

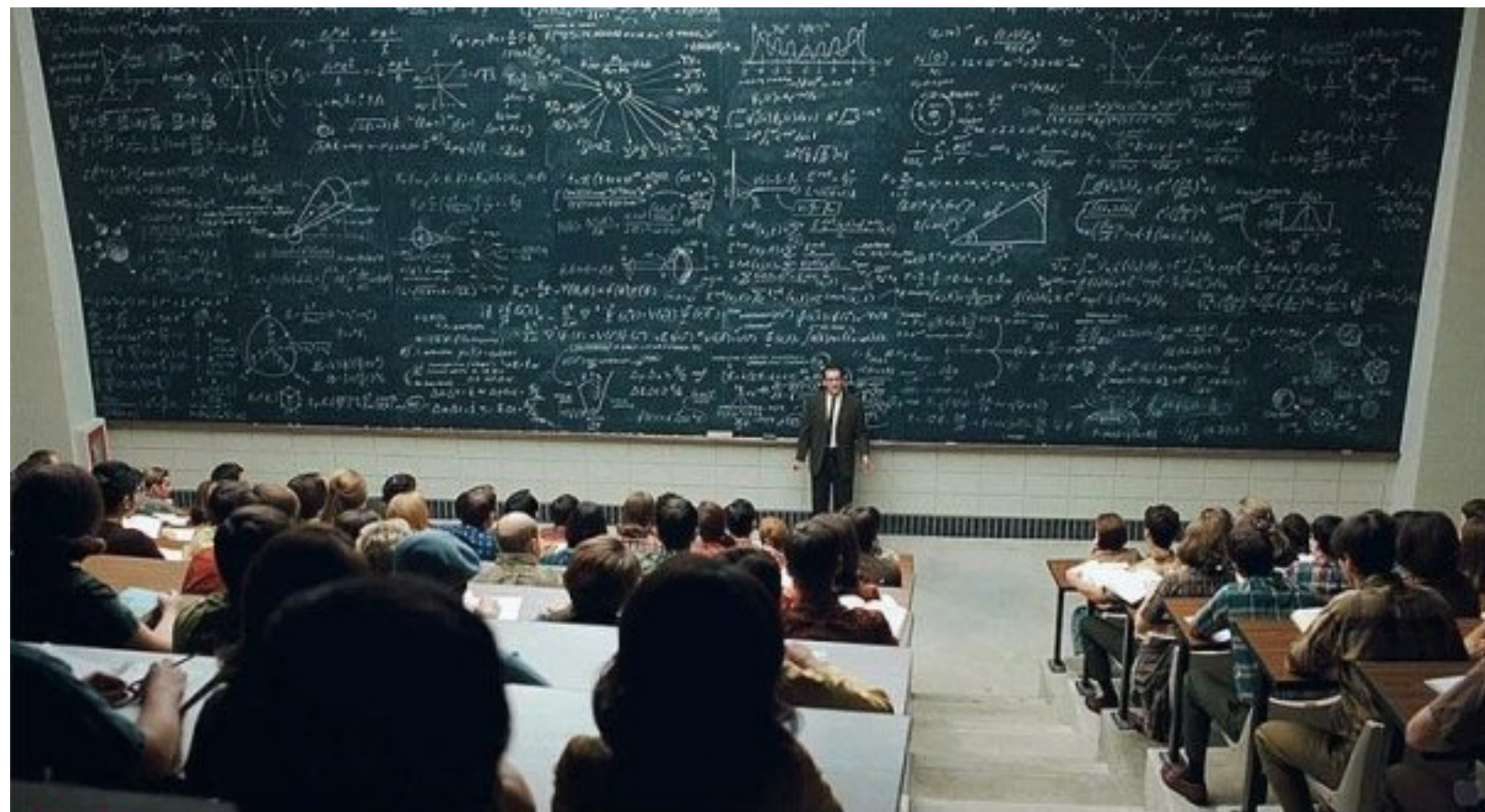


Slovenia as a role model for open education in knowledge based Europe

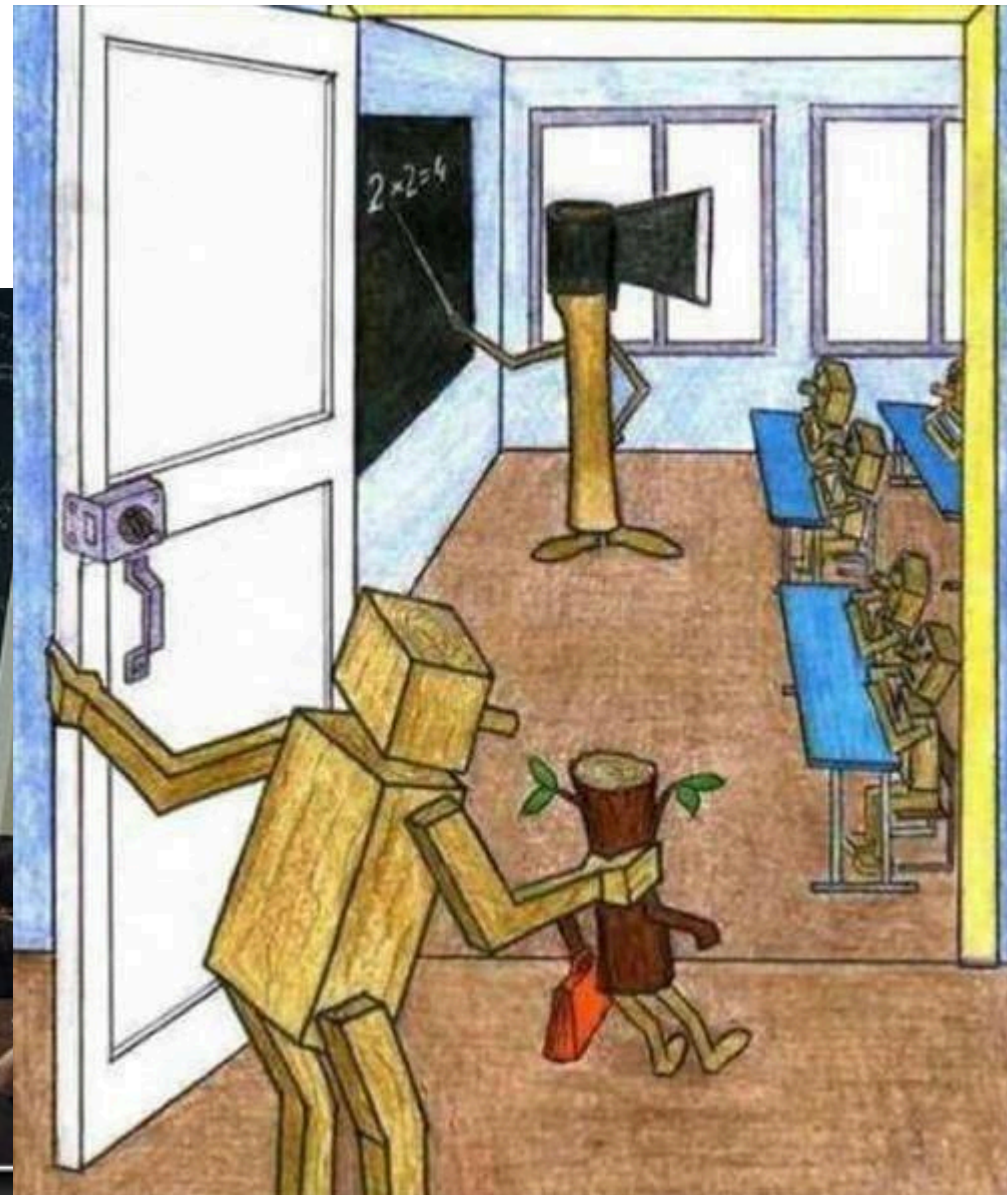
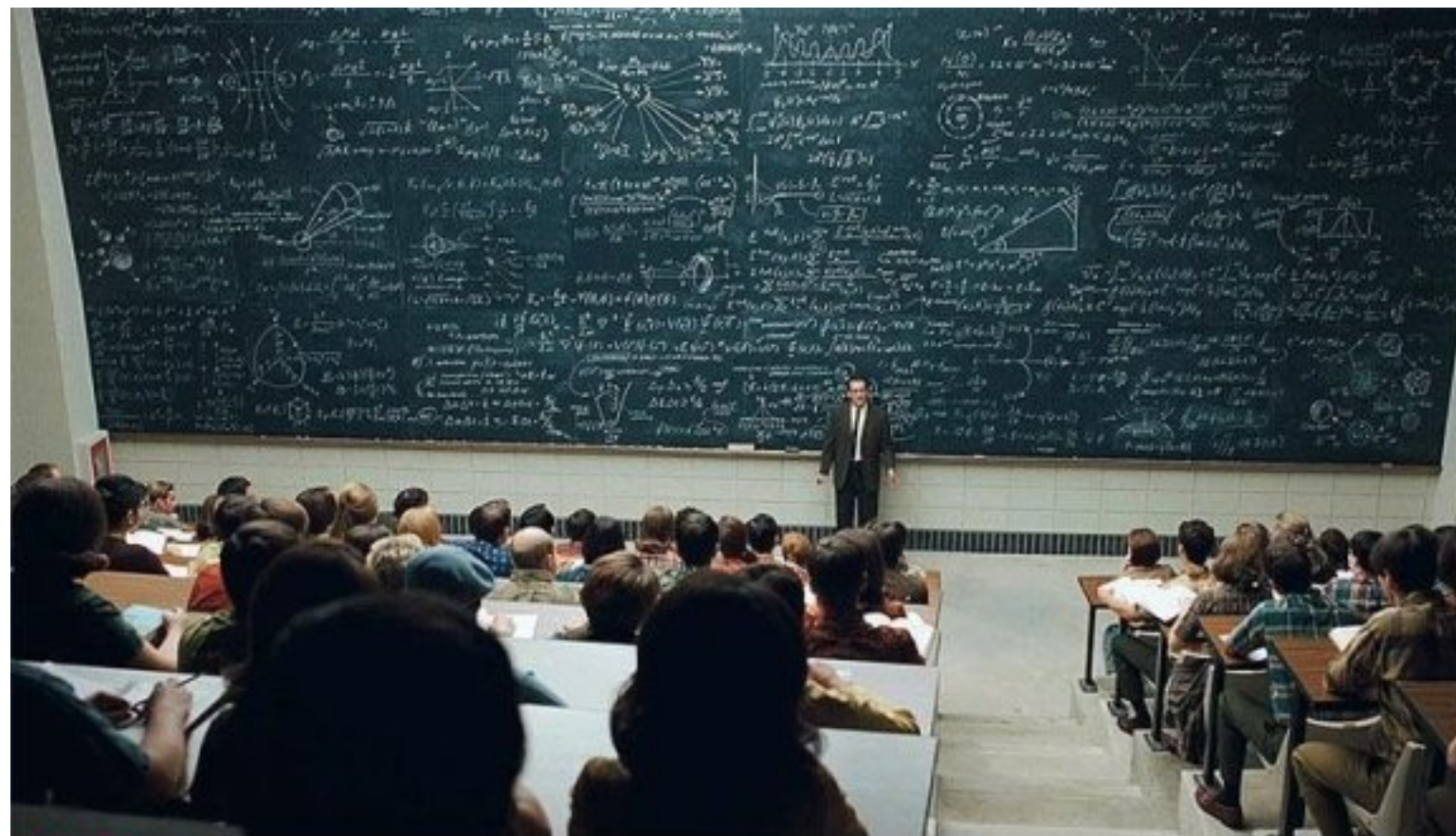
Mitja Jermol
Jozef Stefan Institute
Slovenia

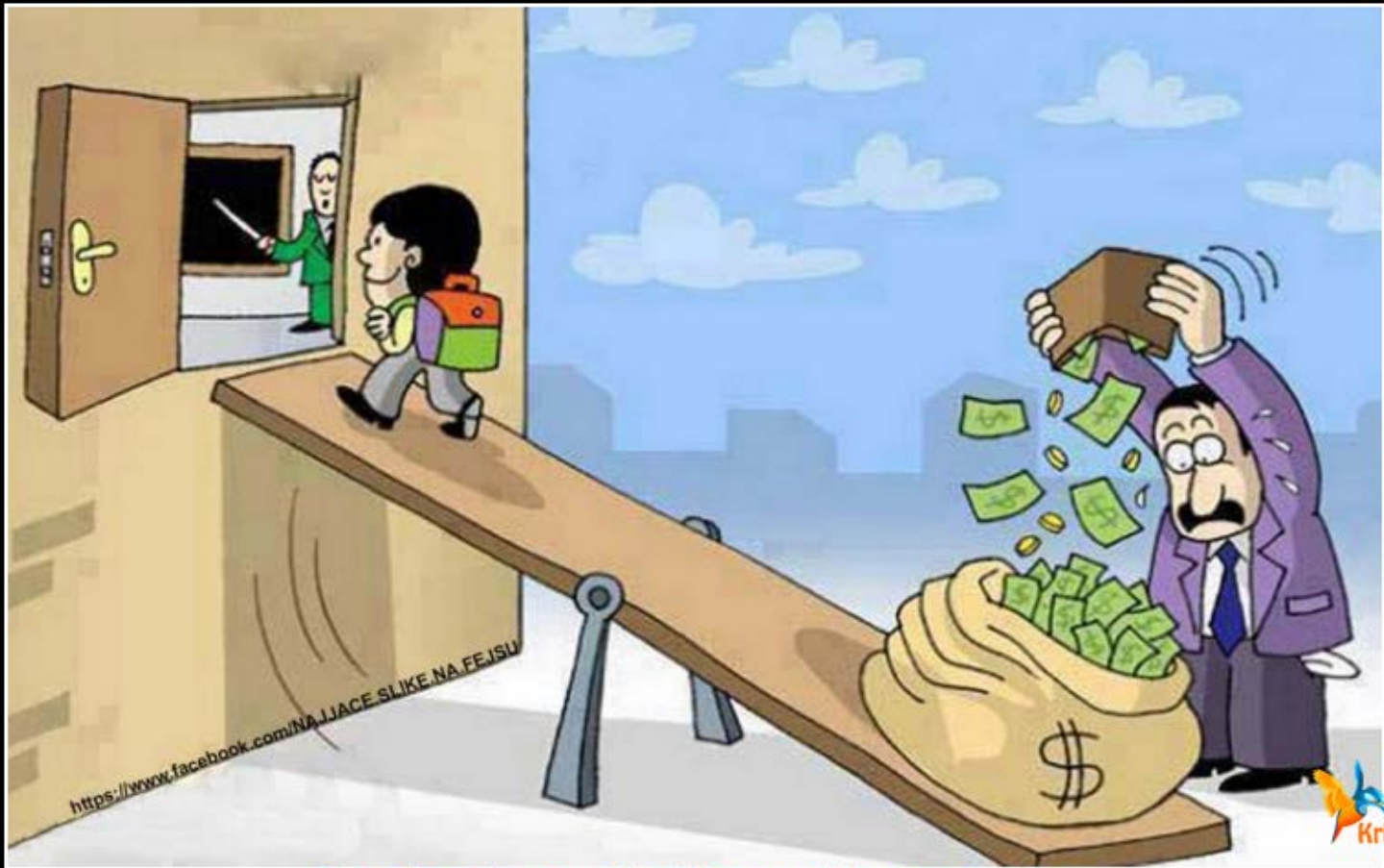


The future of learning is...



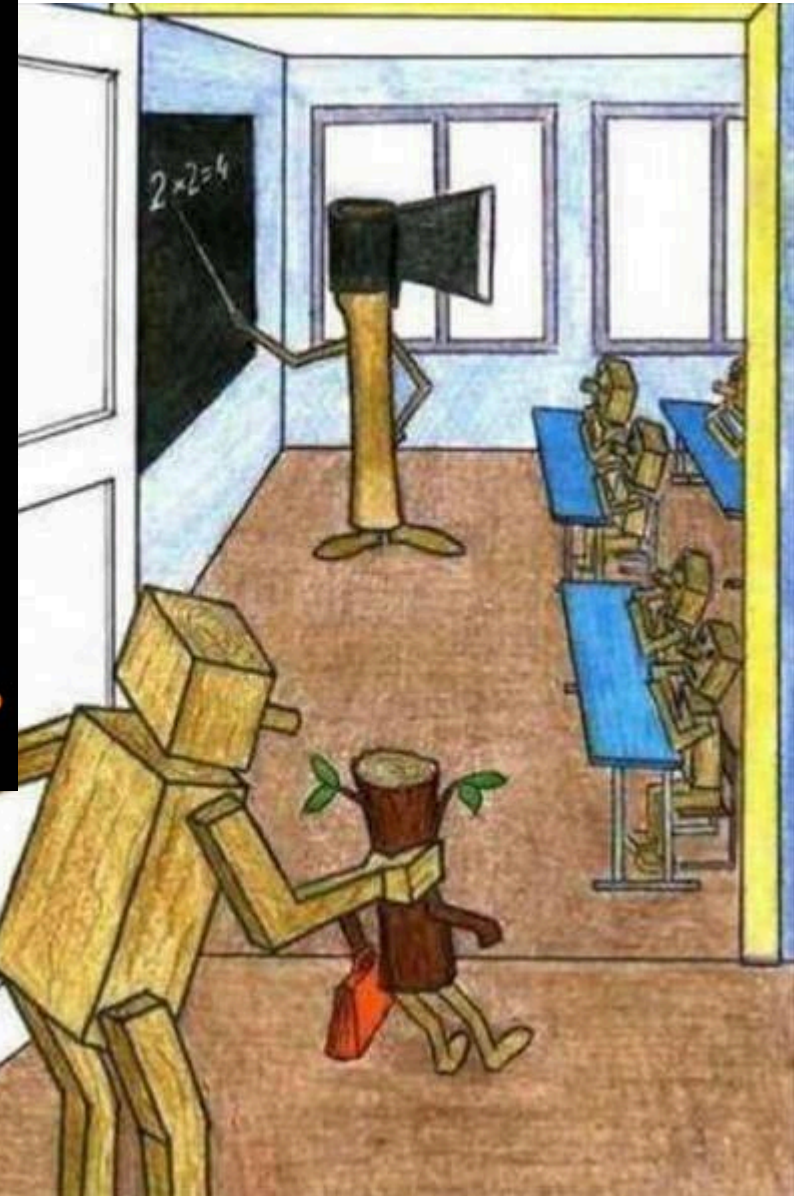
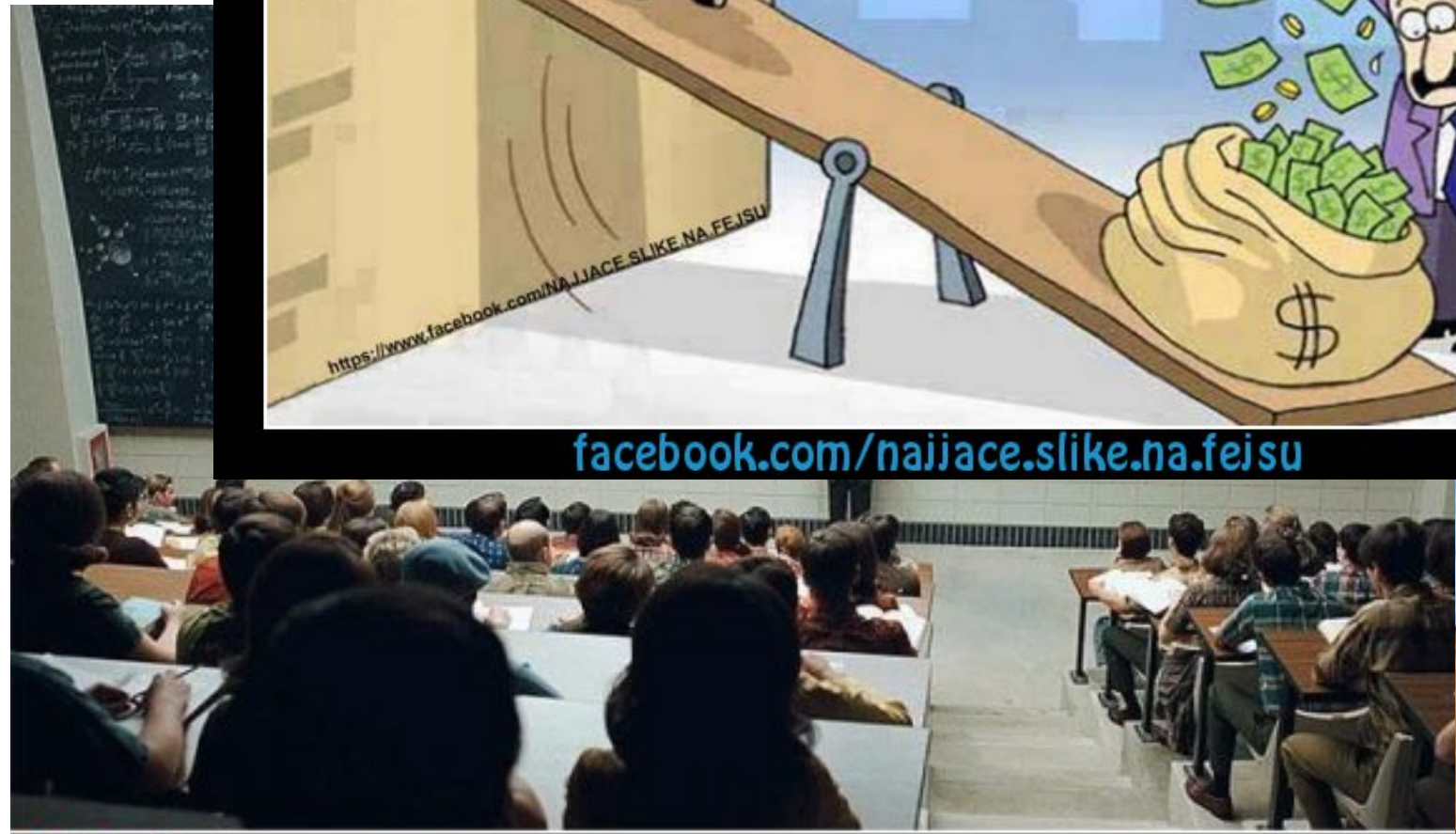
is...





<https://www.facebook.com/NAJJACE.SLIKE.NA.FEJSU>

[facebook.com/najjace.slike.na.fejsu](https://www.facebook.com/najjace.slike.na.fejsu)

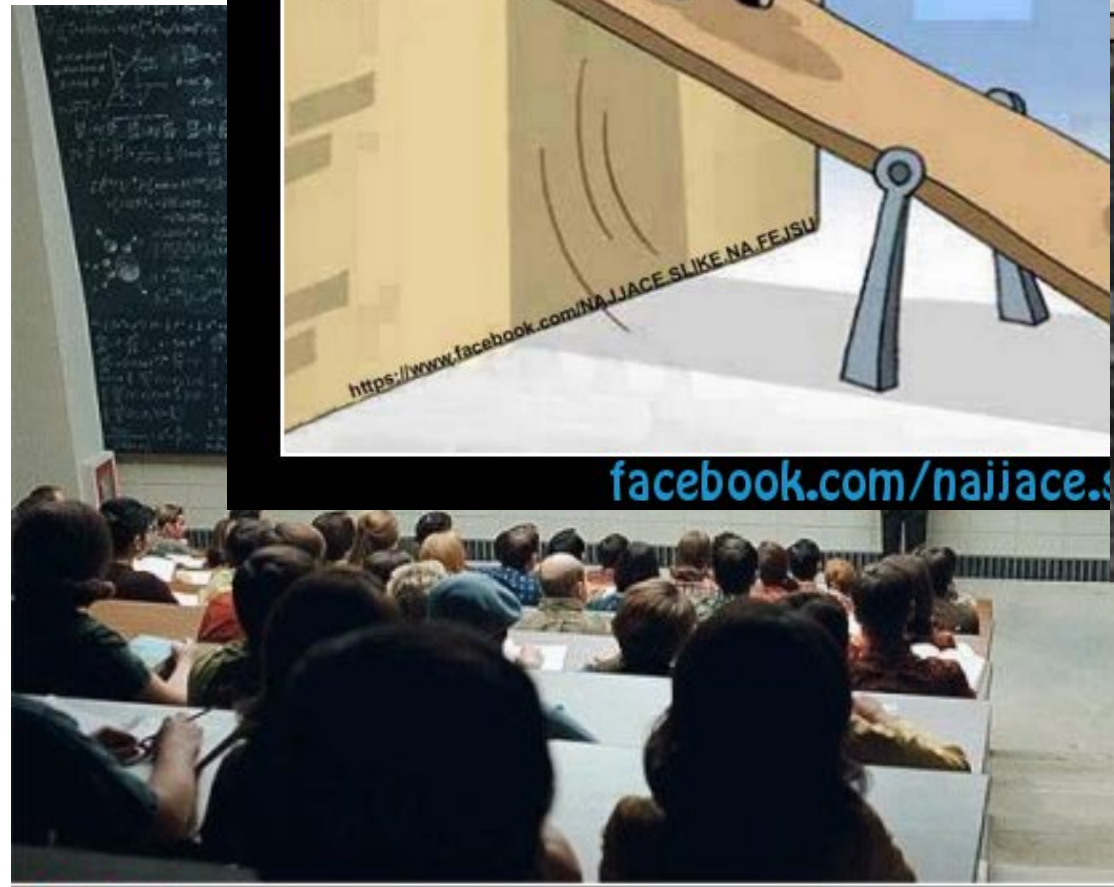




www.ereakcije



facebook.com/naijace.s







Rigidness of the Education System

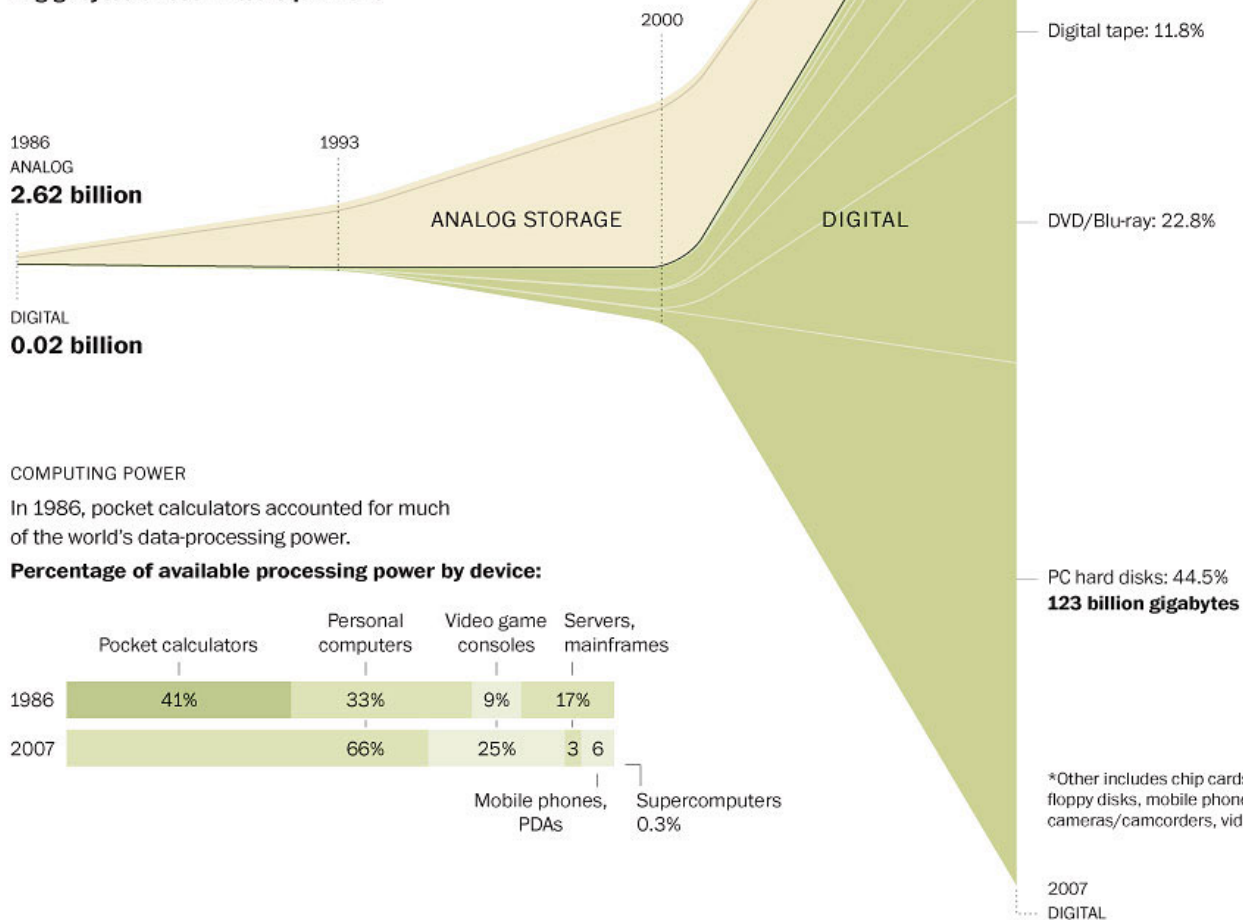
- Typical education reform lasts from 5-10 years, but....



THE WORLD'S CAPACITY TO STORE INFORMATION

This chart shows the world's growth in storage capacity for both analog data (books, newspapers, videotapes, etc.) and digital (CDs, DVDs, computer hard drives, smartphone drives, etc.)

In gigabytes or estimated equivalent



2007
ANALOG

18.86 billion gigabytes

- Paper, film, audiotape and vinyl: 6.2%
- Analog videotapes: 93.8%
- Other digital media: 0.8%*
- Portable media players, flash drives: 2%
- Portable hard disks: 2.4%
- CDs and minidisks: 6.8%

ANALOG
DIGITAL

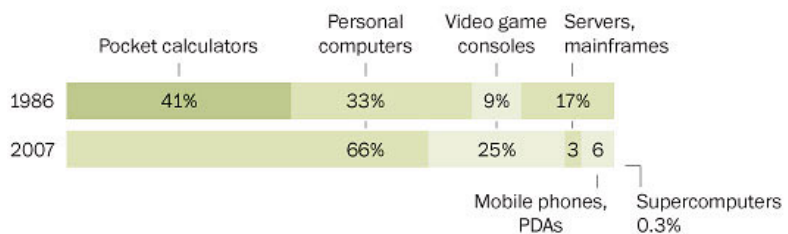
em

, but....

COMPUTING POWER

In 1986, pocket calculators accounted for much of the world's data-processing power.

Percentage of available processing power by device:



2007
DIGITAL
123 billion gigabytes

- PC hard disks: 44.5%
 - DVD/Blu-ray: 22.8%
 - Digital tape: 11.8%
 - Computer servers and mainframe hard disks: 8.9%
- *Other includes chip cards, memory cards, floppy disks, mobile phones/PDAs, cameras/camcorders, video games

2007
DIGITAL

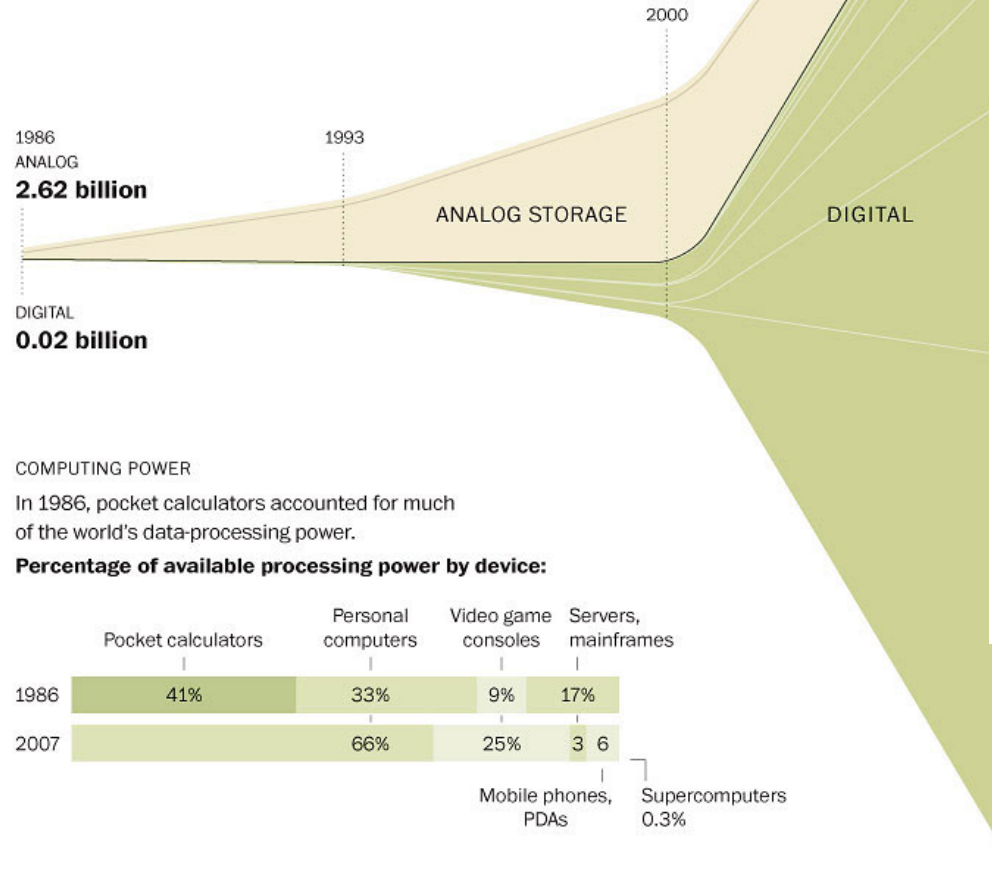
276.12 billion gigabytes



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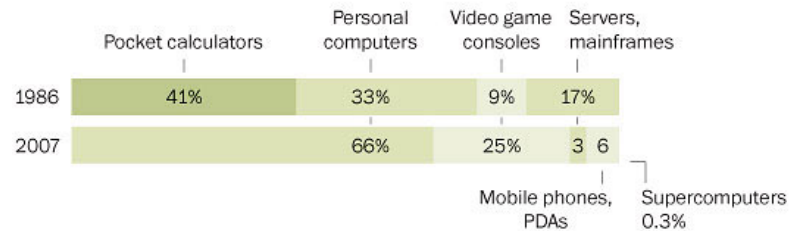
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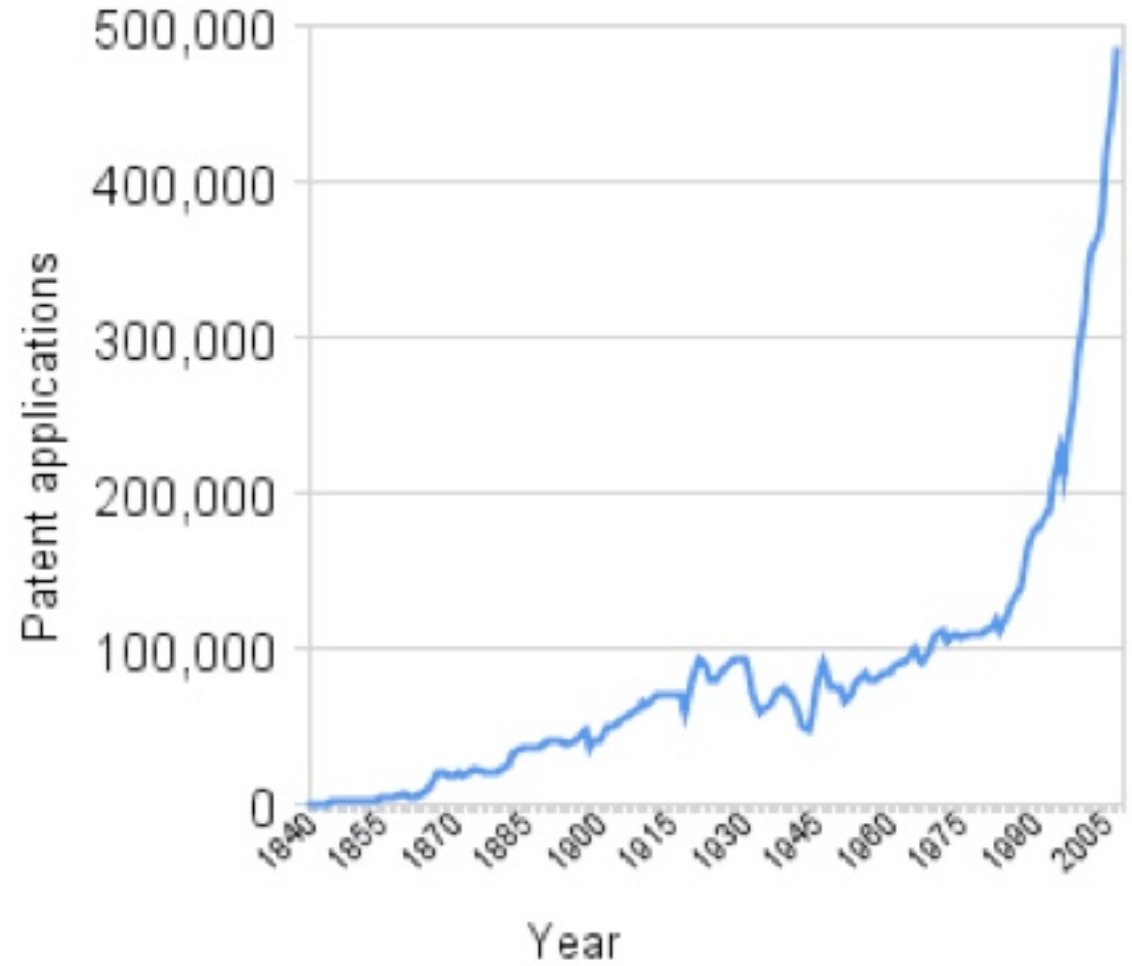
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Total Patent Applications



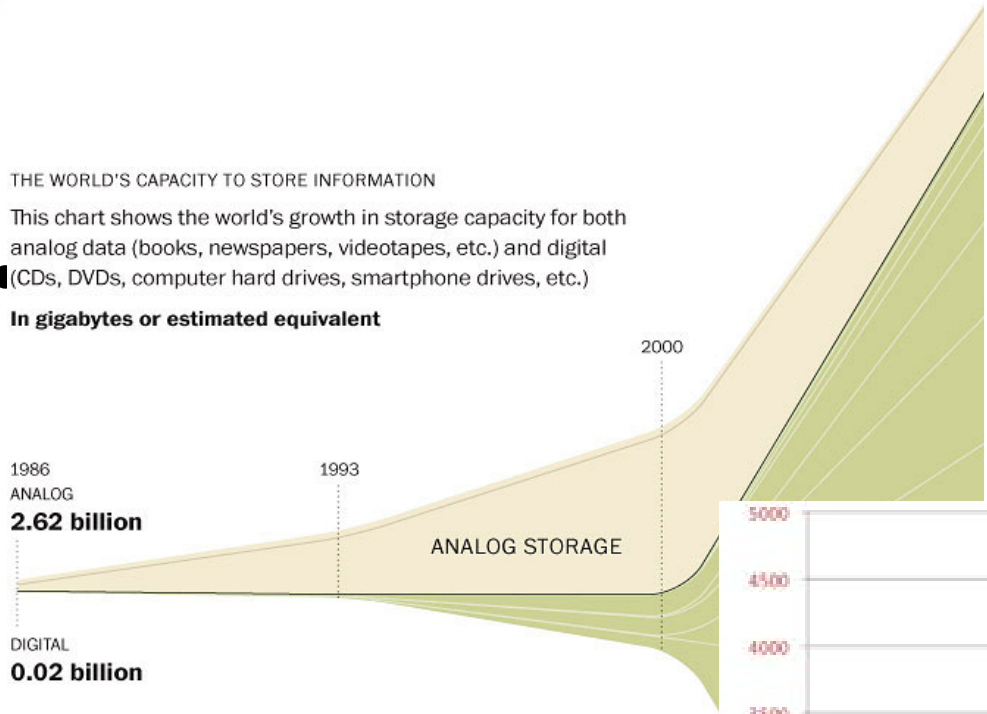
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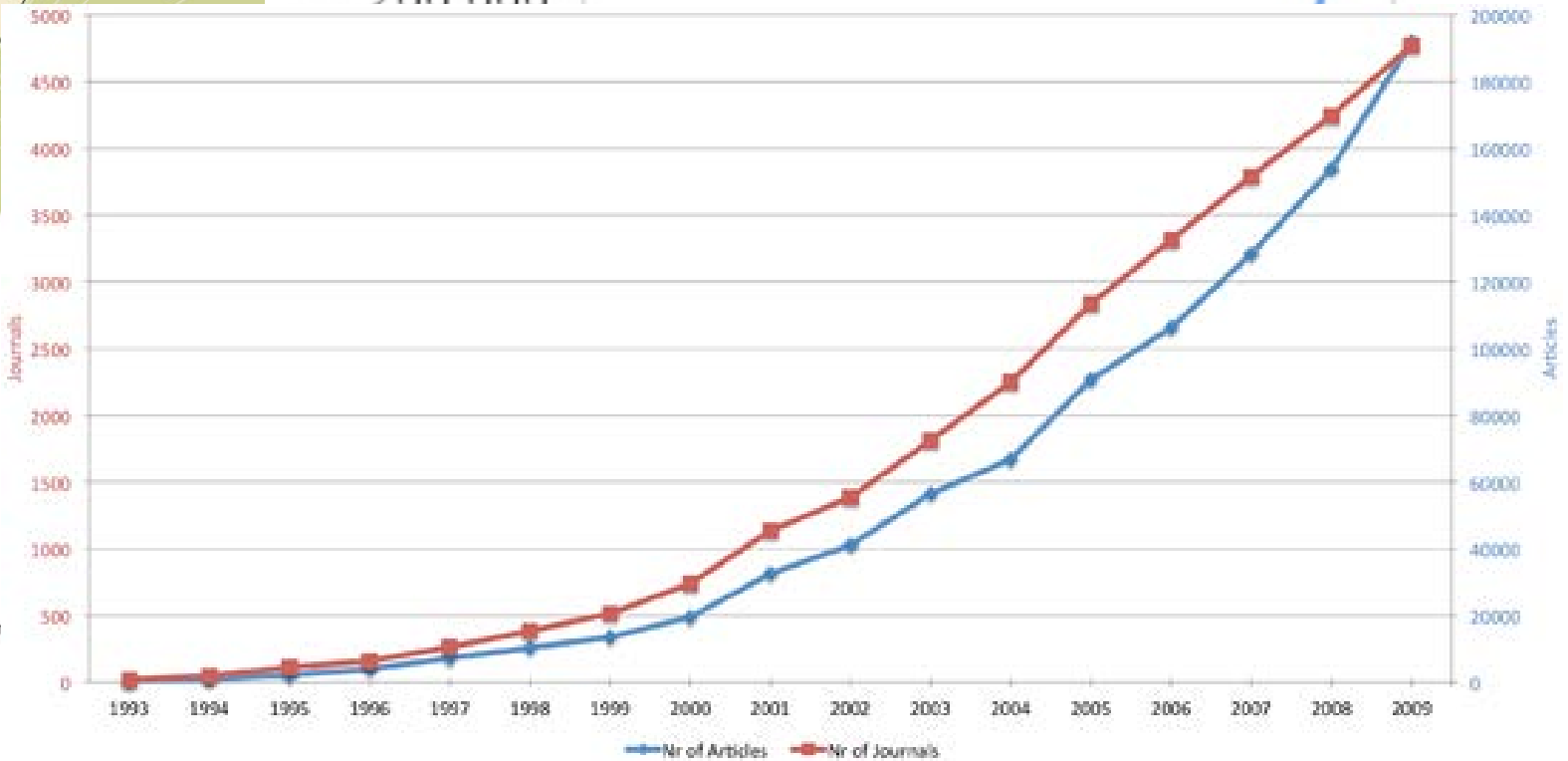
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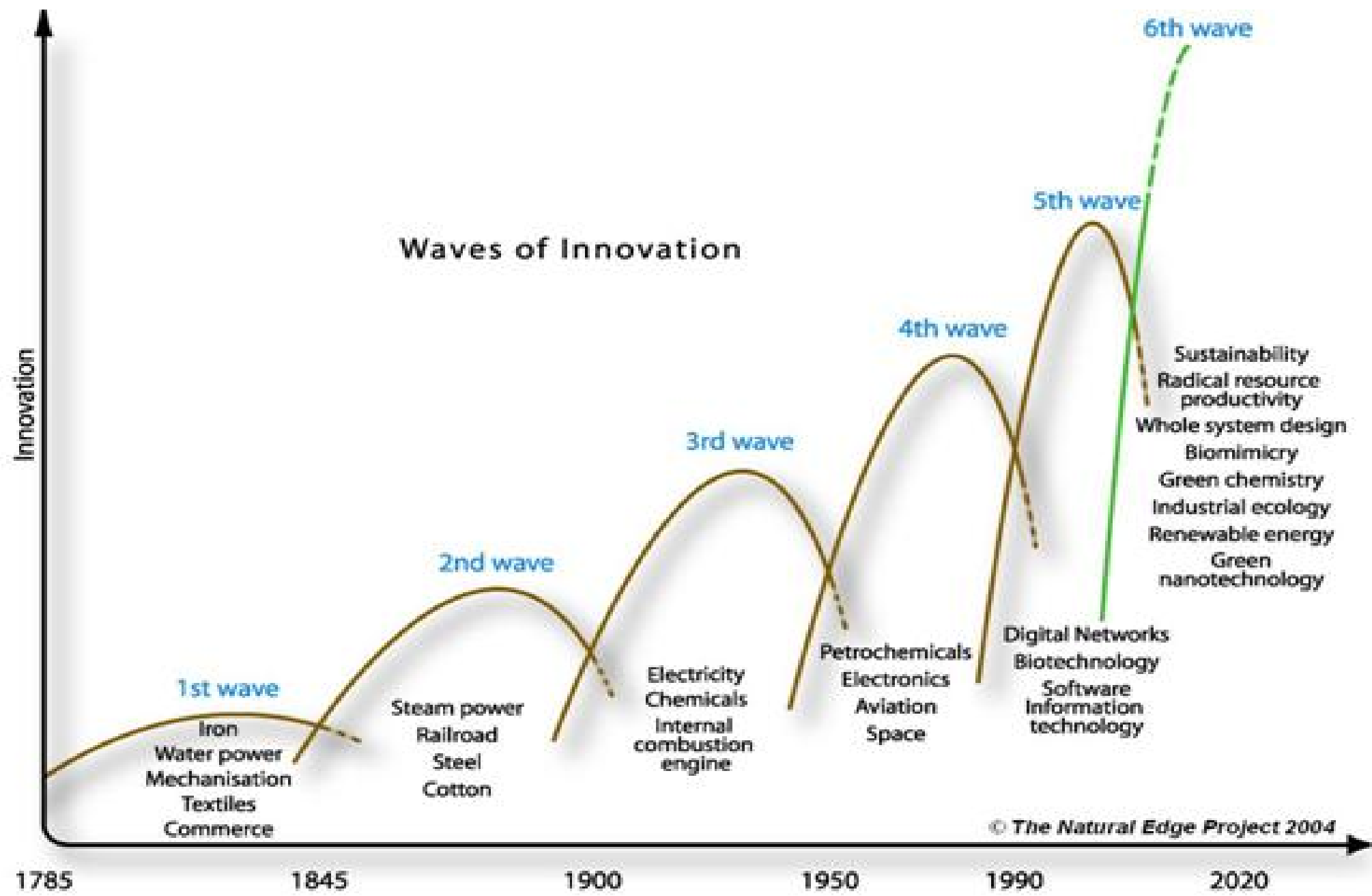
	Pocket calculators	Personal computers	Video game consoles	Servers, mainframes
1986	41%	33%	9%	17%
2007		66%	25%	3.6%

Mobile phones, PDAs
0.3%

Supercon
0.3%



276.12 billion gigabytes





Emerging scientific disciplines

Neuroethics

Medical Geology

Data Science

Neuroparasitology

Exo-meteorology

Nutrigenomics

Neuroepigenetics

Clidynamics

Synthetic Biology

Quantum Biology

Molecular Gastronomy

Computational Social Science

Affective Science

Pharmacometrics

Recombinant Memetics

Cognitive Economics

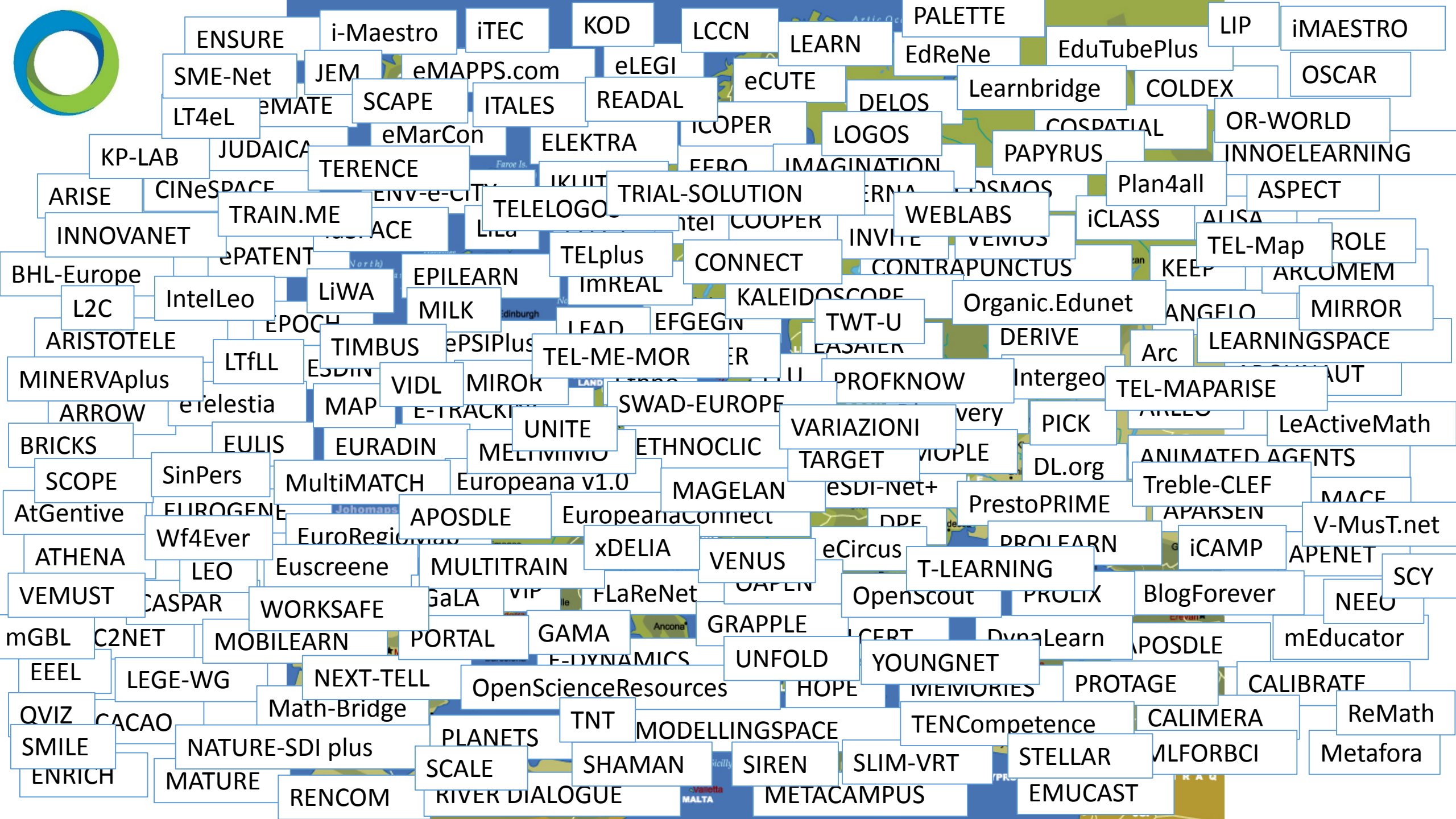
Human Macroecology

Organic Electronics

Quantitative Biology

Aeroecology





ENSURE

i-Maestro

iTEC

KOD

LCCN

LEARN

PALETTE

LIP

iMAESTRO

SME-Net

JEM

eMAPPS.com

eLEGI

eCUTE

EdReNe

EduTubePlus

OSCAR

LT4eL

eMATE

SCAPE

ITALES

READAL

ICOPER

DELOS

Learnbridge

COLDEX

OR-WORLD

KP-LAB

JUDAICA

eMarCon

ELEKTRA

ICOPER

LOGOS

PAPYRUS

INNOEARNING

TERENCE

IKUIT

TRIAL-SOLUTION

ERNA

OSMOS

Plan4all

ASPECT

ARISE

CINeSPACE

ENV-e-CIT

TELELOGO

TEL COOPER

WEBLABS

iCLASS

ALISA

INNOVANET

TRAIN.ME

SPACE

TELplus

CONNECT

INVITE

VEIMOS

TEL-Map

ROLE

BHL-Europe

ePATENT

LiWA

EPILEARN

ImREAL

CONTRAPUNCTUS

KEEP

ARCOMEM

L2C

IntelLeo

EPOCH

MILK

LEAD

EFGGIN

TWT-U

Organic.Edunet

ANGELO

MIRROR

ARISTOTELE

LTfLL

TIMBUS

ePSIPlus

TEL-ME-MOR

PROFKNOW

DERIVE

Arc

LEARNINGSPACE

MINERVAplus

ETESTIN

VIDL

MIROR

SWAD-EUROPE

Intergeo

TEL-MAPARISE

AUT

ARROW

etelestia

MAP

E-TRACKI

UNITE

ETHNOCLIC

VARIAZIONI

very

PICK

LeActiveMath

BRICKS

EULIS

EURADIN

MELTIVIVIO

MAGELAN

TARGET

PEOPLE

DL.org

ANIMATED AGENTS

SCOPE

SinPers

MultiMATCH

Europeana v1.0

ESDI-Net+

PrestoPRIME

Treble-CLEF

MACE

AtGentive

EUROGENE

APOSDLE

EuropeanaConnect

DPE

DL.org

APARSEN

V-MusT.net

ATHENA

Wf4Ever

EuroRegion

xDELIA

VENUS

eCircus

DROLEARN

iCAMP

APENET

SCY

VEMUST

CASPAR

WORKSAFE

GaLA

FLaReNet

OPENIN

Openscout

PROLIX

BlogForever

NEEU

mGBL

C2NET

MOBILEARN

PORTAL

GAMA

GRAPPLE

LCERT

DynaLearn

APOSDLE

mEducator

EEEL

LEGE-WG

NEXT-TELL

OpenScienceResources

HOPE

YOUNGNET

MEMORIES

PROTAGE

CALIBRATE

QVIZ

CACAO

Math-Bridge

TNT

MODELLINGSPACE

TENCompetence

CALIMERA

ReMath

SMILE

NATURE-SDI plus

PLANETS

SHAMAN

SIREN

SLIM-VRT

STELLAR

ILFORBCI

Metafora

ENRICH

MATURE

RENCOM

SCALE

RIVER DIALOGUE

METACAMPUS

EMUCAST



<http://www.glasba.videofon.si/>

DISNET

Študentski projekti iz in za industrijo

Teachers in the Digital Age

<http://svarog.org/>

IMAGINE

VideoLectures.Net

Mediamixer

Edoo

Xlike

SustEner

E-gradiva

DEAFVOC 2

Tandem

Translectures

IJEPEG-UMKI / ePlatform

iEARN

Safe.si

ADRIART

METHOD

EICL

DL@WEB

SIO

eTwinning

MARE

<http://astra.si/>

CMEPIUS

Spletno oko

Unisvet

Blend.FL

EQUAL Study

Online Presence for Learning

CALIBRATE

Open scientific evenings at University of Nova Gorica

Impletum

Comenius-EduMedia-Awards

ISME

Munus 2

Razvoj naravoslovnih kompetenc

School-wide vimeo channel

Enhancing the capacity of e-learning for educational institutions

ITC Euromaster

E-PRAGMATIC

Innovative 1:1 Pedagogy

e-Šolska torba

E-šolstvo

Mesto znanja

<http://www.egradiva.si/>

eMAPPS



Obstacles...



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Fragmentary results - fragmentary research and development



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Disintegration:

Cross-domain and cross-level divide

Bottom up (needs) detached from the top down (legislation)



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Limited vision of Openness

Quality of content/services



Challenges...



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Personalised (learner centric)

vs.

Mass



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vs.

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vs.

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Open

vs.

Proprietary



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Quality

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Quantity

Open

vs.

Proprietary

Sharing (social)

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Transferring
(mechanistic)



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Quantity

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vs.

Proprietary

Sharing (social)

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Transferring
(mechanistic)

Participative

vs.

Directed



OpeningUp Slovenia



OpeningUp Slovenia

- Based on:
 - EC communication titled 'Opening up Education' (DG EAC, Connect), Sept 2013
 - Videolectures.net success
 - Open education projects at Universities
 - E-education program supported by the Ministry
 - Many successful elearning technology developers and providers and
 - Industry lead initiative for Smart Specialisation



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 - Industry lead initiative for Smart Specialisation
- Slovenia is proposing to take a lead in OpeningUpEducation initiative set by EU by:
 - Providing EU state level commitment for the programme by all stakeholders
 - Offering Slovenia as a testbed to develop, test and deploy best practices



Opening Up Slovenia

- Develop open educational system
 - Step1: Parallel to the formal one

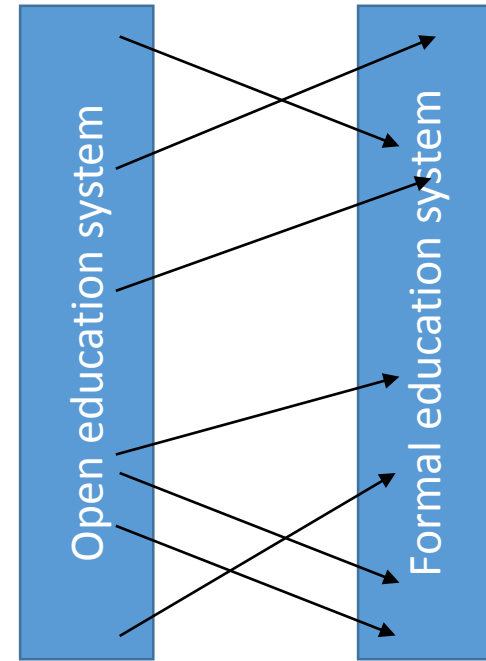
Open education system

Formal education system



Opening Up Slovenia

- Develop open educational system
 - Step1: Parallel to the formal one
 - Step2: Connected to the formal one





Opening Up Slovenia

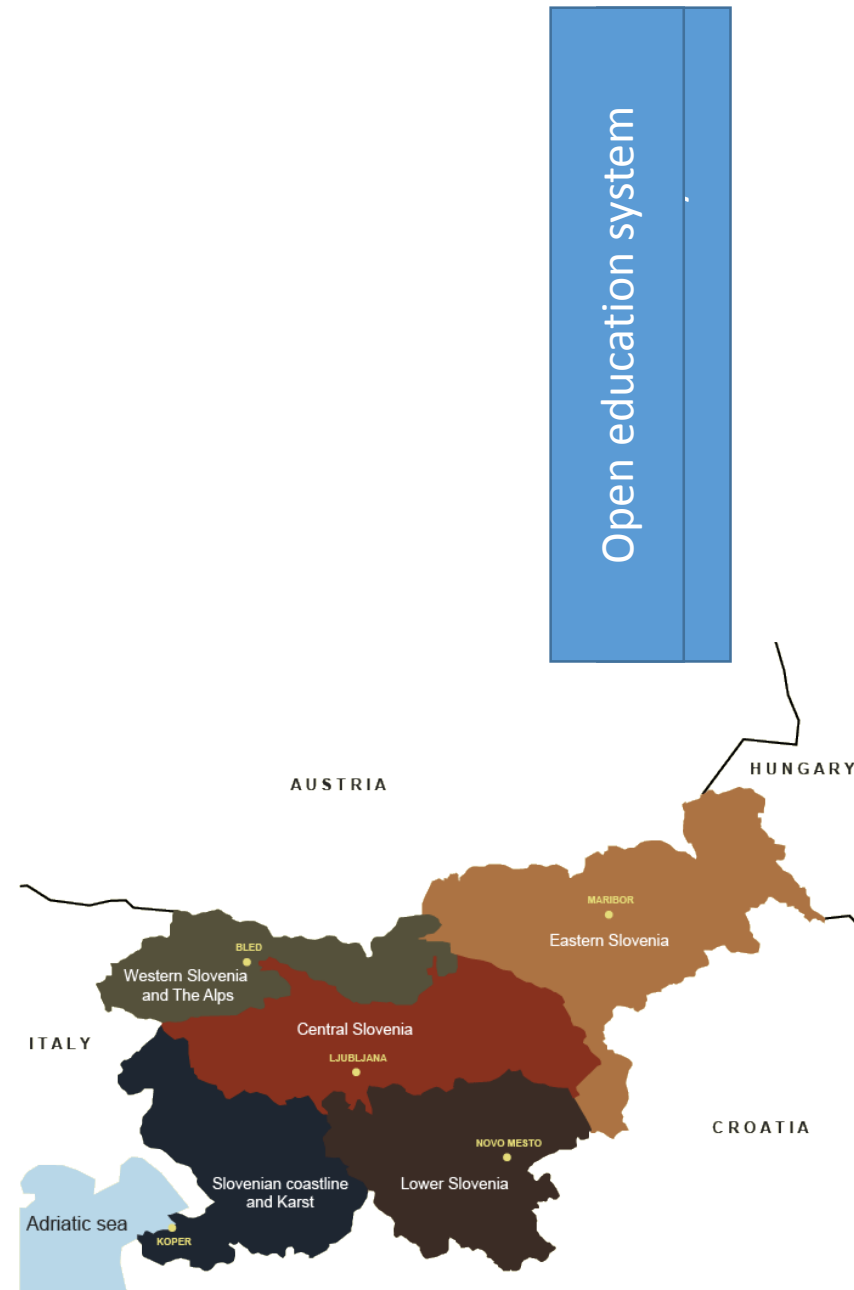
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Open education system



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Open education system

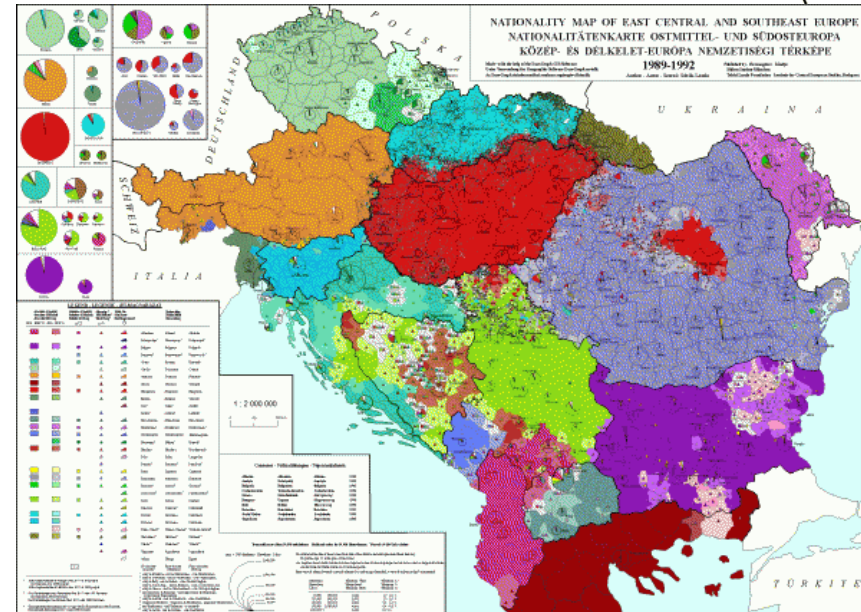


Opening Up Slovenia

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- Targeting:
 - Step1: National level
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Open education system





Opening Up Slovenia

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- Targeting:
 - Step1: National level
 - Step2: SouthEast Europe
 - Step3: Europe

Open education system





Open education

Open Universities

Open accreditation

Open badges

Open licenses

Open content

Open textbook

MOOCs

Open source

Open Context Aware Environments

Open software

Open access

OER

Open curriculum

OCW



Open education

Open Universities

Large scale reasoning

Open licenses

Machine learning

Open source

Information retrieval

Knowledge discovery

OER

Interoperability models and solutions

Open accreditation

Language technologies

Open content

Open textbook

Multimodal interfaces

Cognitive systems

Open software

Open curriculum

Data collection and storage

Self-awareness

Open badges

Semantic and Context technologies

MOOCs

Ubiquitous sensing

Open Context Aware Environments

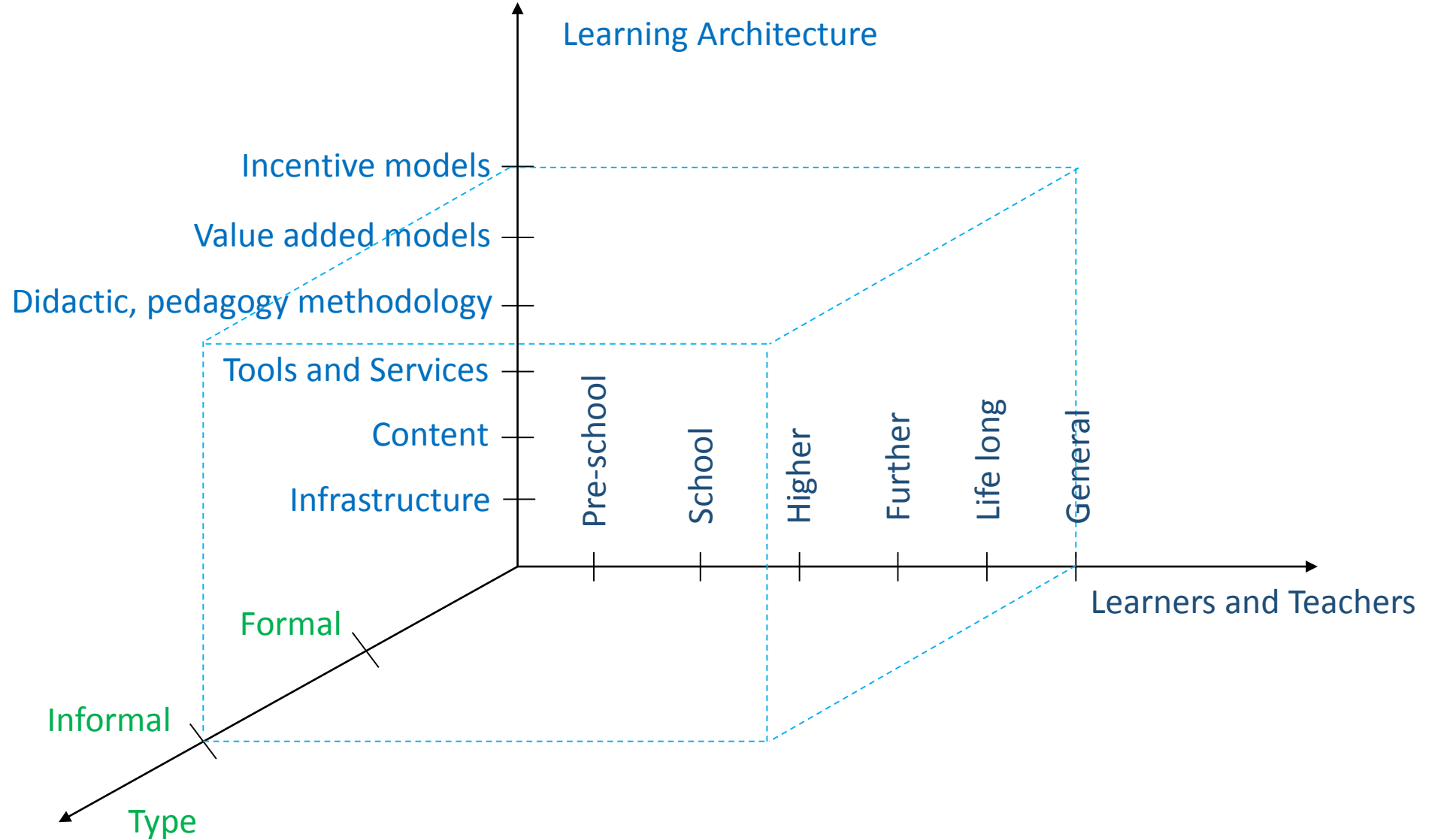
Open access

Internet of things (everything)

OCW

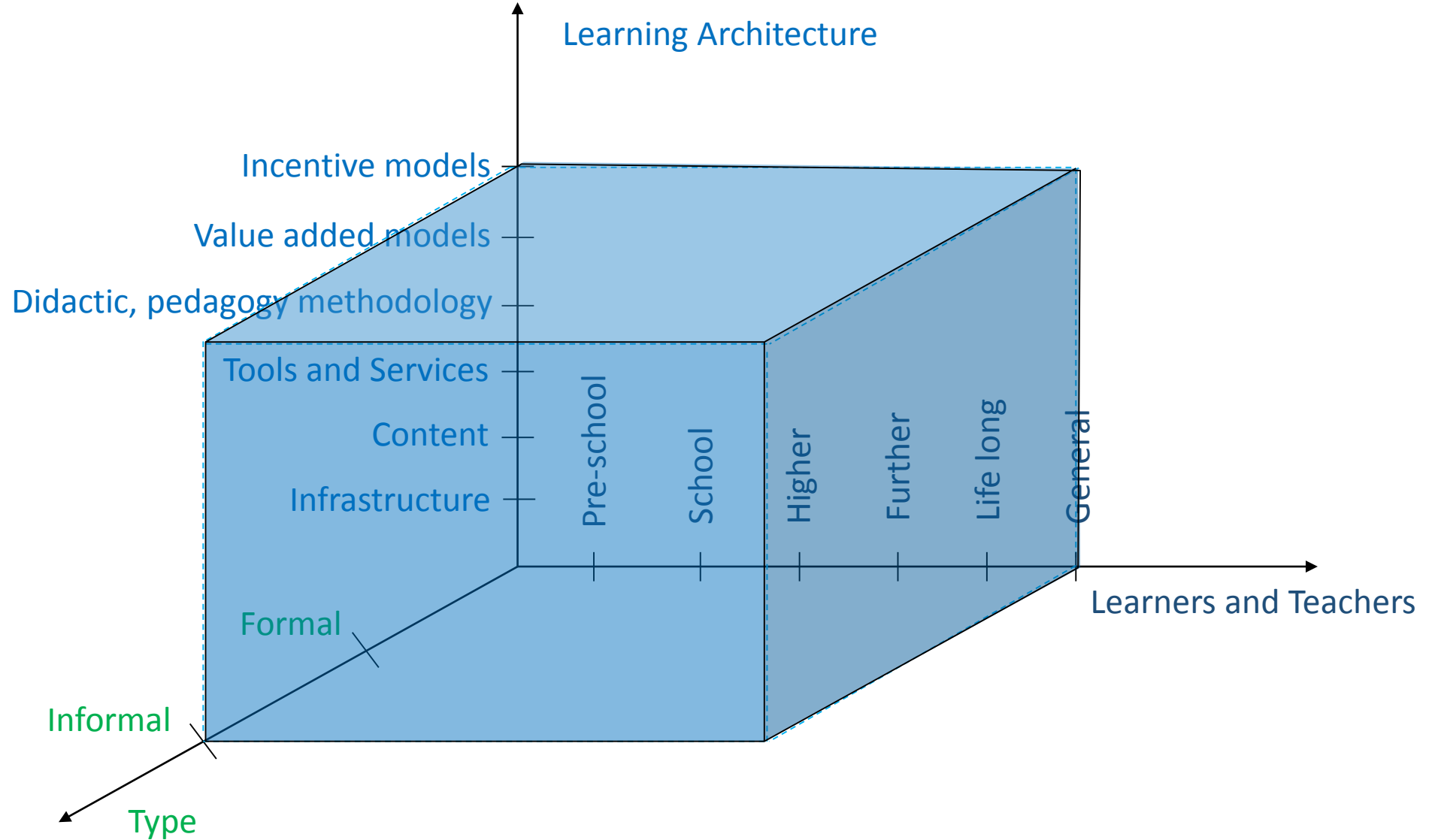


Open education matrix



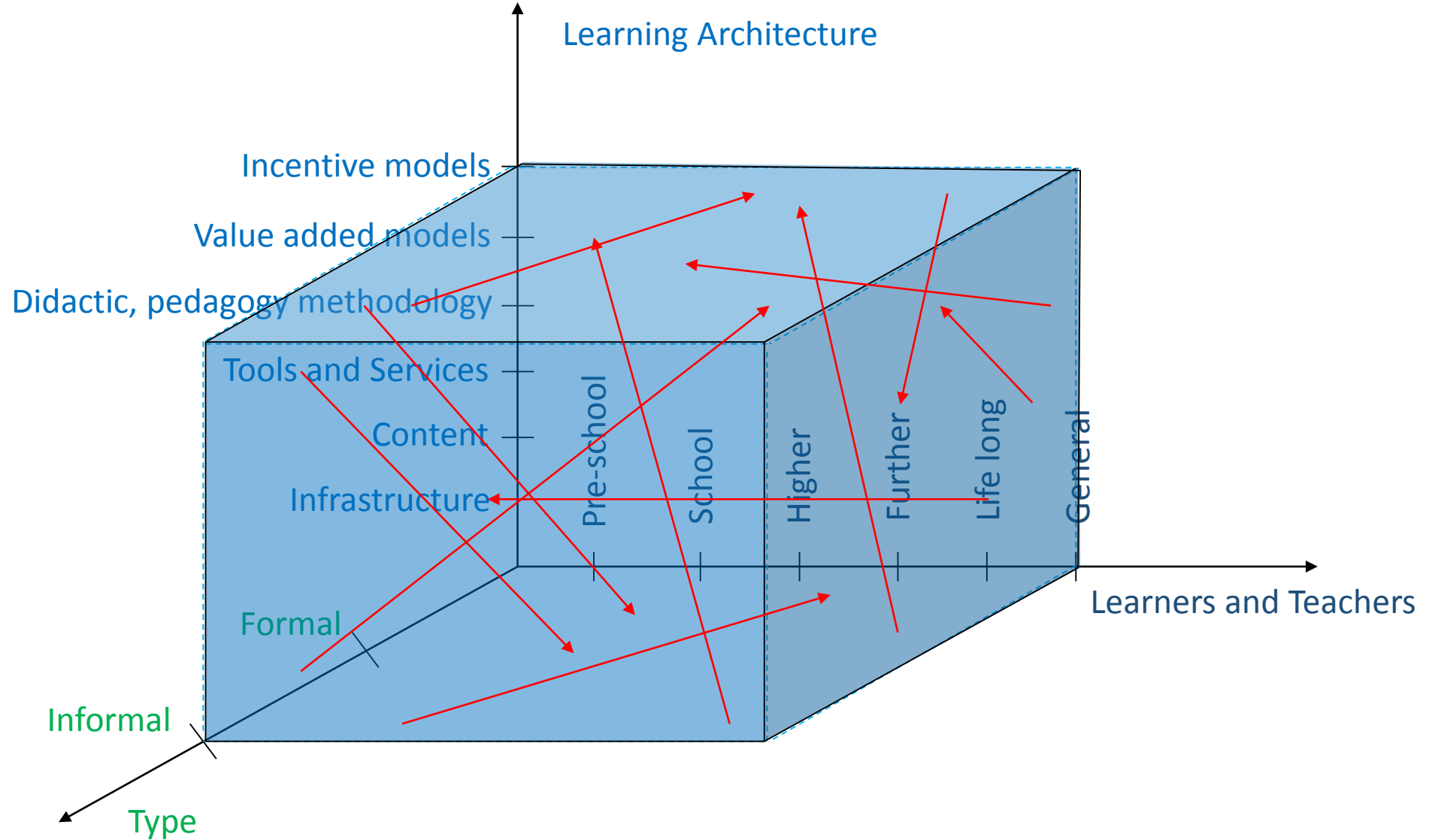


Open education matrix



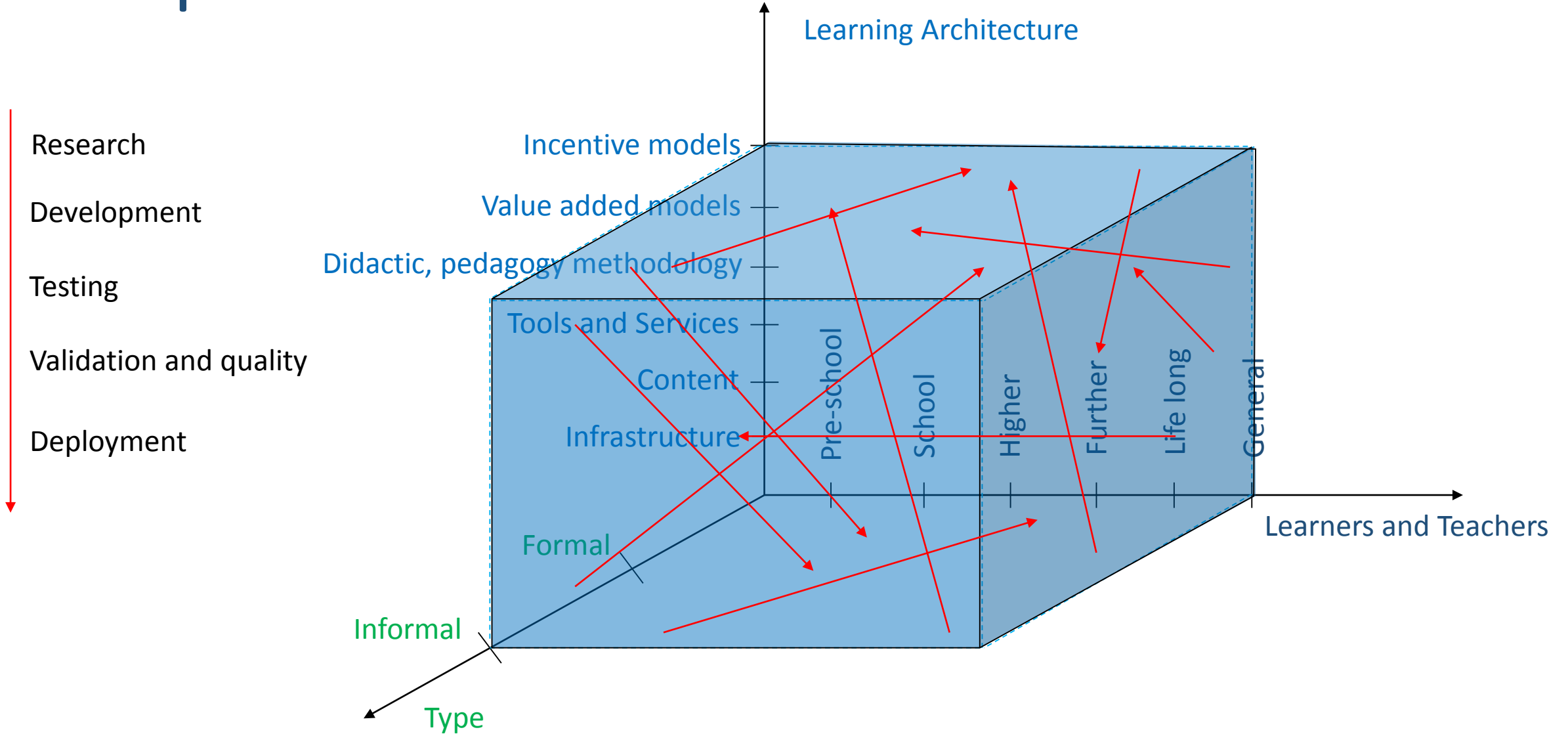


Open education matrix





Open education matrix





Bottom up initiative

- Knowledge 4 All Foundation Ltd.
- Jožef Stefan Institute
- University of Maribor
- University of Primorska
- University of Ljubljana
- University of Nova Gorica
- Ministry of Education, Science and Sport of Slovenia
- OS Savsko Naselje primary school, representative of the national primary schools cluster
- Vrtec Trnovo kindergarten, representative of the national kindergarten cluster
- Chamber of Commerce and Industry of Slovenia
- Slovenian National Post – system integrator



Why Slovenia?

- Little big country
- Personalisation – gaining from cultural richness
- Excellent background and raised awareness
- Critical mass of advanced technology, content, projects, networks
- Needs and interests from major stakeholders
- Strategically committed



Associated institutions

- **Austria:** Faculty of Computer Science, Graz University of Technology
- **Belgium:** Department of Educational Sciences, Vrije Universiteit Brussel
- **Croatia:** Univeristy of Zadar, Josip Juraj Strossmayer University of Osijek, University of Rijeka
- **Estonia:** Institute of Informatics, Tallinn University
- **France:** University of Nantes, INRIA - the French Institute for Research in Computer Science and Control
- **Greece:** SingularLogic SA, NTUA
- **Italy:** International Centre for Genetic Engineering and Biotechnology (ICGEB), Trieste, Interdipartimental Center of Research in Urban Planning "Alberto Calza Bini" , Università degli Studi di Napoli Federico II, IAES International Academy of Environmental Sciences, Venice, Department of Mathmatics and COmputer Science, University Udine, University of Trieste
- **Germany:** Karlsruhe Institute of Technology
- **Lithuania:** Vilnius Business College
- **Netherlands:** UNESCO OER Chair, Open University Netherlands, EADTU, European Association of Distance Teaching Universities
- **Poland:** Lublin University of Technology, University of Natural Sciences and Humanities in Siedlce
- **Portugal:** Faculty of Science and Technology of Universidade Nova de Lisboa, UNINOVA (Institute for the Development of New Tecnologies)
- **Slovenia:** Karst Research Institute, Postojna, Slovenia, British Council Slovenia, IAM - Institute and Academy of Multimedia, School centre Kranj, Slovenian institute for Adult Education, National School of Leadership in Education, Geodetic Institute, Slovenia National Examinations centre
- **Spain:** Madrid Open University, Universidad Complutense de Madrid, Universitat Politècnica de València
- **Turkey:** Department of Computer Education & Instructional Technology Middle East Technical University
- **United Kingdom:** The Open University UK, University College London
- **United States:** OpenCourseWare Consortium, Opencast Matterhorn



Running Activities



Running Activities

- OuS Kick-off - OCWC Global 2014, 23-25 April 2014, Ljubljana
 - President of republic of Slovenia Borut Pahor and UNESCO as Honorary Patrons
 - Slovenian Minister for Education Jernej Pikalo as promotor of the OuS
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- Running projects
 - Shared Open Universities (U, PS, IJS)
 - National videolectures.net and scienceatlas.si
 - RTD center for schools (OS, IJS, PS)
 - RTD center for kindergardens (VT, IJS, OS)
 - Mymachine (OS, IJS, U, VT)
 - Slovenian Educational Network: e-textbook library (50+), teachers training (40.000)
 - “OpenYota” – holistic OS solution for Open Education
 - Contextual Microlearning with AI
 - On-the-job competencies adaptation



Let's start opening...!

<http://www.k4all.org/openingupslovenia/>