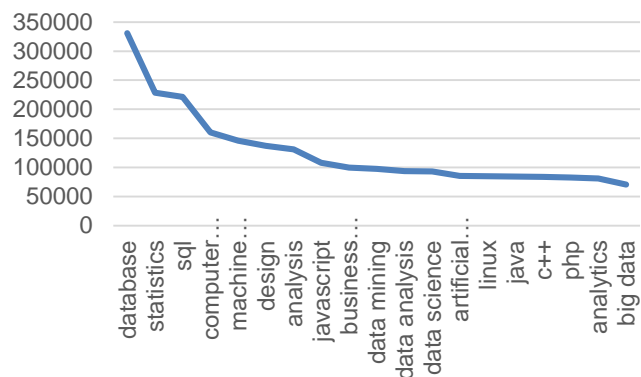


Analiza potreb po kompetencah na trgu

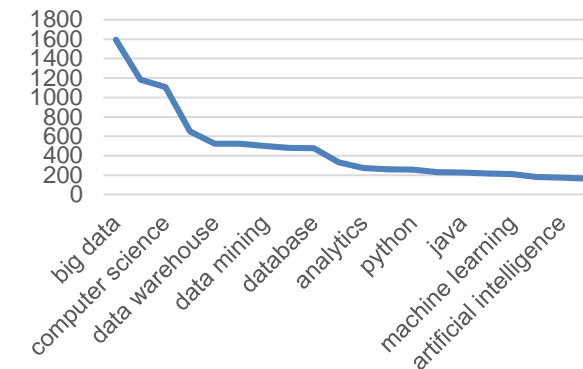
Sources:

Adzuna, Trovit
 Jooble, Indeed,
 CareerBuilder, CareerJet

Top Skills



Top Skills (December 2017)



OPEN DATA SCIENCE



BigDataOcean - Exploiting
 Oceans of Data for Maritime
 Applications

Given the explosive growth in
 the size and the complexity of
 the Data Web, there is now
 more than ever, an increasing

DATA
 SCIENTIST
 BASIC

PROCESS
 MINING:
 DATA
 SCIENCE IN
 ACTION

Cross-linguality

Semantic
 annotations

Skills
 extraction

Locations
 extraction

Statistics

DATA SCIENTIST - PYTHON / MACHINE LEARNING

Raona, Barcelona, Spain
 PUBLISHED ON JANUARY 7, 2018

python machine learning

DESCRIPTION

En Raona buscamos un Data Scientist / Analista de Datos con Python creativo, con ganas de empezar proyectos nuevos e imaginar aplicaciones donde podamos... Hace 15 días en trabajos



Masters in Leadership of Open Education

- Univerza v Novi Gorici in UNESCO katedra
- Cilj: Izobraziti bodoče kreatorje sprememb v izobraževanju
- Mednarodni program, večinoma online
- Magistrski študij 2-letni



JOHN SHAWE-TAYLOR
UNESCO Chair in AI,
UC London, UK,
Head of IRCAI at IJS



LARRY COOPERMAN
OEC former president, US



TEL AMIEL
UNESCO Chair in OE,
University of Brasilia, BR



SUZANA LOSHKOVSKA
Cyril and Methodius University, Skopje, MK



DOMINIC ORR
adjunct professor
University of Nova Gorica, SI
Kiron Open HE, DE



ROBERT SCHUWER
UNESCO Chair on OER,
Fontys University of Applied Sciences, NL

Letni posvet o izobraževanju odraslih 2020
<https://web.acs.si/lp2020>



open educational resources

searchpoint.ijs.si/result.html?q=open%20educational%20resources&c=kmeans

SEARCH NlpSPO - [Iraq.d09b.AP900822-0016.xml] (55, 40)

File Home Send / Receive Folder

Contextify Dialog

Dialogs

Favorites

- Inbox
- Sent Item
- Deleted
- Outbox
- RSS Feed
- Search Fe

mitja.jermol@i

- Inbox (25)
- Sent Item
- Deleted
- CT3 (22)
- Cyc (39)
- E3 (35)
- Junk E-m
- EU
- Moje
- Neželena
- none (13)
- Osnutki
- People
- Projects

Mail

Calendar

Contacts

Tasks

Filter applied

thousand any foreigner

hide

overthrow

risk Iraq President Saddam Hussein

Westerner Iraq Kuwait other thousand

U.S. Navy

interdict

foreigner

trap

shipment of

American thousand

August

heat

Turkey

task force fresh U.S. Navy

crisis gulf Persian Gulf

cut

set

Britain

join

export

sail region

border

Iraq

Japan

06770 Maybe at European Commission office?

Enough about Ninja House

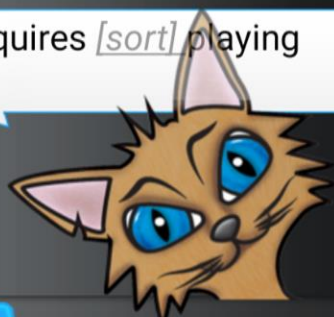
Can we talk about the concept 'general photosynthesis'?

Ok

general photosynthesis:
General photosynthesis requires an autotroph playing the role of "bodily doer".
General photosynthesis requires a microscopic object playing the role of "moving object".

Ok

General photosynthesis requires [sort] playing the role of "bodily doer".



I don't know Nothing else

Write here... Enough about general photo

Don : the Salvation Army is headed by John Major.

Content

Search Options

Email content

Rubén Pérez to C

Re: [Opencast Mat (builderror)

Hey, Comments inl

Rubén Pérez to C

Re: [Opencast Mat

I'll be more than gla

Matpro Fhkoeln t

Re: [Opencast Mat (build error)

Hello Rubén Pérez, V

Rubén Pérez to C

Re: [Opencast Mat

Oops! My bad! I was you get the xml sche

Josh Holtzman to

Re: [Opencast Mat

Shouldn't be difficul

Josh Holtzman to

End: 14.9.2011 15 Update

64 96 60 93 78 96

19 20-31 1-9 10-19 20-31 1-9 10-19

1 2011 2011 2011 2011 2011 2011

phone call

EURIDICE: Deliv...

IMatterhorn-ho...

Send/Receive error Connected 100%

workflow judy matterhorn episode install http huge speak server ll doc case

17:45 7/9/2015

Nekaj dodatnih informacij in povezav

- <http://unesco.ijs.si>, <http://ircai.org>,
- <http://ailab.ijs.si>, <http://ct3.ijs.si>,
- <http://www.ouslovenia.net>

- <http://www.ung.si/en/study/school-of-engineering-and-management/study/2NVOI/>

- <https://platform.x5gon.org/join/>
- <http://eventregistry.org>, <http://newsfeed.ijs.si>
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