Committee on European Computing Education

Jan Vahrenhold
Dept. of Computer Science
WWU Münster, Germany

The Committee on European Computing Education (CECE) established by ACM Europe ⇗ and Informatics Europe ⇗ has undertaken the major task of mapping out Informatics education in schools, for curricula and teaching training and methodologies, across Europe.

This interactive map visualises the data collected over the past year, providing an unprecedented level of detail and coverage, as well as a wealth of fundamental information on the status of Informatics (and Digital Literacy) teaching in Europe. The map currently presents advanced results and allows for contributions and verification by invited academics and other stakeholders.

The data presented was gathered by sending detailed questionnaires to relevant contacts in all European countries. The questionnaires were broadly divided into two main sections: one collecting information about the status of Digital Literacy teaching and another about the status of Informatics teaching. Digital Literacy is defined here as *the skills to use IT and its devices intelligently*. Informatics is defined here as *the scientific discipline enabling IT, with its own concepts, methods, body of knowledge and open issues*, parallel to other fundamental scientific disciplines such as Mathematics and Physics. Note that in some European countries Informatics is known as Computer Science or Computing.

We have relied on, and are grateful for, community contribution. In the absence of official governmental sources in many countries, we have relied on input from academics, researchers, practitioners and teachers who are at the forefront of a slow, but irreversible, movement across Europe to promote the teaching of high quality Informatics to the young. The educational, social and economic future of Europe relies on the success of this movement.

Below you can access all data gathered in this study and learn more about the status of Informatics education in Europe.

Data Availability

Which countries have provided data? How well are we covering Europe?

View it on the map

ECSS 2016, October 25, 2016

IE / ACM-E Working Group (2012/13)

Image: © iStock.com / DNY59

IE / ACM-E Working Group (2012/13)

Informatics education:

Europe cannot afford to miss the boat

Report of the joint
Informatics Europe & ACM Europe Working Group
on informatics education
February 2013

Working group members

Informatics Europe:

Walter Gander (chair), ETH Zurich, Switzerland
Antoine Petit, Inria & ENS Cachan, France
Gérard Berry, Collège de France
Barbara Demo, University of Turin, Italy
Jan Vahrenhold, University of Munster, Germany

ACM Europe:

Andrew McGettrick, University of Strathclyde, Scotland
Roger Boyle, University of Aberystwyth, Wales
Michèle Drechsler, INRP, Lyon, France
Avi Mendelson, Microsoft, Israel
Chris Stephenson, Comp. Sc. Teachers' Association, USA

ACM Europe and Informatics Europe liaison:

Carlo Ghezzi, Politecnico di Milano, Switzerland
Bertrand Meyer, ETH Zurich, Switzerland, ITMO, Russia, and Eiffel Software, USA

Image: © iStock.com / DNY59

Committee on European Computing Education

Various European countries had introduced successful informatics elements into their curricula starting in the 1970s, but in many cases these efforts have been dropped due to insufficient awareness of the importance of informatics and the frequent misunderstanding that digital awareness is all that needs to be taught. The forthcoming supplementary reports will provide country-by-country descriptions of the state of affairs, based in part on the direct experience of committee members.

Informatics Europe

acm Europe

Committee on European Computing Education

Various European countries had introduced successful informatics elements into their curricula starting in the 1970s, but in many cases these efforts have been dropped due to insufficient awareness of the importance of informatics and the frequent misunderstanding that digital awareness is all that needs to be taught. The forthcoming supplementary reports will provide country-by-country descriptions of the state of affairs, based in part on the direct experience of committee members.

Informatics Europe

acm Europe

Jan Vahrenhold, Münster [Chair]

Michael Caspersen, Arhus [Co-Chair]

Barbara Demo, Torino

Michael Kölling, Kent

Antoine Petit, INRIA

Serdar Tasiran, Istanbul

Cristina Pereira, Zurich [Sec.Gen.]

Mirko Westermeier, Münster [Assistant]

Committee on European Computing Education

Various European countries had introduced successful informatics elements into their curricula starting in the 1970s, but in many cases these efforts have been dropped due to insufficient awareness of the importance of informatics and the frequent misunderstanding that digital awareness is all that needs to be taught. The forthcoming supplementary reports will provide country-by-country descriptions of the state of affairs, based in part on the direct experience of committee members.

Informatics Europe

acm Europe

Jan Vahrenhold, Münster [Chair]

Michael Caspersen, Arhus [Co-Chair]

Gérard Berry, INRIA

Judith Gal-Ezer, OUI

Michael Kölling, Kent

Andrew McGettrick, Strathclyde

Enrico Nardelli, Rome

Cristina Pereira, Zurich [Sec.Gen.]

Mirko Westermeier, Münster [Assistant]

Year One (July 2014 - July 2015)

[January 2014]

MemberNet Europe

Education

ACM Europe, IE Form Committee on European Computing Education
ACM Europe and Informatics Europe are continuing the work they began last year with their report, Informatics Education—Europe Cannot Afford to Miss the Boat, which highlighted the need for increased investment in CS education for Europe to remain competitive in the global technology arena. With the new name "Committee on European Computing Education (CECE)," the group plans to supplement this report by mapping out informatics education both for curricula and for teaching methodologies across Europe and by analyzing selected case studies. The focus will be on secondary education, with primary education included where appropriate, and will identify factors for success as well as obstacles to implementation of informatics curricula in schools.

Image: © iStock.com / Alexander Chernyakov, Dmitri Shironosov, deimagine, shironosov, Chris Rogers

Year One (July 2014 - July 2015)

[January 2014]


MemberNet Europe

Education

ACM Europe, IE Form Committee on European Computing Education
ACM Europe and Informatics Europe are continuing the work they began last year with their report, Informatics Education—Europe Cannot Afford to Miss the Boat, which highlighted the need for increased investment in CS education for Europe to remain competitive in the global technology arena. With the new name "Committee on European Computing Education (CECE)," the group plans to supplement this report by mapping out informatics education both for curricula and for teaching methodologies across Europe and by analyzing selected case studies. The focus will be on secondary education, with primary education included where appropriate, and will identify factors for success as well as obstacles to implementation of informatics curricula in schools.

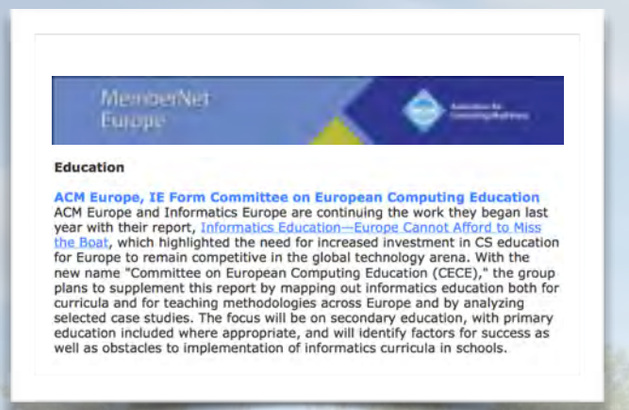
July 2014

November 2014

Image: © iStock.com / Alexander Chernyakov, Dmitri Shironosov, deimagine, shironosov, Chris Rogers

Year One (July 2014 - July 2015)

[January 2014]


MemberNet Europe

Education

ACM Europe, IE Form Committee on European Computing Education
ACM Europe and Informatics Europe are continuing the work they began last year with their report, Informatics Education—Europe Cannot Afford to Miss the Boat, which highlighted the need for increased investment in CS education for Europe to remain competitive in the global technology arena. With the new name "Committee on European Computing Education (CECE)," the group plans to supplement this report by mapping out informatics education both for curricula and for teaching methodologies across Europe and by analyzing selected case studies. The focus will be on secondary education, with primary education included where appropriate, and will identify factors for success as well as obstacles to implementation of informatics curricula in schools.

July 2014

November 2014

Image: © iStock.com / Alexander Chernyakov, Dmitri Shironosov, deimagine, shironosov, Chris Rogers

Year One (July 2014 - July 2015)

[January 2014]

MemberNet Europe

Education

ACM Europe, IE Form Committee on European Computing Education
ACM Europe and Informatics Europe are continuing the work they began last year with their report, Informatics Education—Europe Cannot Afford to Miss the Boat, which highlighted the need for increased investment in CS education for Europe to remain competitive in the global technology arena. With the new name "Committee on European Computing Education (CECE)," the group plans to supplement this report by mapping out informatics education both for curricula and for teaching methodologies across Europe and by analyzing selected case studies. The focus will be on secondary education, with primary education included where appropriate, and will identify factors for success as well as obstacles to implementation of informatics curricula in schools.

July 2014

November 2014

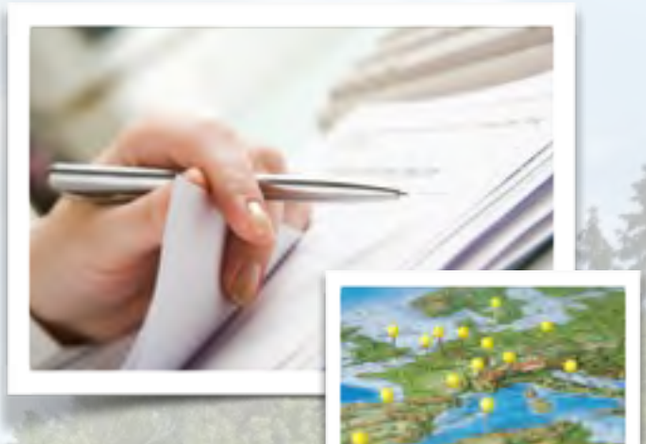
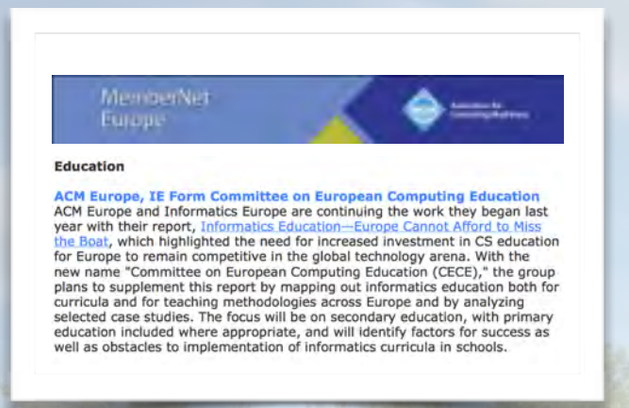


Image: © iStock.com / Alexander Chernyakov, Dmitri Shironosov, deimagine, shironosov, Chris Rogers

Year One (July 2014 - July 2015)

[January 2014]



MemberNet Europe

Education

ACM Europe, IE Form Committee on European Computing Education
ACM Europe and Informatics Europe are continuing the work they began last year with their report, Informatics Education—Europe Cannot Afford to Miss the Boat, which highlighted the need for increased investment in CS education for Europe to remain competitive in the global technology arena. With the new name "Committee on European Computing Education (CECE)," the group plans to supplement this report by mapping out informatics education both for curricula and for teaching methodologies across Europe and by analyzing selected case studies. The focus will be on secondary education, with primary education included where appropriate, and will identify factors for success as well as obstacles to implementation of informatics curricula in schools.

July 2014

November 2014

March 2015

Year One (July 2014 - July 2015)

[January 2014]

MemberNet Europe

Education

ACM Europe, IE Form Committee on European Computing Education
ACM Europe and Informatics Europe are continuing the work they began last year with their report, Informatics Education—Europe Cannot Afford to Miss the Boat, which highlighted the need for increased investment in CS education for Europe to remain competitive in the global technology arena. With the new name "Committee on European Computing Education (CECE)," the group plans to supplement this report by mapping out informatics education both for curricula and for teaching methodologies across Europe and by analyzing selected case studies. The focus will be on secondary education, with primary education included where appropriate, and will identify factors for success as well as obstacles to implementation of informatics curricula in schools.

July 2014

November 2014

March 2015

July 2015

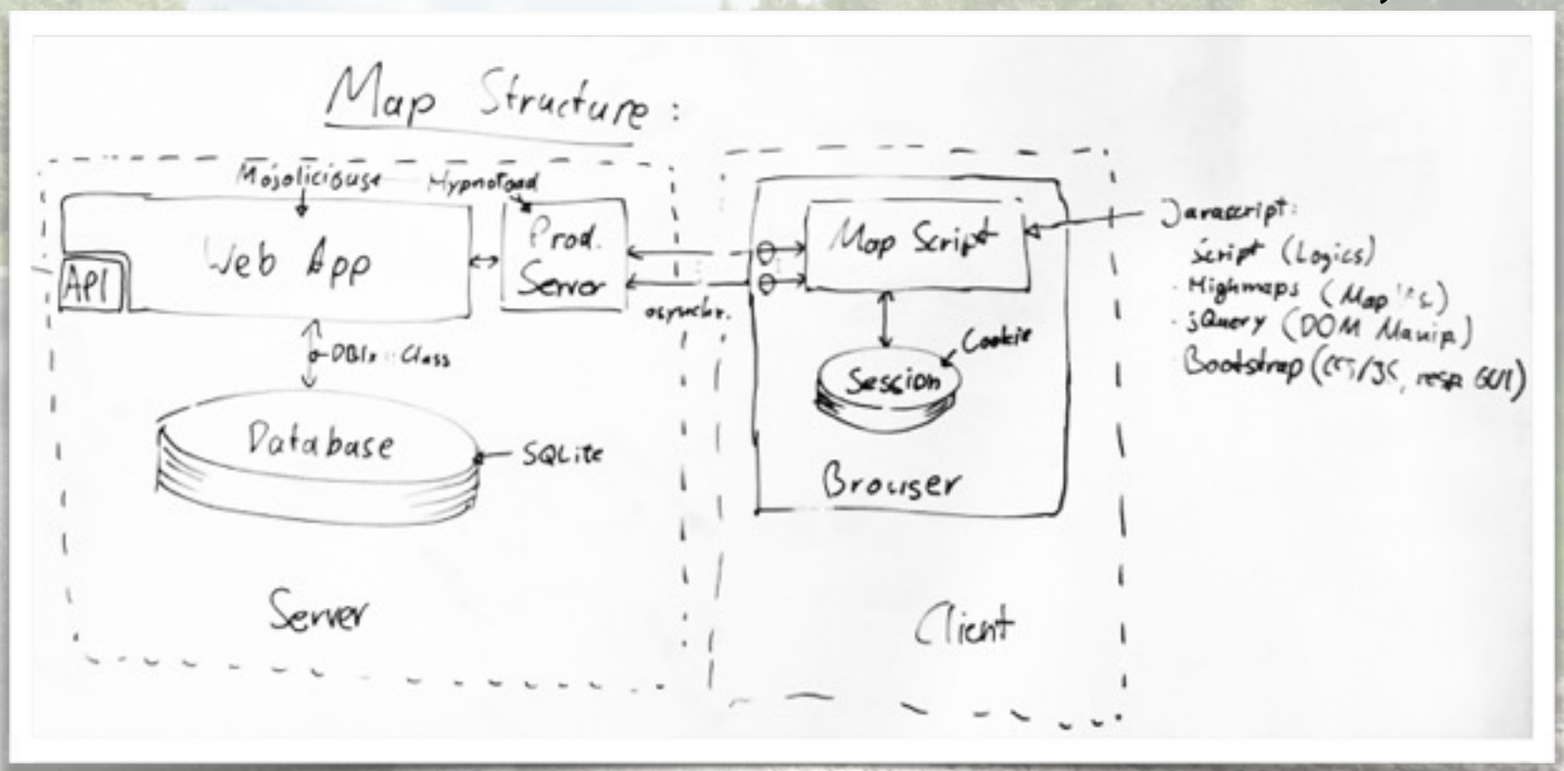


Image: © iStock.com / Alexander Chernyakov, Dmitri Shironosov, deimagine, shironosov, Chris Rogers

Year Two (July 2015 - July 2016)

August 2015

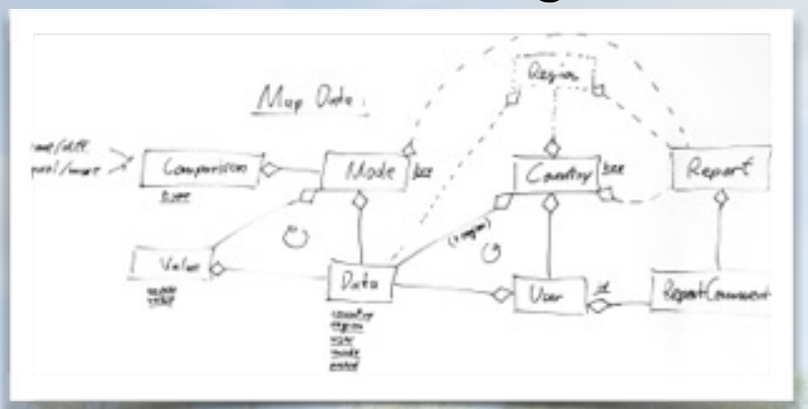
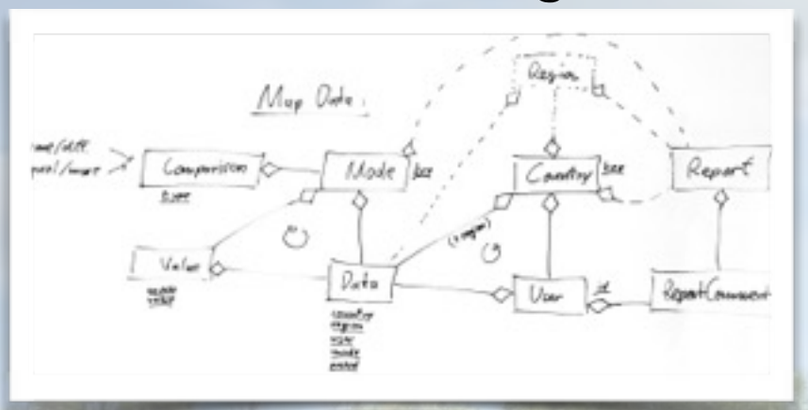


Image: © iStock.com / Alexander Chernyakov, Jana Krcmarova, RaffaeleVannucci, shironosov, clu, Dmitri Shironosov , Pali Rao

Year Two (July 2015 - July 2016)

August 2015



October 2015

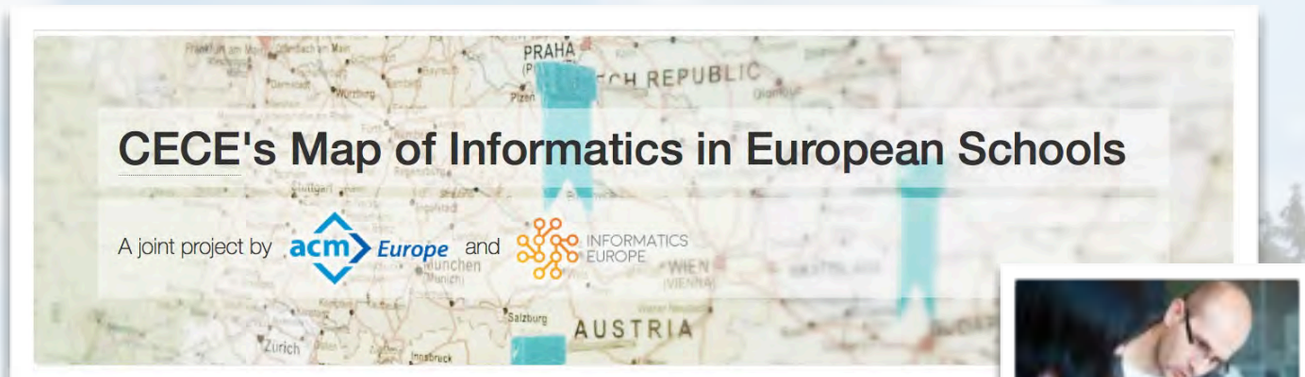


Image: © iStock.com / Alexander Chernyakov, Jana Krcmarova, RaffaeleVannucci, shironosov, clu, Dmitri Shironosov , Pali Rao

Year Two (July 2015 - July 2016)

Acknowledgements

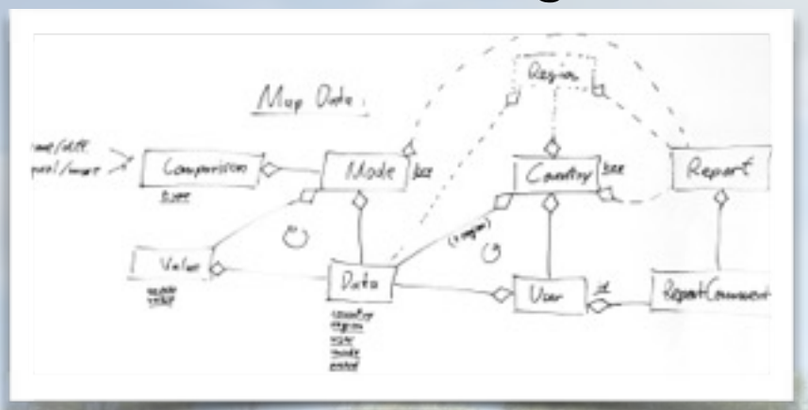
This mapping project would not have been possible without the dedication and contributions of many European volunteers:

Luca Aceto, Sigrún María Ammendrup, Charoula Angeli-Valanides, Reyyan Ayfer, Erik Barendsen, Irene Bell, András Benczúr, Gerard Berry (CECE), Premek Brada, Andrej Brodnik, Neil Brown, Gaetano Bugeja, Michael E. Caspersen (CECE), Miroslava Cernochova, Claire Conneely, Valentina Dagiene, Mats Daniels, Colin de la Higuers, Barbara Demo, Mark Dorling, Mircea Dragan, Josep Fernandez, Slavko Gajin, Judith Gal-Ezer (CECE), Varvara Garneli, Michail Giannakos, Andrii Glybovets, Nataša Grgurina, Yasemin Gülbahar, Manuel Hermenegildo, Juraj Hromkovic, Simon Humphreys, Lisa Kaczmarczyk, Evgeniy Khenner, Michael Kölling (CECE), Mart Laanpere, Kosta Lili, Ivan Loginov, Zsakó László, Lauri Malmi, Zlatka Markučič, Bern Martens, Andrew McGettrick (CECE), Kim Mens, Pedro Meseguer, Peter Micheuz, Nataša Mori, Simona Motogna, Dmitry Mouromtsev, Enrico Nardelli (CECE), Pablo Nogueira, Leonids Novickis, Andreas Nürnberger, Cristina Pereira (CECE), Paweł Perekietka, Dana Petcu, Alexandre Miguel Pinto, Vladimir Radevski, Giovanni Serafini, Catalin Stoean, Maciej M Sysło, Serdar Tasiran, Jan Vahrenhold (CECE), Jiří Vaníček, Jaak Vilo, Mihaela Vladut, Mirko Westermeier (CECE), Ilse White, Michal Winczer.

CECE acknowledges the support of ACM Europe and Informatics Europe and the members of the respective boards.

Year Two (July 2015 - July 2016)

August 2015



October 2015

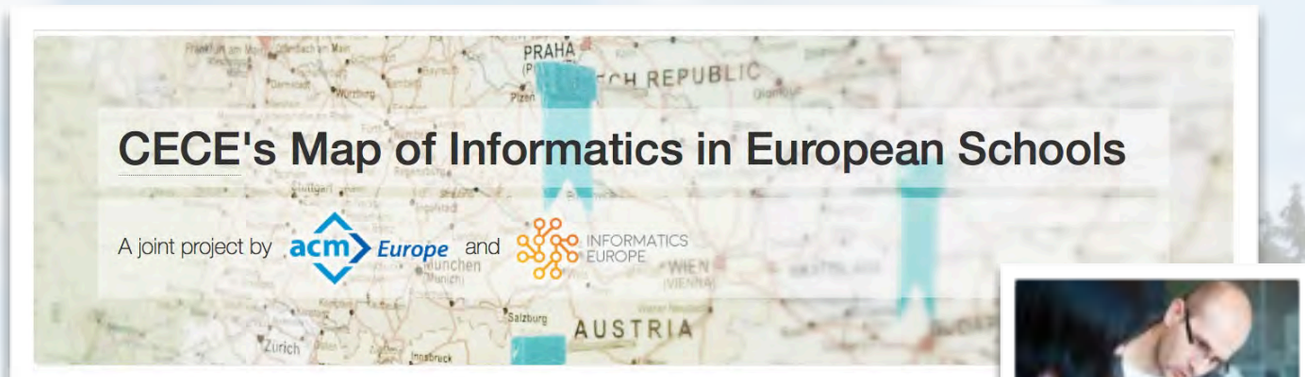
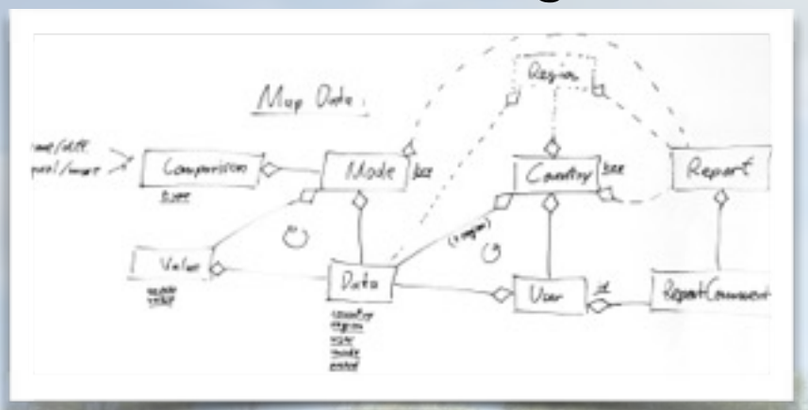


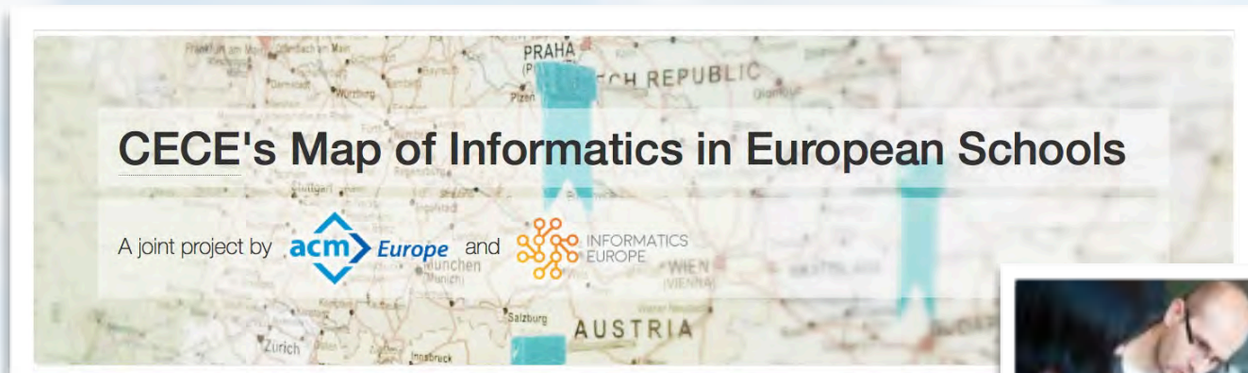
Image: © iStock.com / Alexander Chernyakov, Jana Krcmarova, RaffaeleVannucci, shironosov, clu, Dmitri Shironosov , Pali Rao

Year Two (July 2015 - July 2016)

August 2015



October 2015

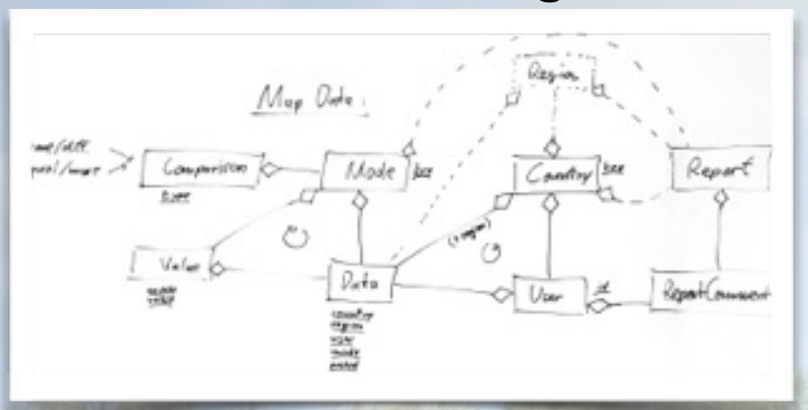


March 2016

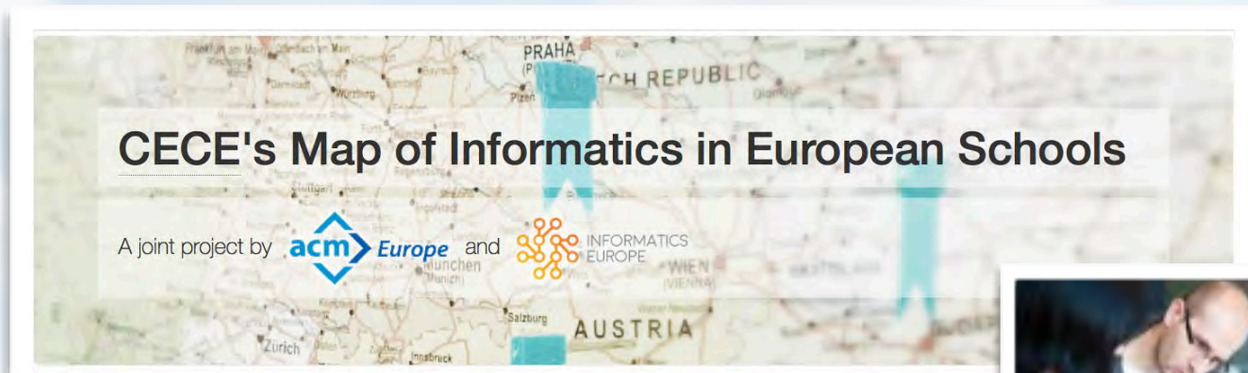
Image: © iStock.com / Alexander Chernyakov, Jana Krcmarova, RaffaeleVannucci, shironosov, clu, Dmitri Shironosov , Pali Rao

Year Two (July 2015 - July 2016)

August 2015



October 2015



March 2016

July 2016

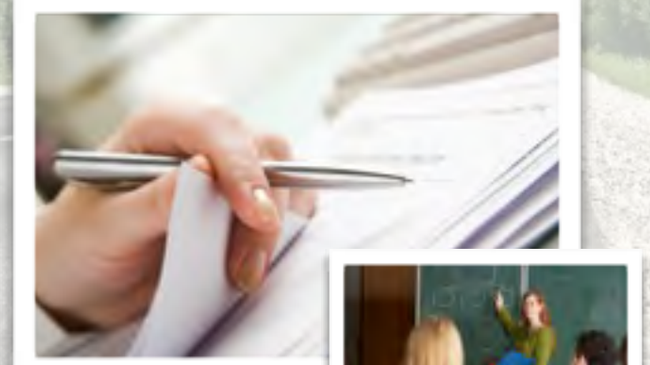
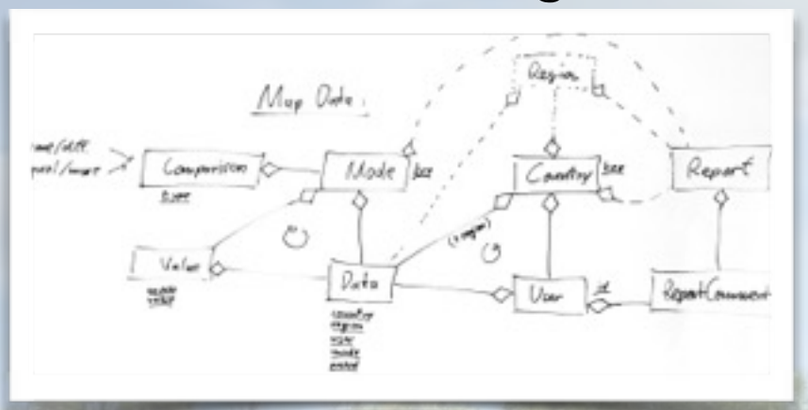


Image: © iStock.com / Alexander Chernyakov, Jana Krcmarova, RaffaeleVannucci, shironosov, clu, Dmitri Shironosov , Pali Rao

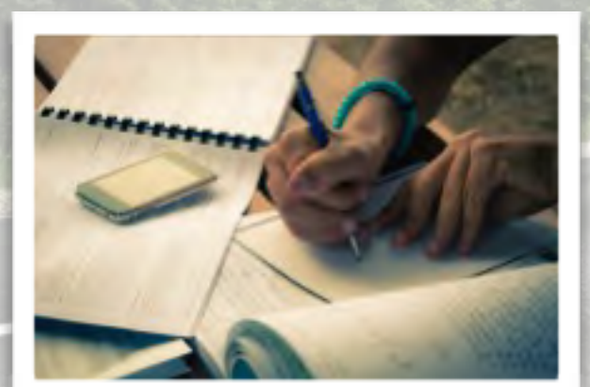
Year Two (July 2015 - July 2016)

August 2015



October 2015

March 2016



July 2016

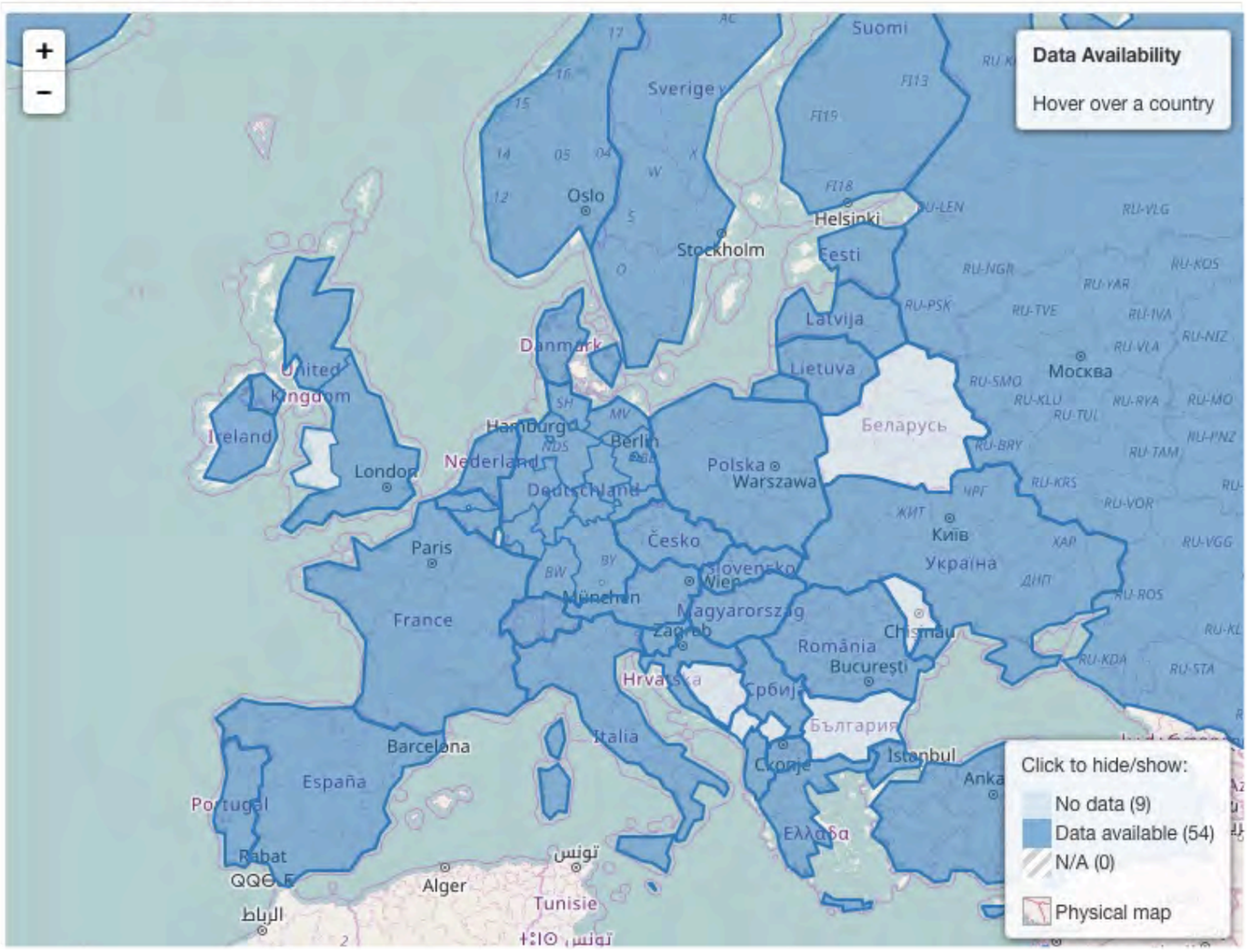
ongoing

Image: © iStock.com / Alexander Chernyakov, Jana Krcmarova, RaffaeleVannucci, shironosov, clu, Dmitri Shironosov , Pali Rao

The Map [http://cece-map.informatics-europe.org]

March 2015

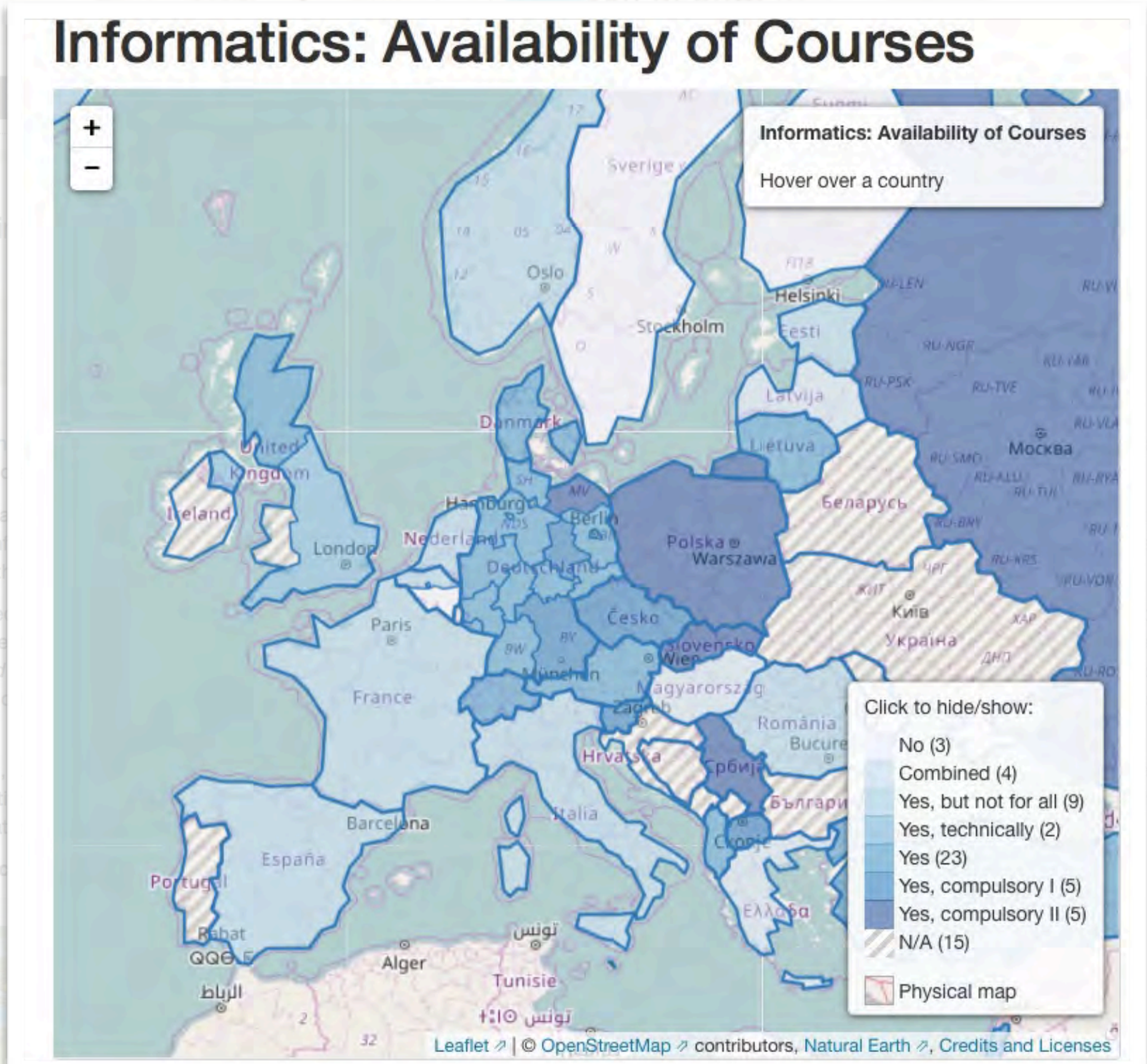
October 2016



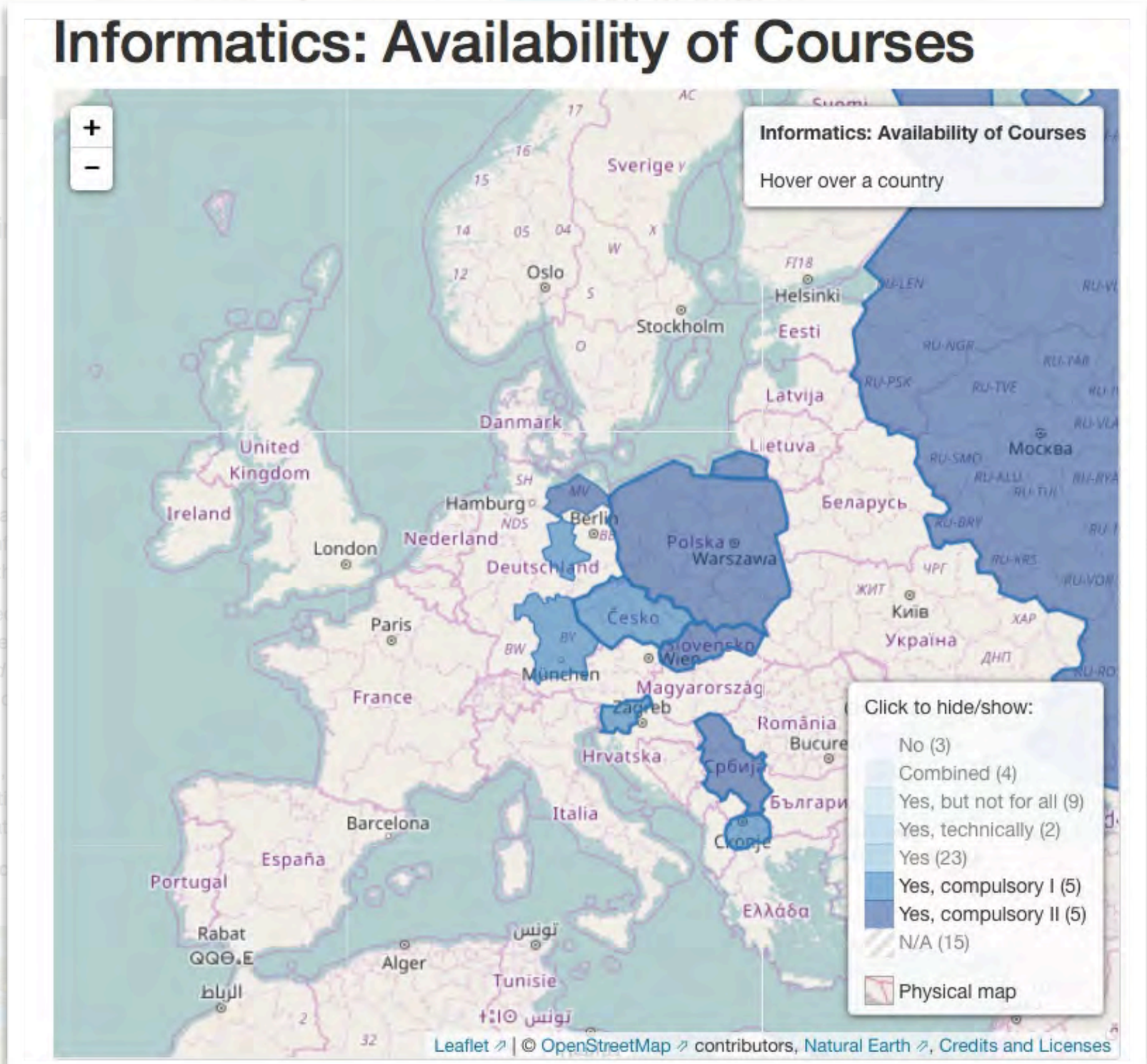
The Map: Features

- Data overview
- Data listing
- Compare view
- Regions
- Collaborative editing
- “Report a problem”
- Updates / automated fact sheet generation

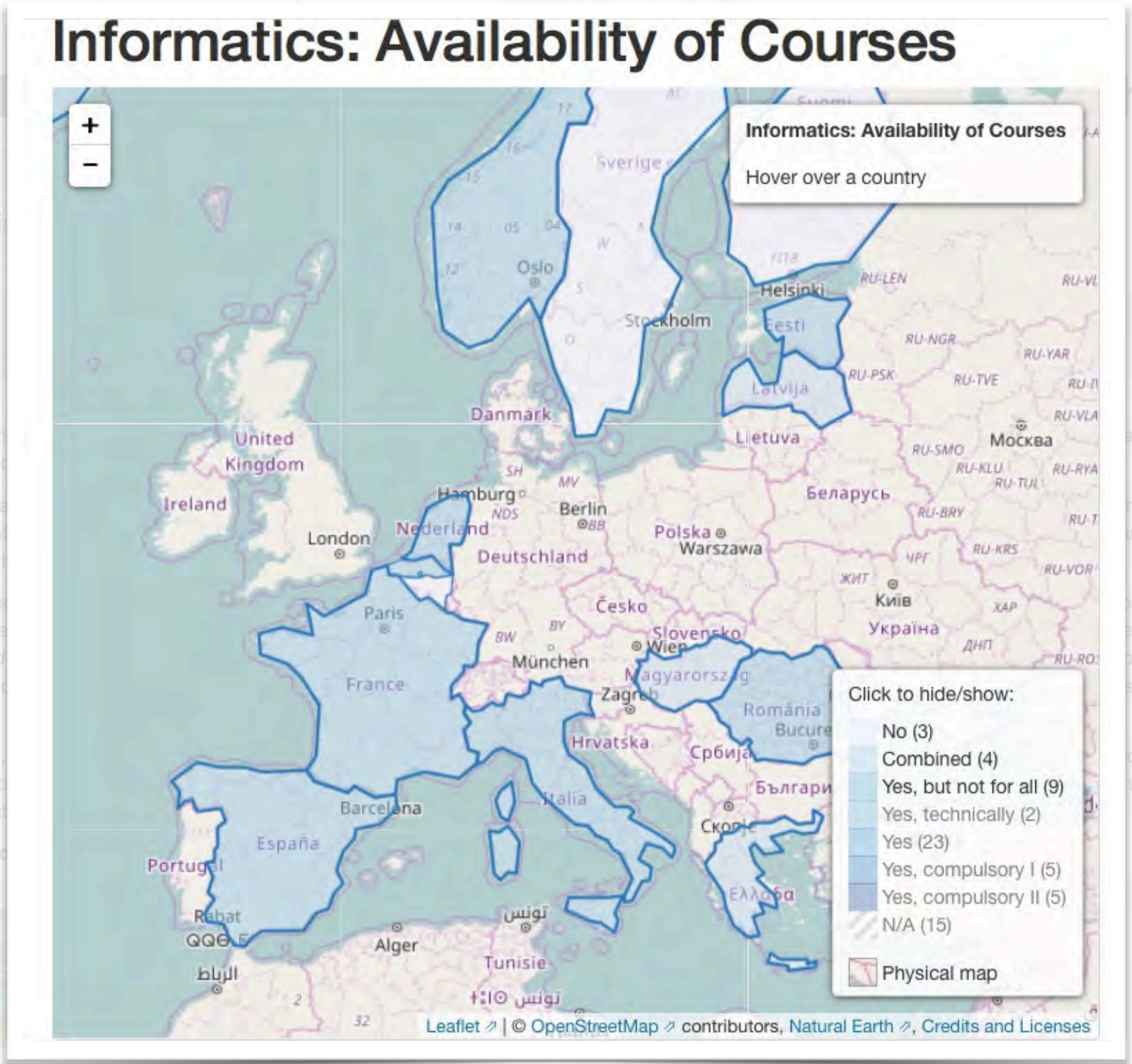
The Map: Data Overview



The Map: Data Overview



The Map: Data Overview



The Map: Data Listing

Hungary Listing

In Hungary Digital Literacy is refered to as *Digitális írástudás*. The term for Informatics is *Informatika*.

Update

Editors: András Benczúr, Zsakó László

Data Mode	Data Value	Explanation
Data Availability	**2ndQ. Data available** Report, History	Update
Digital Literacy: First Contact	**Primary** Report, History	Compulsory in the last year of primary school, specialization from grade 10 onwards. Update
Digital Literacy: A Separate Subject?	**Separate subject** Report, History	Separate subject from age 12, integrated in other subjects from age 10. Update
Digital Literacy: Curriculum Consistency	**Country** Report, History	Consistent national curriculum standards compulsory for state supported schools, optional curriculum for advanced specializations, 10% local freedom. Update
Digital Literacy: Enrolment	**all students** Report, History	Courses are compulsory for students at age 12. Update

The Map: Data Listing

Hungary Listing

In Hungary Digital Literacy is refered to as *Digitális írástudás*. The term for Informatics is *Informatika*.

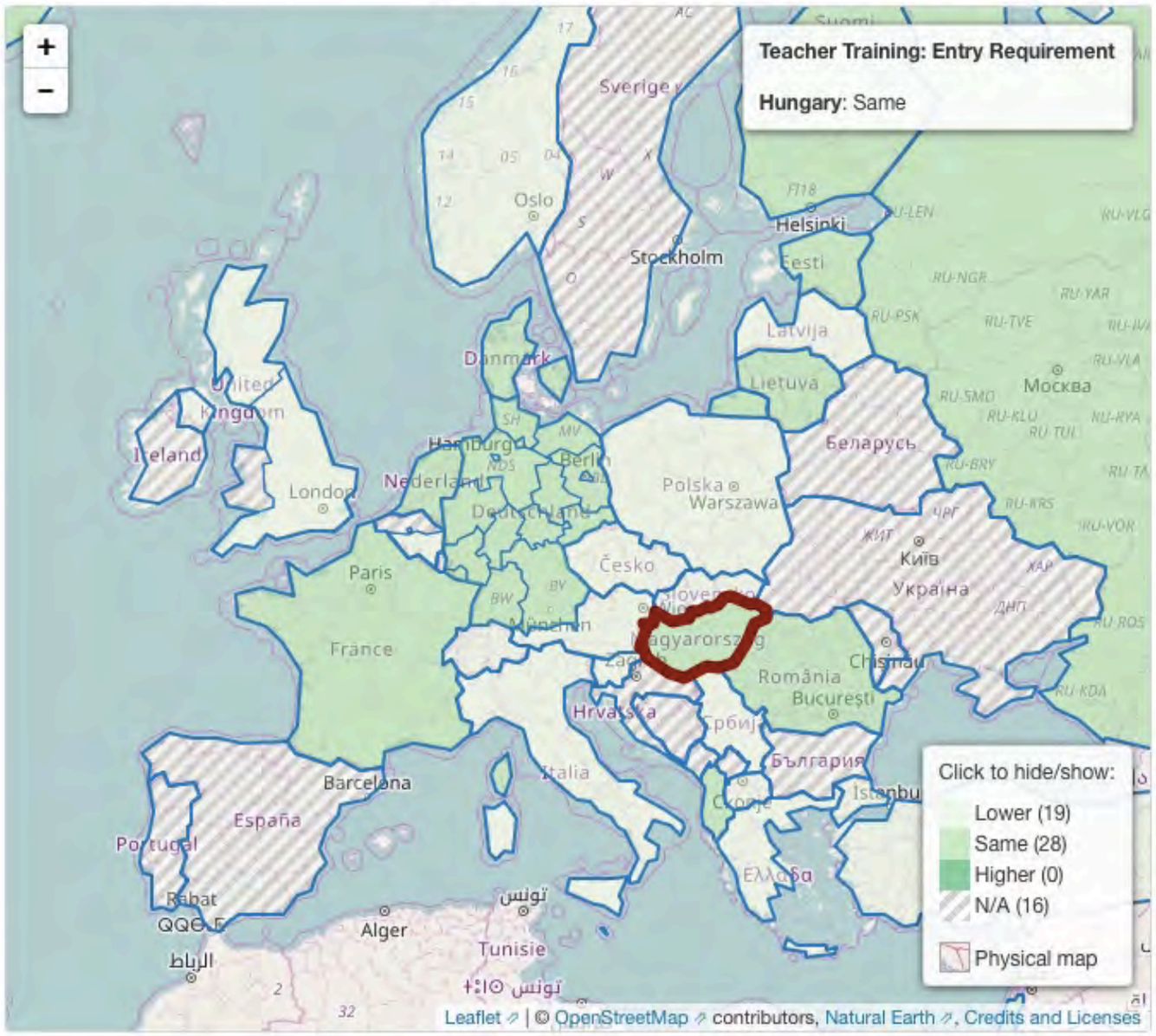
Update

Editors: András Benczúr, Zsakó László

Data Mode	Data Value	Explanation
Informatics: Curriculum Consistency	**Country** Report, History	Consistent national curriculum standards compulsory for state supported schools, optional curriculum for advanced specializations. 10% local freedom. Common subject for Digital Literacy and Informatics. Update
Informatics: Enrolment	**N/A** Report, History	It is up to the decision of the school to start special classes with informatics courses. Two levels of requirements for matriculation examination in informatics. Update
Digital Literacy: Enrolment	**all students** Report, History	Courses are compulsory for students at age 12. Update

The Map: Compare View

Teacher Training: Entry Requirement



Data listing | Normal view | Choose country | Report a problem

Do teachers at secondary schools need a degree to teach? What are the requirements in each European country? Where do teachers need a university degree, a specialisation, or even a Master degree?

This map shows the formal, i.e., academic, entrance requirement for the teaching profession.

Update

The scale is as follows:

- **none** - No degree
- **B.Sc.** - Bachelors' degree with no educational focus
- **B.Ed.B.Sc.pgc.** - Bachelors' degree with educational focus OR Bachelors' degree with no educational focus together with a postgraduate certificate
- **M.Sc.** - Masters' degree with no educational focus
- **M.Ed.M.Sc.pgc.** - Masters' degree with educational focus OR Masters' degree with no educational focus together with a postgraduate certificate
- **PhD**

Hungary

Wikipedia

In Hungary Digital Literacy is refered to as *Digitális írástudás*. The term for Informatics is *Informatika*.

Update

Question: What is the typical formal requirement for entrance to the teaching profession for secondary schools (across all subjects)?

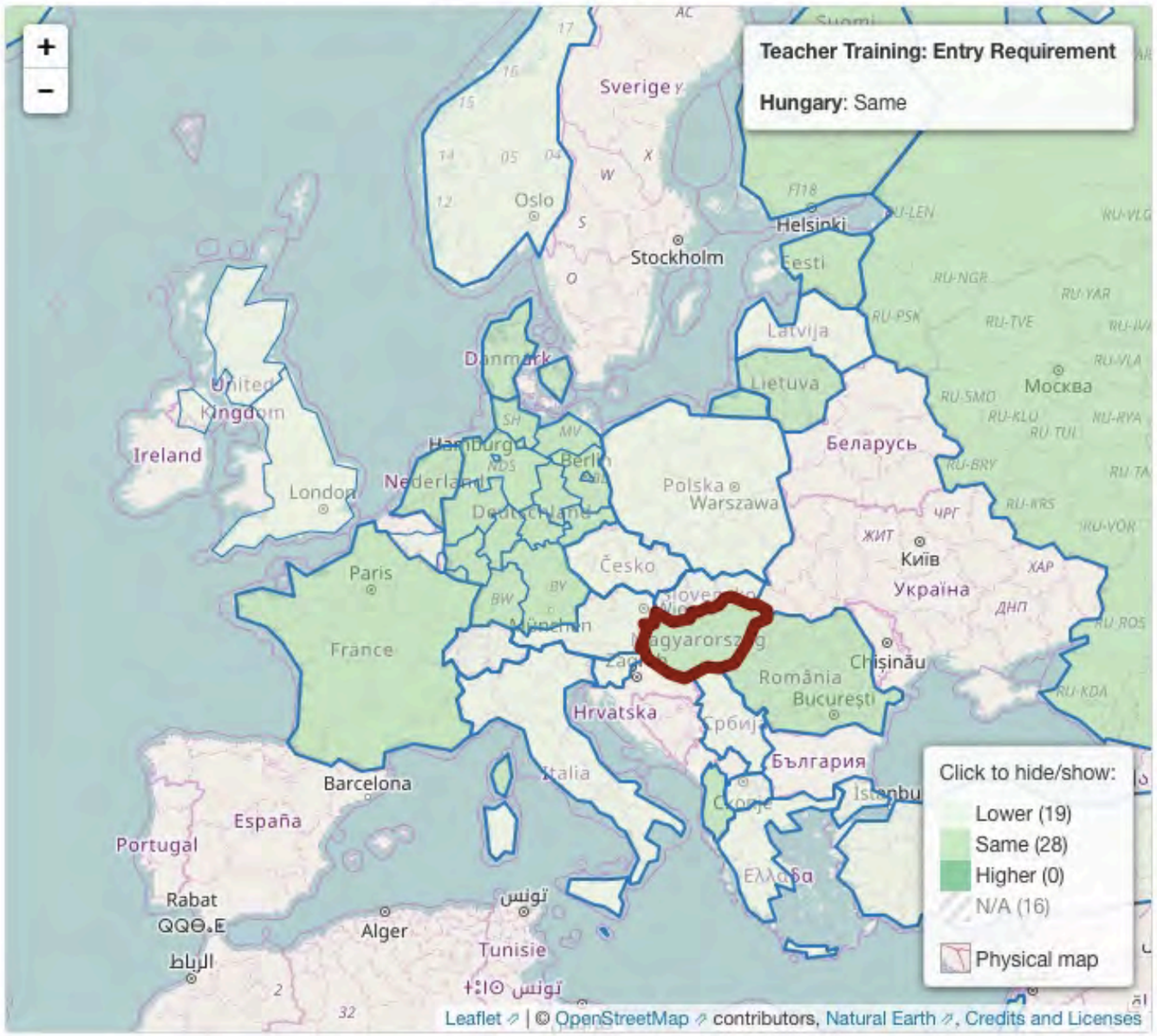
M.Ed.M.Sc.pgc. - Masters' degree with educational focus OR Masters' degree with no educational focus together with a postgraduate certificate

Data: Jul 20, 2016 - History - Update

Image: © iStock.com / clu

The Map: Compare View

Teacher Training: Entry Requirement



Data listing | Normal view | Choose country | Report a problem

Do teachers at secondary schools need a degree to teach? What are the requirements in each European country? Where do teachers need a university degree, a specialisation, or even a Master degree?

This map shows the formal, i.e., academic, entrance requirement for the teaching profession.

Update

The scale is as follows:

- **none** - No degree
- **B.Sc.** - Bachelors' degree with no educational focus
- **B.Ed.B.Sc.pgc.** - Bachelors' degree with educational focus OR Bachelors' degree with no educational focus together with a postgraduate certificate
- **M.Sc.** - Masters' degree with no educational focus
- **M.Ed.M.Sc.pgc.** - Masters' degree with educational focus OR Masters' degree with no educational focus together with a postgraduate certificate
- **PhD**

Hungary

Wikipedia

In Hungary Digital Literacy is refered to as *Digitális írástudás*. The term for Informatics is *Informatika*.

Update

Question: What is the typical formal requirement for entrance to the teaching profession for secondary schools (across all subjects)?

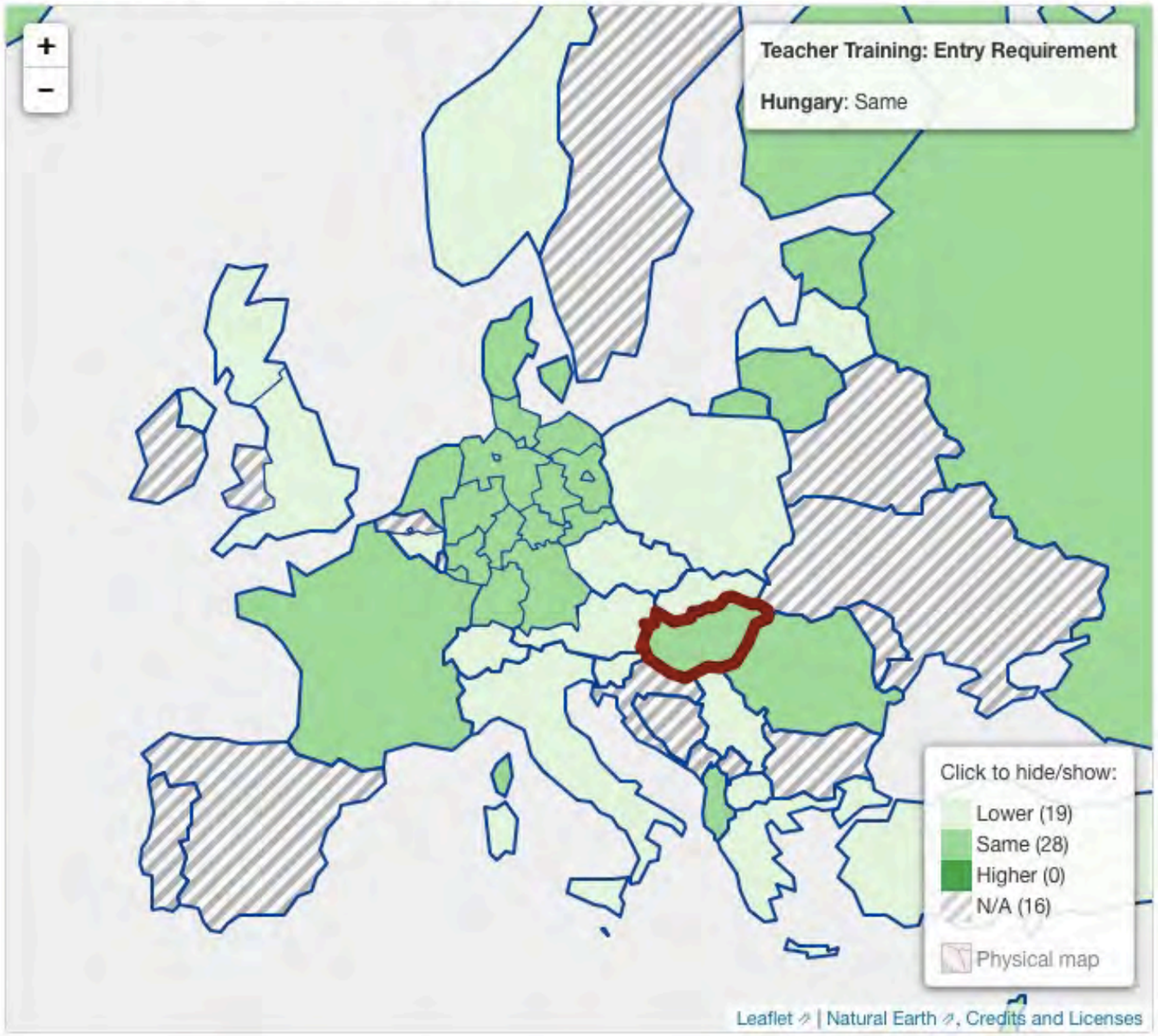
M.Ed.M.Sc.pgc. - Masters' degree with educational focus OR Masters' degree with no educational focus together with a postgraduate certificate

Data: Jul 20, 2016 - History - Update

Image: © iStock.com / clu

The Map: Compare View

Teacher Training: Entry Requirement



Data listing | Normal view | Choose country | Report a problem

Do teachers at secondary schools need a degree to teach? What are the requirements in each European country? Where do teachers need a university degree, a specialisation, or even a Master degree?

This map shows the formal, i.e., academic, entrance requirement for the teaching profession.

Update

The scale is as follows:

- **none** - No degree
- **B.Sc.** - Bachelors' degree with no educational focus
- **B.Ed.B.Sc.pgc.** - Bachelors' degree with educational focus OR Bachelors' degree with no educational focus together with a postgraduate certificate
- **M.Sc.** - Masters' degree with no educational focus
- **M.Ed.M.Sc.pgc.** - Masters' degree with educational focus OR Masters' degree with no educational focus together with a postgraduate certificate
- **PhD**

Hungary

Wikipedia

In Hungary Digital Literacy is refered to as *Digitális írástudás*. The term for Informatics is *Informatika*.

Update

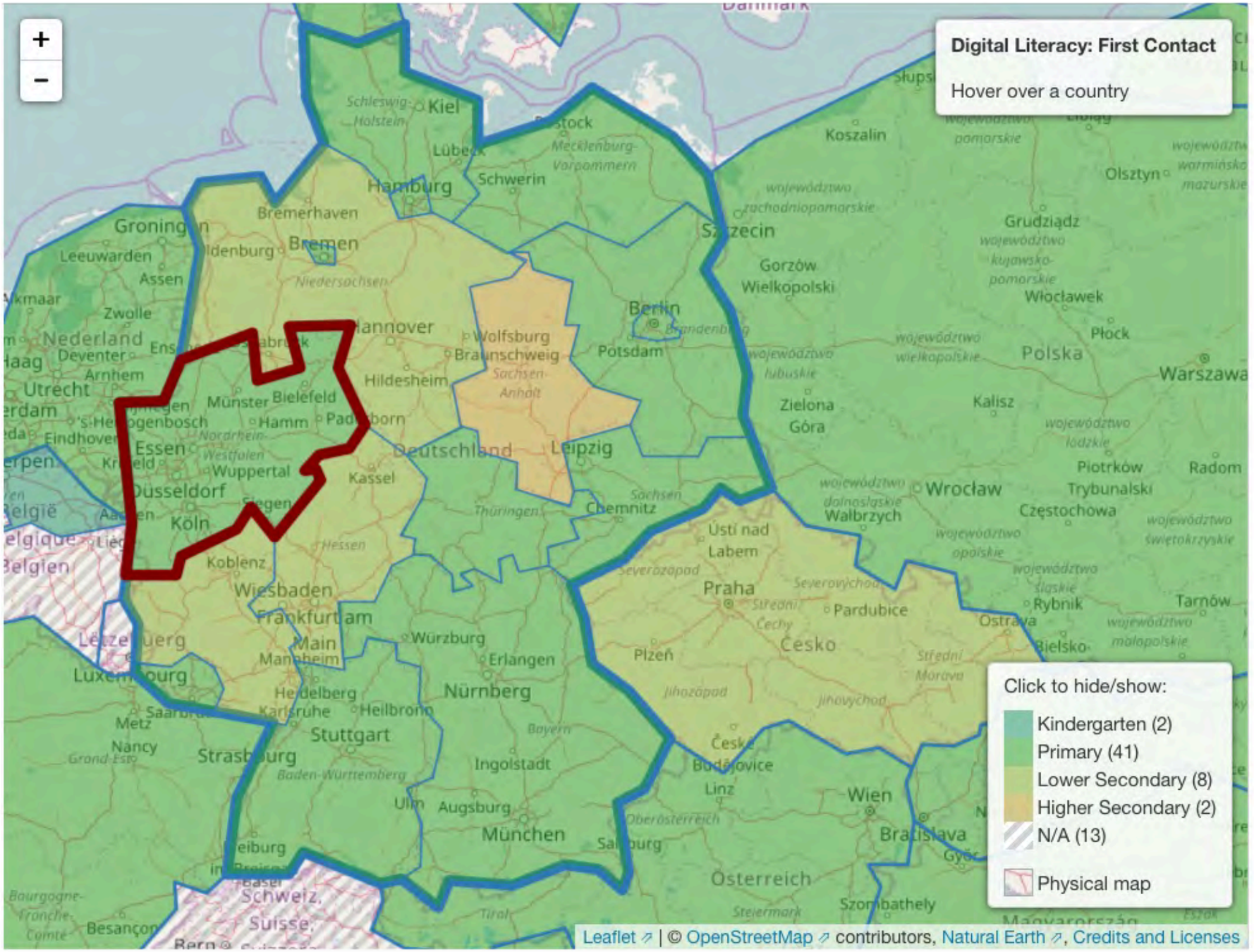
Question: What is the typical formal requirement for entrance to the teaching profession for secondary schools (across all subjects)?

M.Ed.M.Sc.pgc. - Masters' degree with educational focus OR Masters' degree with no educational focus together with a postgraduate certificate

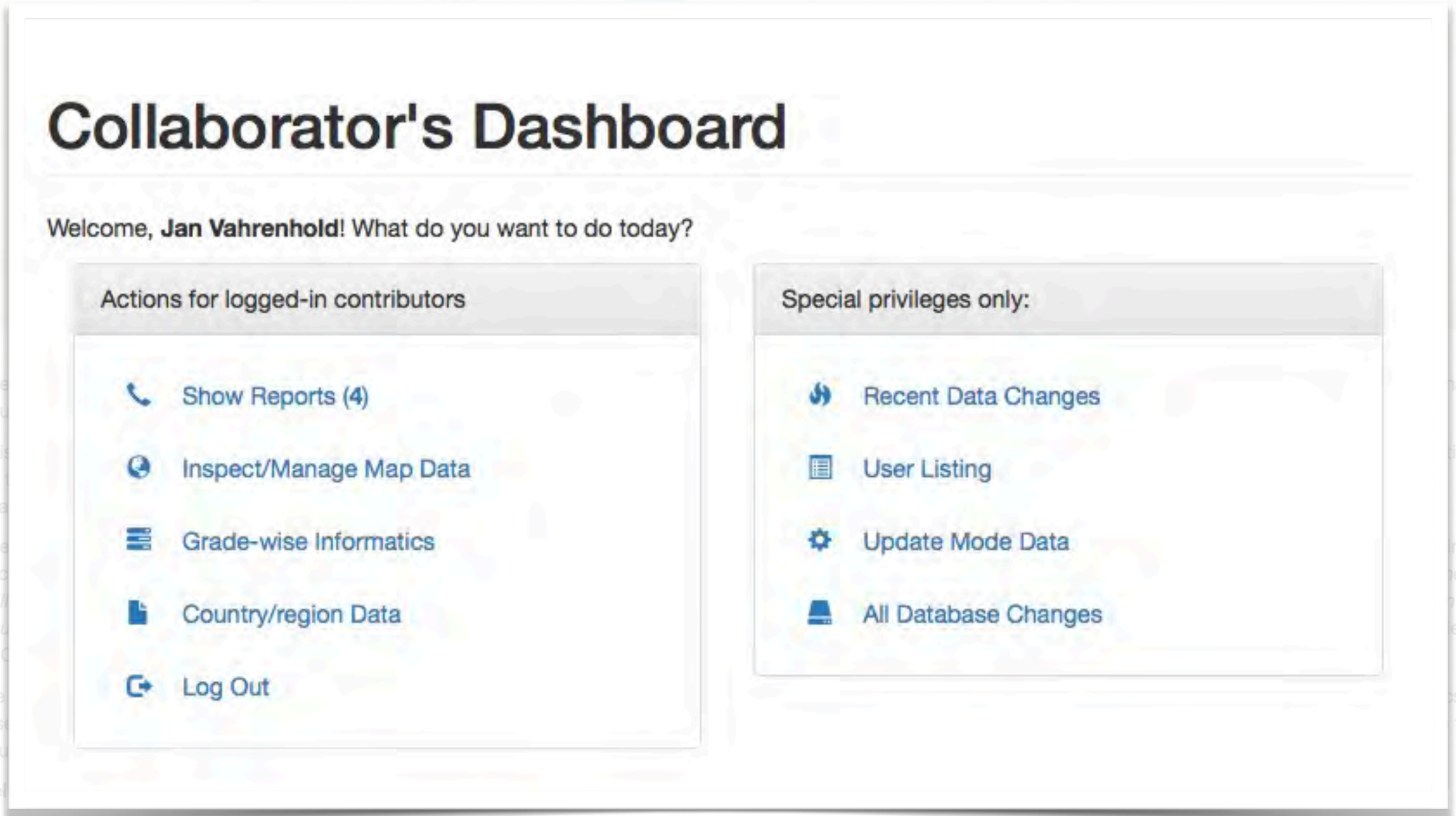
Data: Jul 20, 2016 - History - Update

Image: © iStock.com / clu

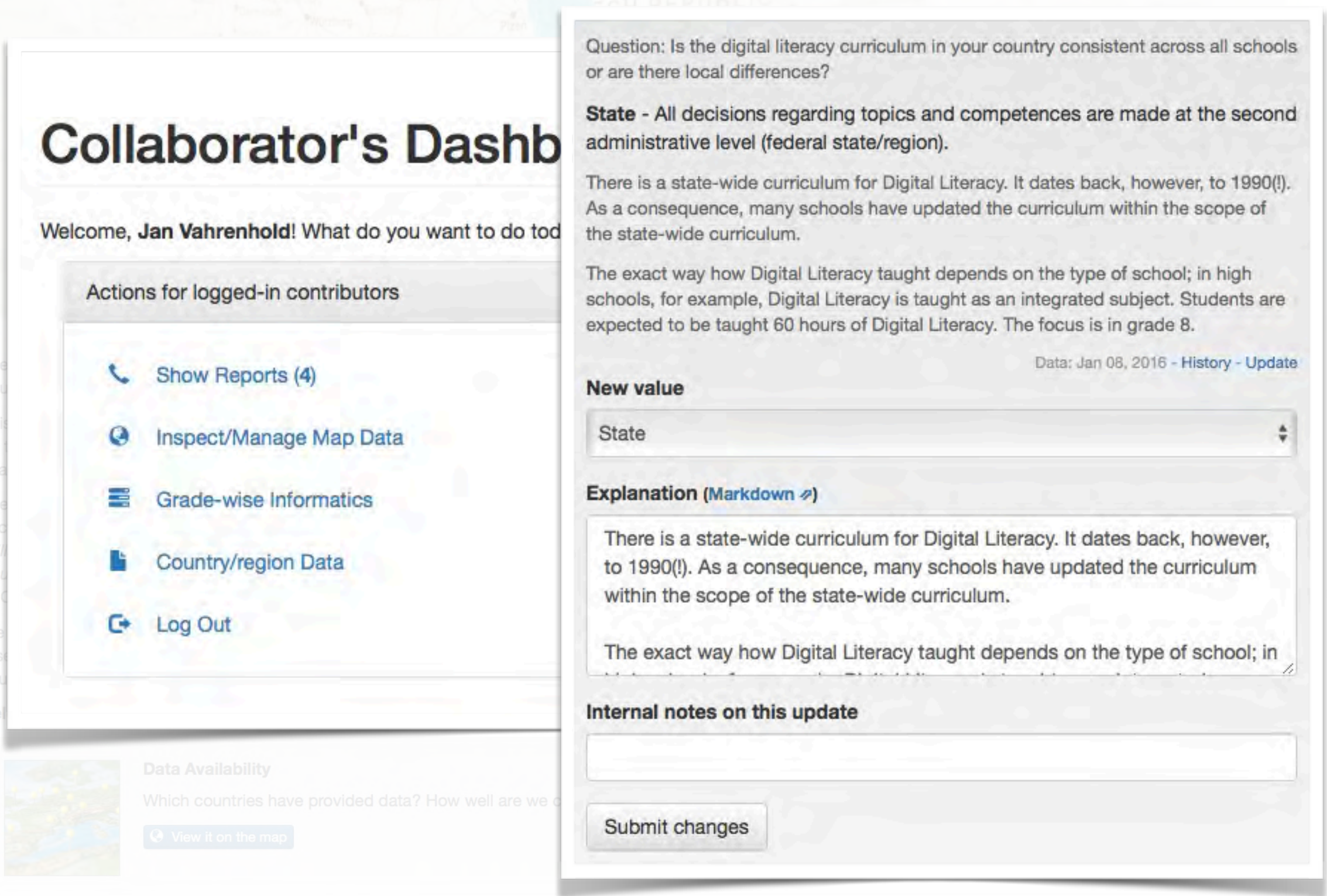
The Map: Regions



The Map: Collaborative Editing

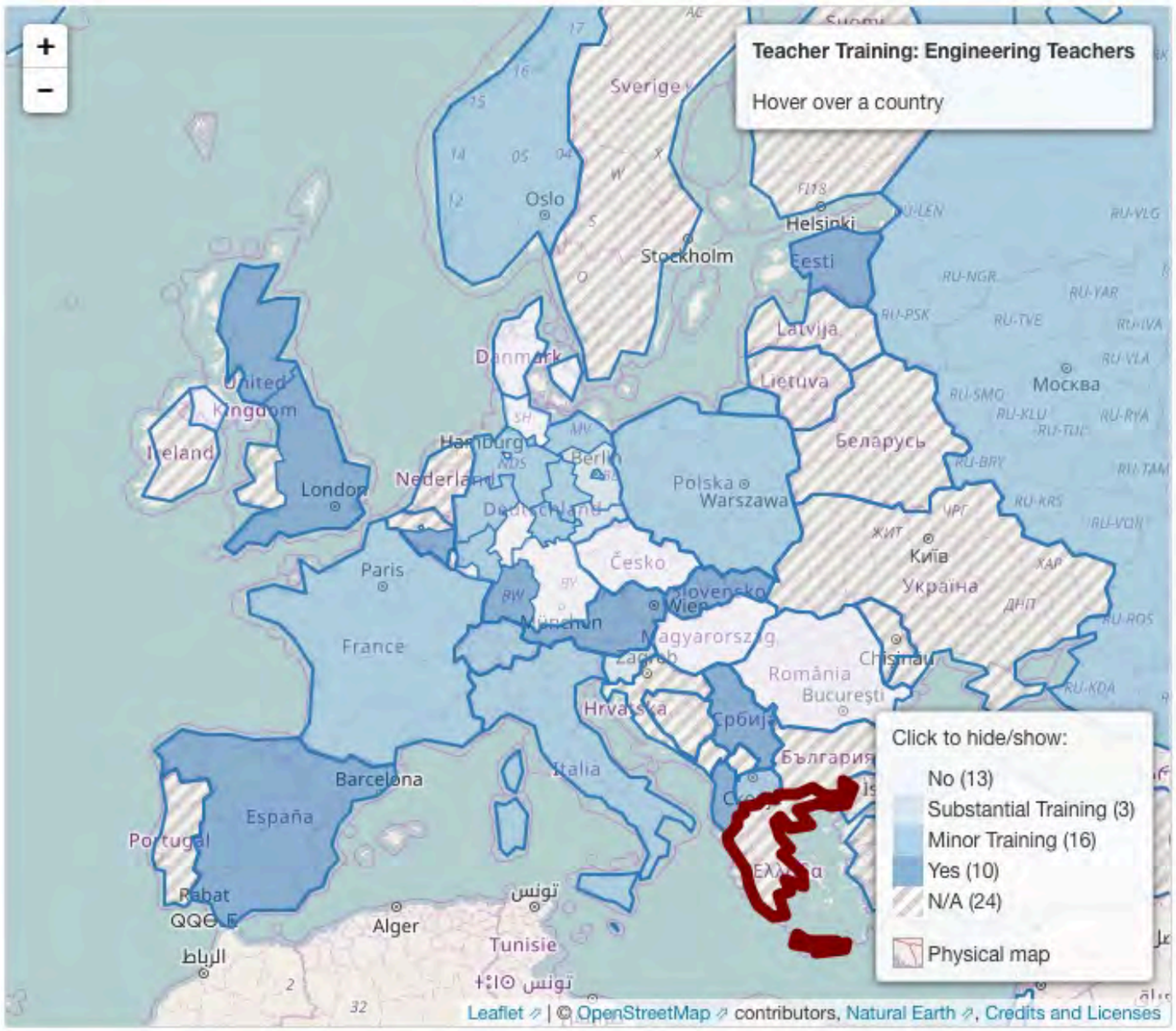


The Map: Collaborative Editing



The Map: “Report a Problem”

Teacher Training: Engineering Teachers



Data listing | Choose country | Report a problem

Can Informatics be taught by Engineering teachers at secondary school in the different European countries?

To be able to offer Informatics classes even in the absence of fully trained Informatics teachers, schools may chose to (re-)train in-service teachers as part of continued professional development to teach Informatics classes. This map shows whether this option is available to Engineering teachers and - if so - which amount of additional training in Informatics is required.

For countries with different types of secondary schools, data is given for schools leading to university entrance qualification.

Update

The scale is as follows:

- **No** - Only fully trained teachers are allowed to teach Informatics
- **Substantial Training** - Yes, with substantial additional training in Informatics
- **Minor Training** - Yes, with minor additional training in Informatics
- **Yes**

Greece Wikipedia

In Greece, the term used to describe Digital Literacy is *Τεχνολογίες πληροφορικής και επικοινωνιών* (Information and Communication Technology). Informatics is refered to as *Πληροφορική*.

Update

Question: Is it possible to teach Informatics if you are a Engineering teacher?

N/A

- Update

Image: © iStock.com / clu

The Map: “Report a Problem”

Report a problem

Your report will be presented to all academic stakeholders responsible for the last page and administrators. Thank you very much for your contribution!

Country: Greece, **Data dimension**: Teacher Training: Engineering Teachers

Your name

Your email address

Describe the problem (Markdown)

I'm not a robot

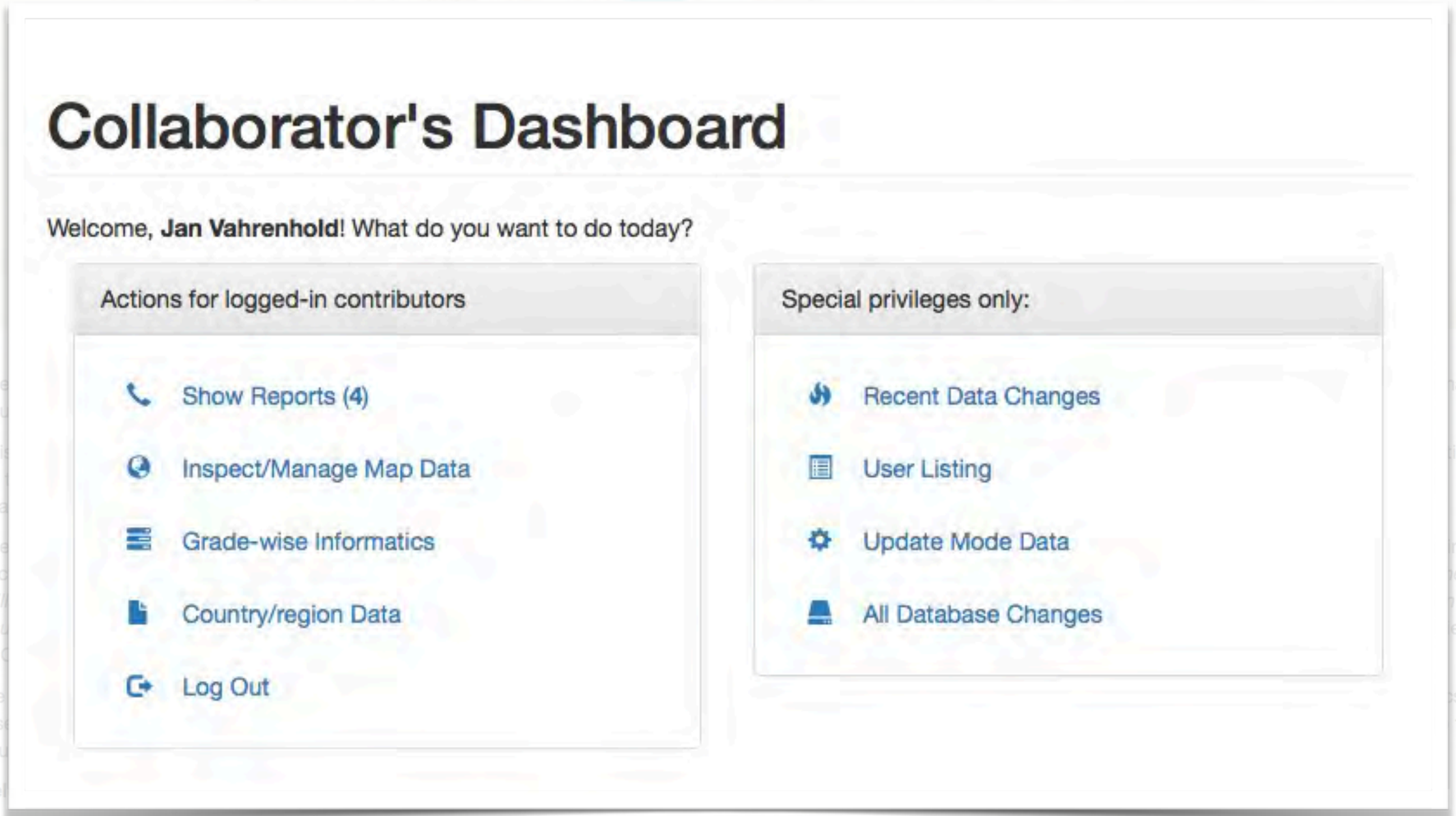
reCAPTCHA
Privacy - Terms

Priority

Standard

Submit report

The Map: “Report a Problem”



The Map: “Report a Problem”

Report Listing

✖ Closed Reports

Priority	Location	Posted	Author	Action
Standard	Report origin **Teacher Training: Security of Employment** **Greece**	Sep 27, 2016; 08:22:37 **Report:** Most teachers are employed in permanent positions. ...	Mina Theofilatou	✖ Close
Standard	Report origin **Teacher Training: Engineering Teachers** **Greece**	Sep 27, 2016; 08:15:11 **Report:** Graduates of Electrical and Computer Engineering a ...	Mina Theofilatou	✖ Close
Standard	Report origin **Teacher Training: Number of Subjects** **Greece**	Sep 27, 2016; 08:11:45 **Report:** Starting school year 2014-15 all computer science ...	Mina Theofilatou	✖ Close
Standard	Report origin **Informatics: Enrolment** **Greece**	Sep 27, 2016; 08:03:15 **Report:** Starting in school year 2016-17 computer science c ...	Mina Theofilatou	✖ Close

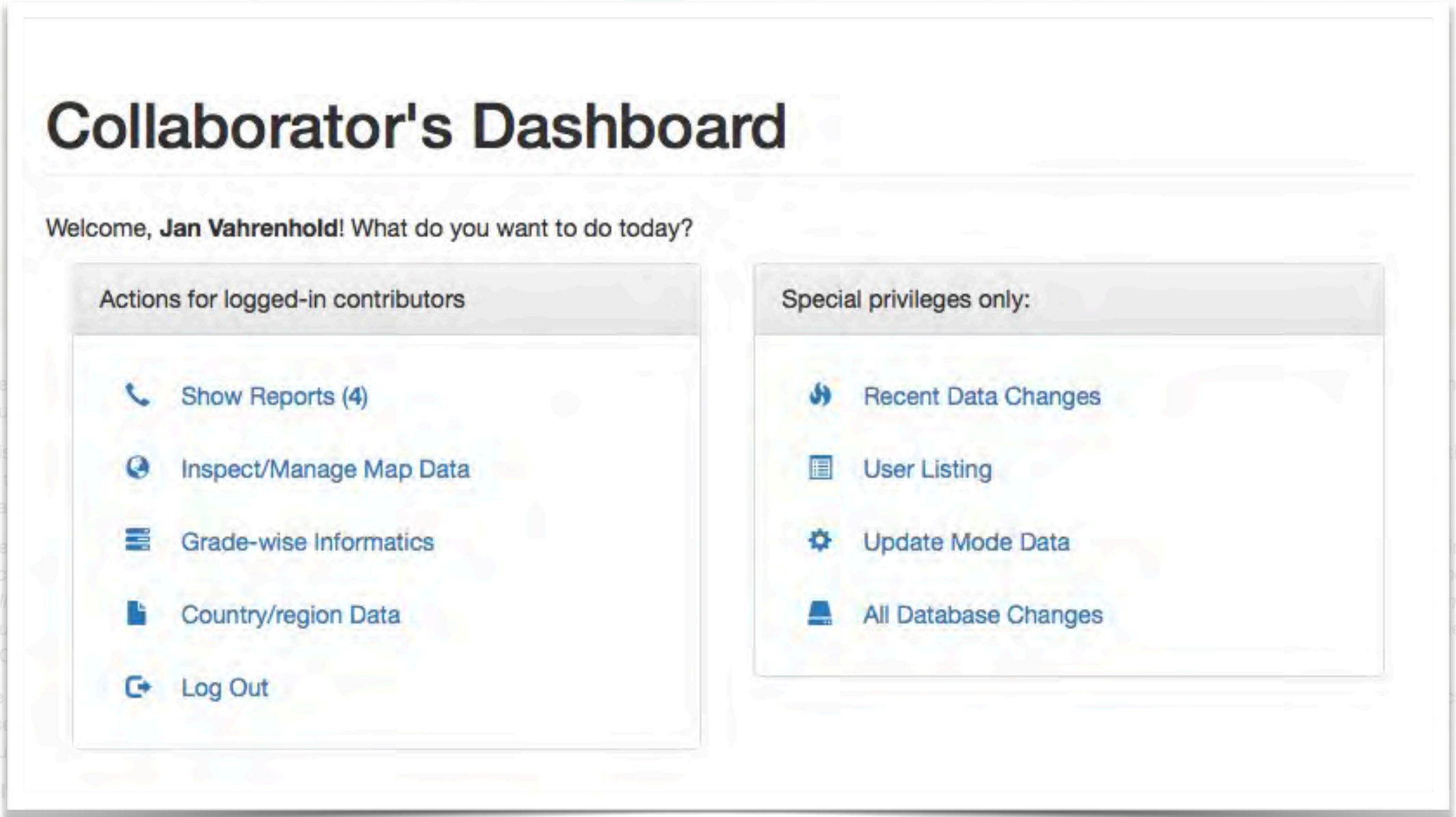
The Map: “Report a Problem”

Report Listing

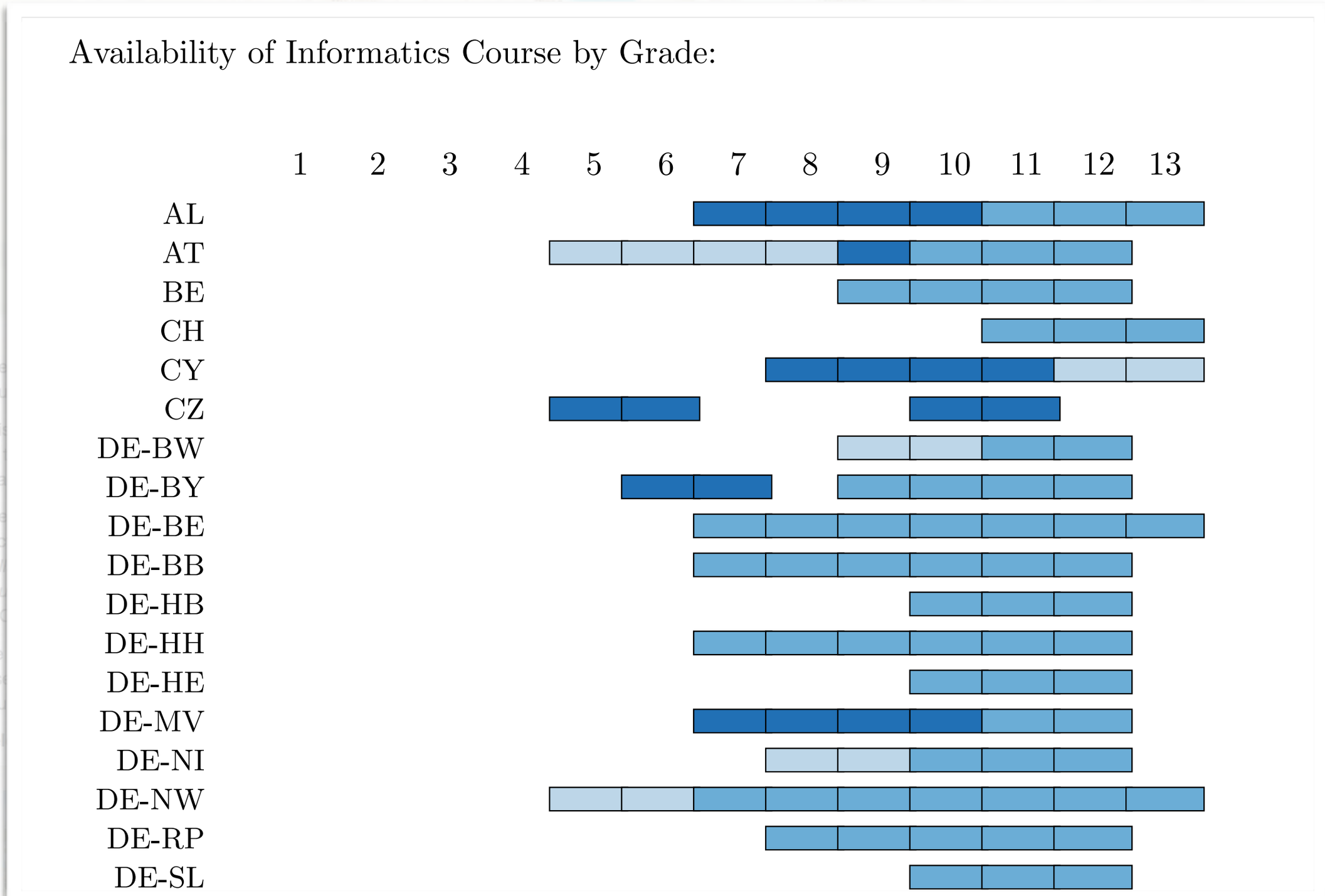
✖ Closed Reports

Priority	Location	Posted	Author	Action
Standard	Report origin **Teacher Training: Security of Employment** **Greece**	Sep 27, 2016; 08:22:37	Mina Theofilatou	✖ Close
		Report: Most teachers are employed in permanent positions. ...		
Standard	Report origin **Teacher Training: Engineering Teachers** **Greece**	Sep 27, 2016; 08:15:11	Mina Theofilatou	✖ Close
		Report: Graduates of Electrical and Computer Engineering a ...		
Report:	Graduates of Electrical and Computer Engineering are entitled to teach Informatics			
Discuss:	Submit		Jan Vahrenhold	
Standard	Report origin **Teacher Training: Number of Subjects** **Greece**	Sep 27, 2016; 08:11:45	Mina Theofilatou	✖ Close
		Report: Starting school year 2014-15 all computer science ...		
Standard	Report origin **Informatics: Enrolment** **Greece**	Sep 27, 2016; 08:03:15	Mina Theofilatou	✖ Close
		Report: Starting in school year 2016-17 computer science c ...		

The Map: “Grade-wise Informatics”



The Map: “Grade-wise Informatics”



The Map: “Grade-wise Informatics”

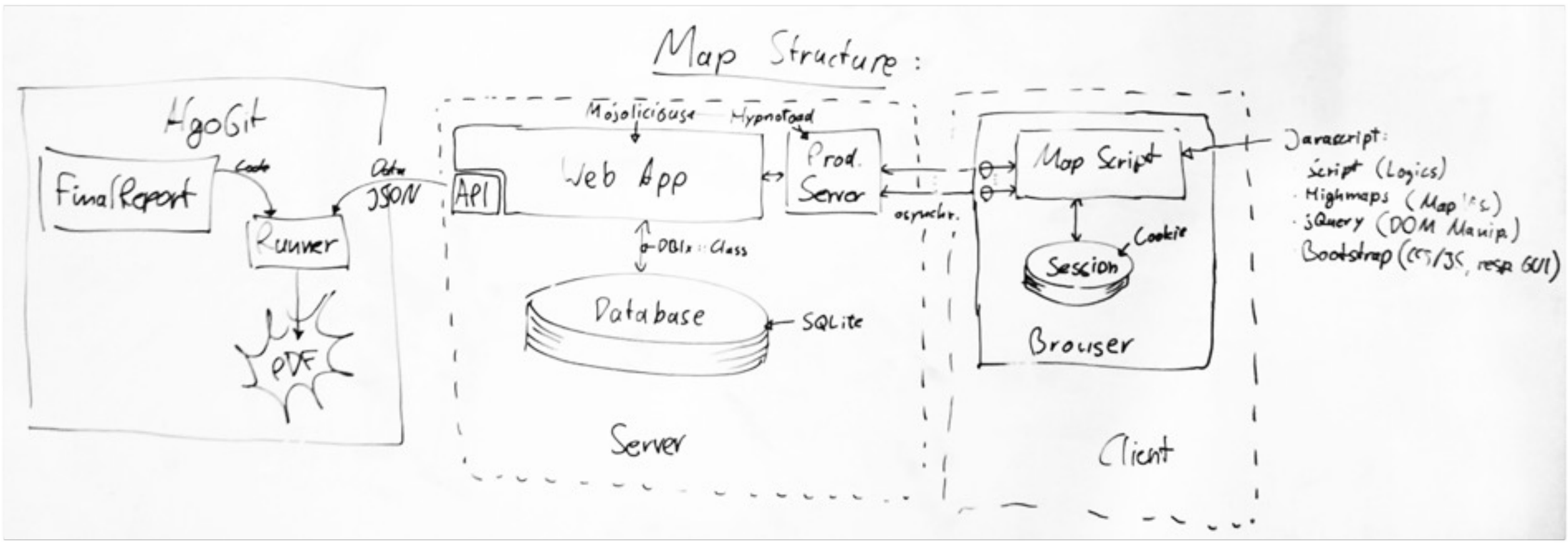
Informatics Availability (grade-wise)

Country: France

Switch country

	No data	Not available	Not offered	Optional	Elective	Mandatory
Grade 1	○	○	●	○	○	○
Grade 2	○	○	●	○	○	○
Grade 3	○	○	●	○	○	○
Grade 4	○	○	●	○	○	○
Grade 5	○	○	●	○	○	○
Grade 6	○	○	●	○	○	○
Grade 7	○	○	●	○	○	○
Grade 8	○	○	●	○	○	○
Grade 9	○	○	●	○	○	○
Grade 10	○	○	○	●	○	○
Grade 11	○	○	●	○	○	○
Grade 12	○	○	○	●	○	○
Grade 13	○	●	○	○	○	○

The Map: Updates



sections: one collecting information about the status of Digital Literacy teaching and another about the status of Informatics teaching. Digital Literacy is defined here as *the skills to use IT and its devices intelligently*. Informatics is defined here as *the scientific discipline enabling IT, with its own concepts, methods, body of knowledge and open issues*, parallel to other fundamental scientific disciplines such as Mathematics and Physics. Note that in some European countries Informatics is known as Computer Science or Computing.

We have relied on, and are grateful for, community contribution. In the absence of official governmental sources in many countries, we have relied on input from academics, researchers, practitioners and teachers who are at the forefront of a slow, but irreversible, movement across Europe to promote the teaching of high quality Informatics to the young. The educational, social and economic future of Europe relies on the success of this movement.

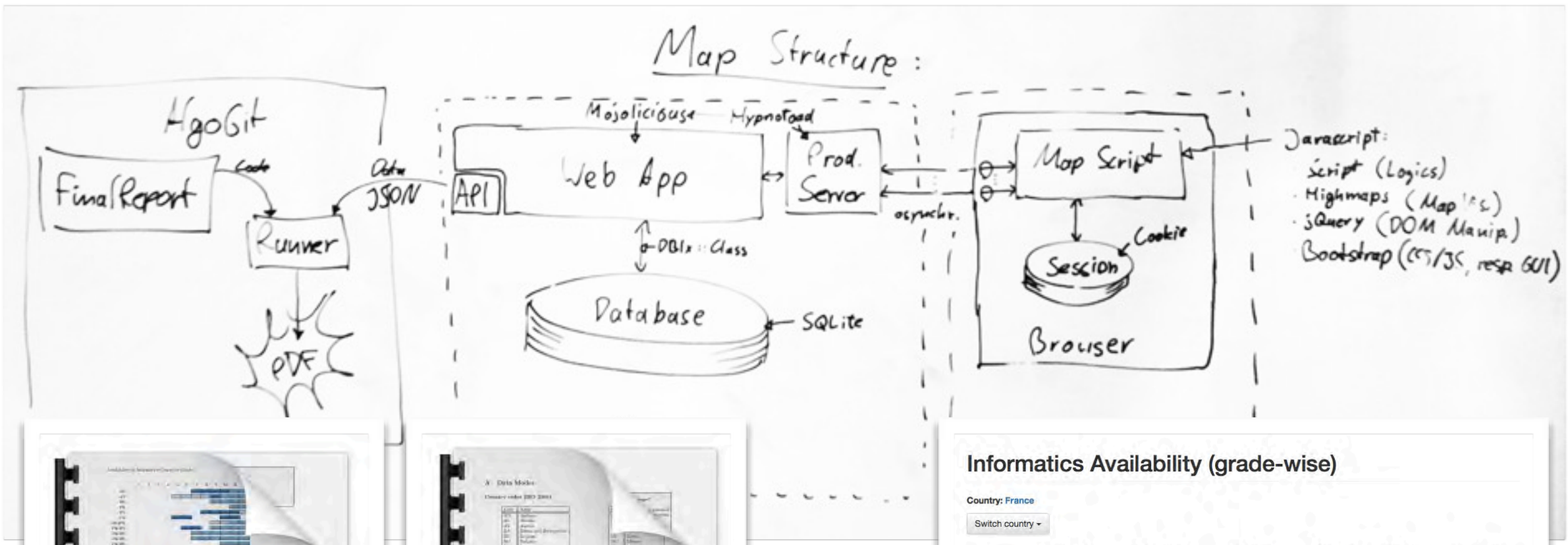
Below you can access all data gathered in this study and learn more about the status of Informatics education in Europe.

Data Availability

Which countries have provided data? How well are we covering Europe?

View it on the map

The Map: Updates



Informatics Availability (grade-wise)

Country: France

Switch country

	No data	Not available	Not offered	Optional	Elective	Mandatory
Grade 1	○	○	◉	○	○	○
Grade 2	○	○	◉	○	○	○
Grade 3	○	○	◉	○	○	○
Grade 4	○	○	◉	○	○	○
Grade 5	○	○	◉	○	○	○
Grade 6	○	○	◉	○	○	○
Grade 7	○	○	◉	○	○	○
Grade 8	○	○	◉	○	○	○
Grade 9	○	○	◉	○	○	○
Grade 10	○	○	○	◉	○	○
Grade 11	○	○	◉	○	○	○
Grade 12	○	○	○	◉	○	○
Grade 13	○	◉	○	○	○	○

Recommendations: Informatics

Image: © iStock.com / Pali Rao

Recommendations: Informatics

All students must have access to Informatics courses starting in lower secondary education if not earlier and continuing until graduation from secondary school.

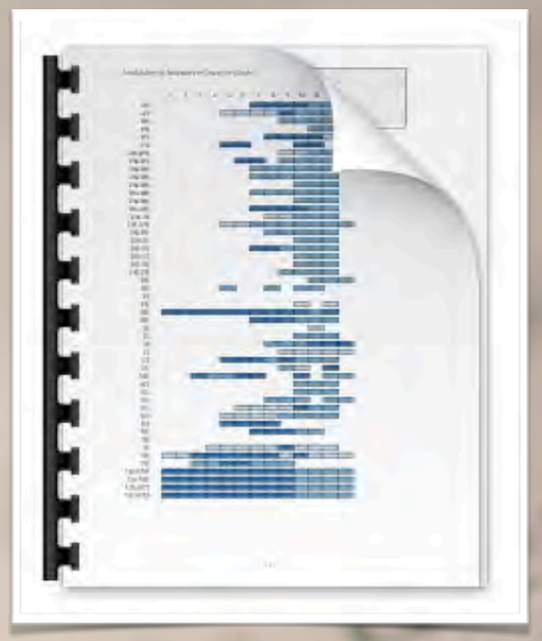
Informatics courses must be **recognized** by each country's educational system as **on par with courses in science, technology, engineering, and mathematics**. In particular, Informatics courses must be given the same credit.

Teaching of Informatics must follow **agreed-upon requirements** that emphasize the role of **Informatics as a scientific subject**.

Teaching of Informatics must be undertaken only by **teachers** who have obtained a **formal education in Informatics and special methodological training**.

Recommendations: Informatics

All students must have access to Informatics courses starting in lower secondary education if not earlier and continuing until graduation from secondary school.



Informatics courses must be **recognized** by each country's educational system as **on par with courses in science, technology, engineering, and mathematics**. In particular, Informatics courses must be given the same credit.

Teaching of Informatics must follow **agreed-upon requirements** that emphasize the role of **Informatics as a scientific subject**.

Teaching of Informatics must be undertaken only by **teachers** who have obtained a **formal education in Informatics and special methodological training**.

Image: © iStock.com / Pali Rao

Recommendations: Informatics

All students must have access to Informatics courses starting in lower secondary education if not earlier and continuing until graduation from secondary school.

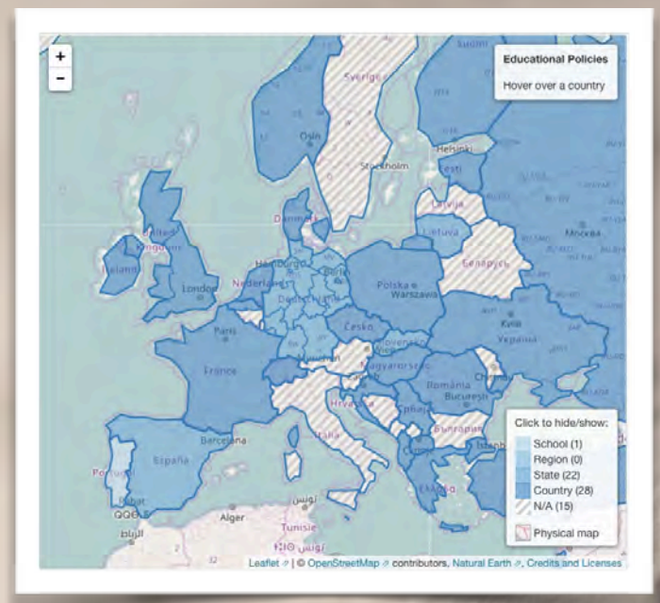
Informatics courses must be **recognized** by each country's educational system as **on par with courses in science, technology, engineering, and mathematics**. In particular, Informatics courses must be given the same credit.

Teaching of Informatics must follow **agreed-upon requirements** that emphasize the role of **Informatics as a scientific subject**.

Teaching of Informatics must be undertaken only by **teachers** who have obtained a **formal education in Informatics and special methodological training**.

Recommendations: Informatics

All students must have access to Informatics courses starting in lower secondary education if not earlier and continuing until graduation from secondary school.



Informatics courses must be **recognized** by each country's educational system as **on par with courses in science, technology, engineering, and mathematics**. In particular, Informatics courses must be given the same credit.

Teaching of Informatics must follow **agreed-upon requirements** that emphasize the role of **Informatics as a scientific subject**.

Teaching of Informatics must be undertaken only by **teachers** who have obtained a **formal education in Informatics and special methodological training**.

Image: © iStock.com / Pali Rao

Recommendations: Digital Literacy

Image: © iStock.com / Pali Rao

Recommendations: Digital Literacy

Digital literacy needs be taught from the early stages of education. [...]

Teaching of digital literacy must follow an agreed-upon, general curriculum that is **periodically updated** to reflect new developments in information technology.

Teaching of digital literacy must be undertaken with care and sensitivity by teachers who have undertaken appropriate training. [...]

Teaching of digital literacy cannot substitute teaching of Informatics, the science underlying information technology, and must not be confused with it.

Image: © iStock.com / Pali Rao

Recommendations: Teacher Training

Image: © iStock.com / Pali Rao

Recommendations: Teacher Training

Under all circumstances, **sufficient budget** must be guaranteed **to train and hire Informatics teachers**. Only this can break the vicious circle of a shortage of Informatics courses and Informatics teachers.

The hiring of Informatics teaches must follow the same standards as for all other disciplines. In particular, **neither formal requirements nor methodological training must be sacrificed**.

Image: © iStock.com / Pali Rao

Recommendations: Teacher Training

Under all circumstances, **sufficient budget** must be guaranteed **to train and hire Informatics teachers**. Only this can break the vicious circle of a shortage of Informatics courses and Informatics teachers.

The hiring of Informatics teaches must follow the same standards as for all other disciplines. In particular, **neither formal requirements nor methodological training must be sacrificed**.

Baden-Württemberg (German federal state):

- Fall 2015: State minister-president announces mandatory Informatics courses starting in grade 7.
- October 20, 2016: State secretary of education puts hold on implementation plans.

Image: © iStock.com / Pali Rao

Recommendations: Teacher Training

Under all circumstances, **sufficient budget** must be
to train and hire Informatics teachers. Only this ca
vicious circle of a shortage of Informatics courses a
Informatics teachers.

The hiring of Informatics teaches must follow the s
as for all other disciplines. In particular, **neither fo
requirements nor methodological training must be**

Baden-Württemberg (German federal state):

- Fall 2015: State minister-president announces mandatory I
- October 20, 2016: State secretary of education puts hold o

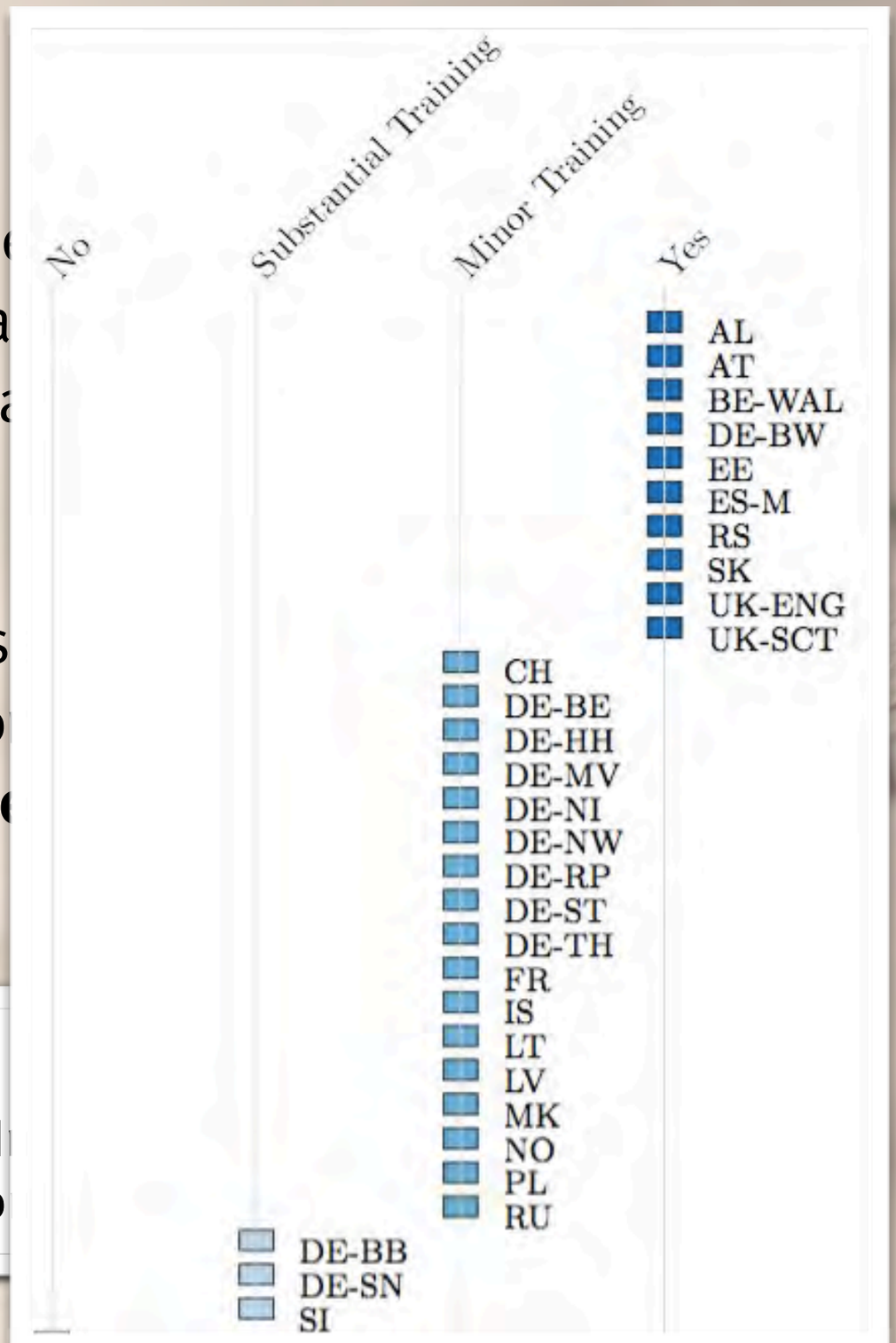


Image: © iStock.com / Pali Rao

Recommendations: Teacher Training

Under all circumstances, **sufficient budget** must be guaranteed **to train and hire Informatics teachers**. Only this can break the vicious circle of a shortage of Informatics courses and Informatics teachers.

The hiring of Informatics teaches must follow the same standards as for all other disciplines. In particular, **neither formal requirements nor methodological training must be sacrificed**.

Baden-Württemberg (German federal state):

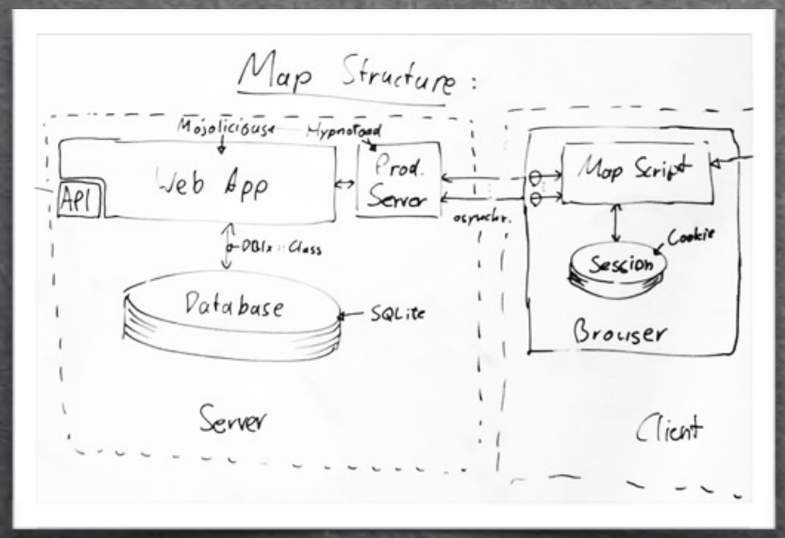
- Fall 2015: State minister-president announces mandatory Informatics courses starting in grade 7.
- October 20, 2016: State secretary of education puts hold on implementation plans.

Image: © iStock.com / Pali Rao

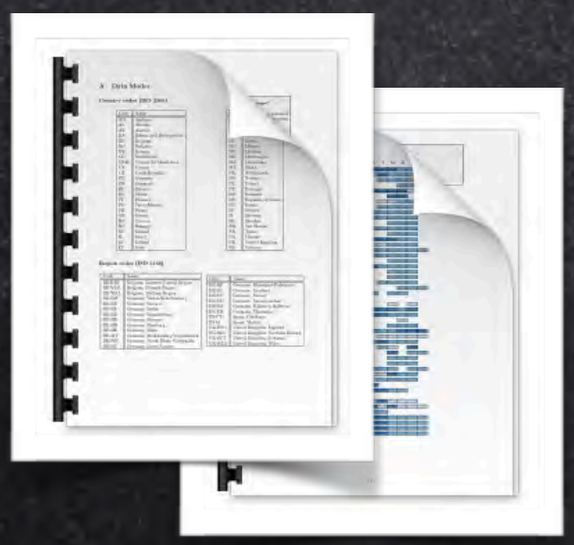
Committee on European Computing Education

Image: © iStock.com / DNY59, Pali Rao

Committee on European Computing Education



http://cece-map.informatics-europe.org



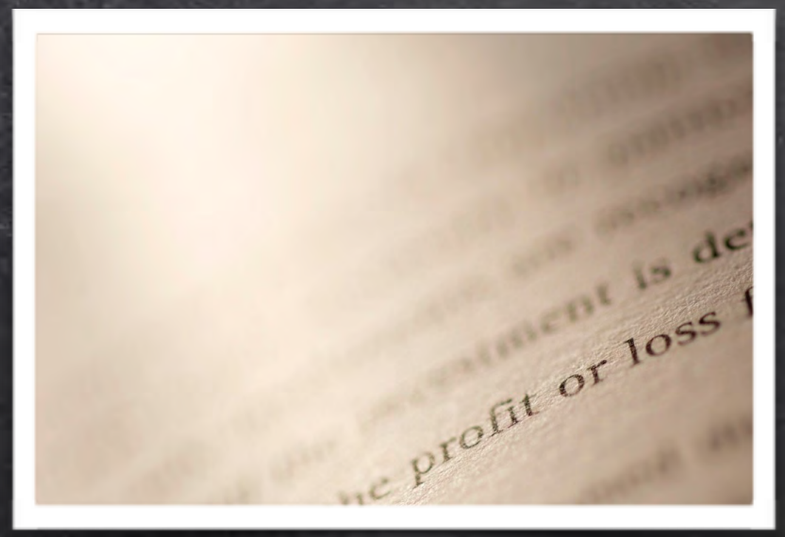
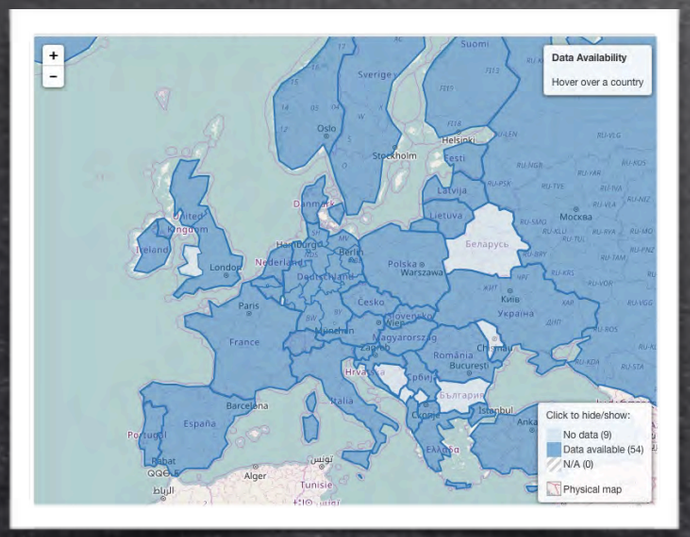
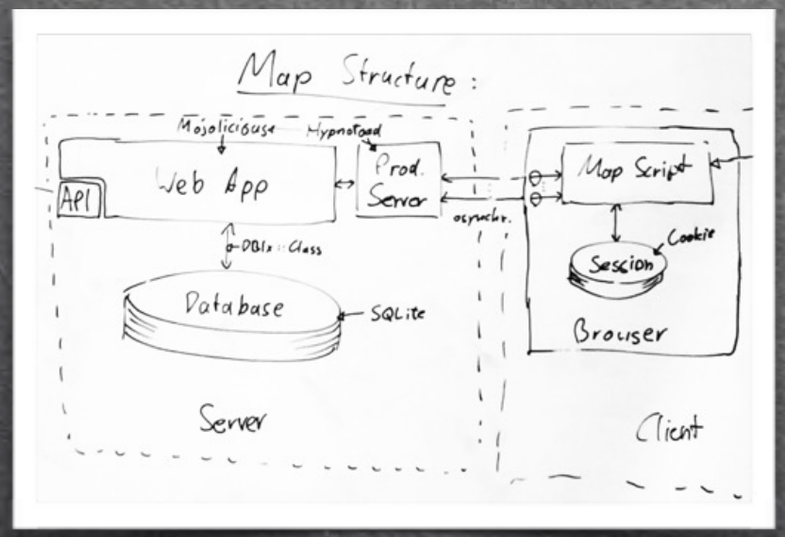


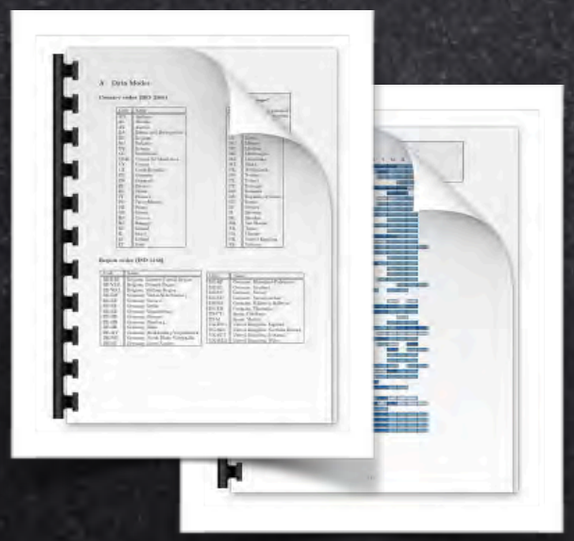
Image: © iStock.com / DNY59, Pali Rao

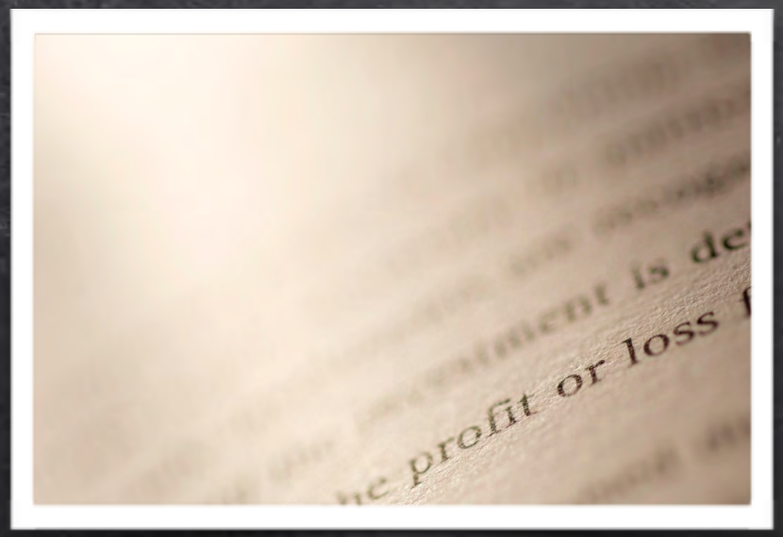
Committee on European Computing Education





http://cece-map.informatics-europe.org





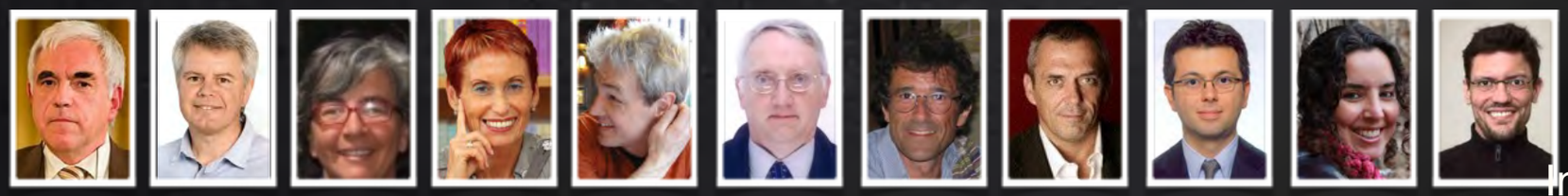
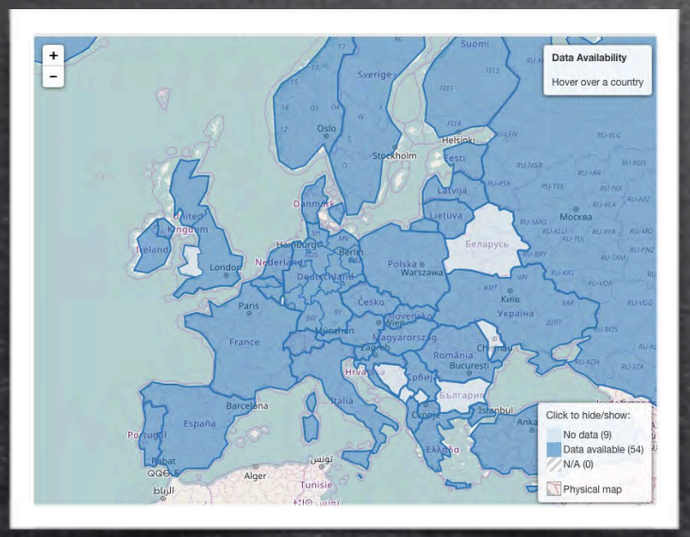
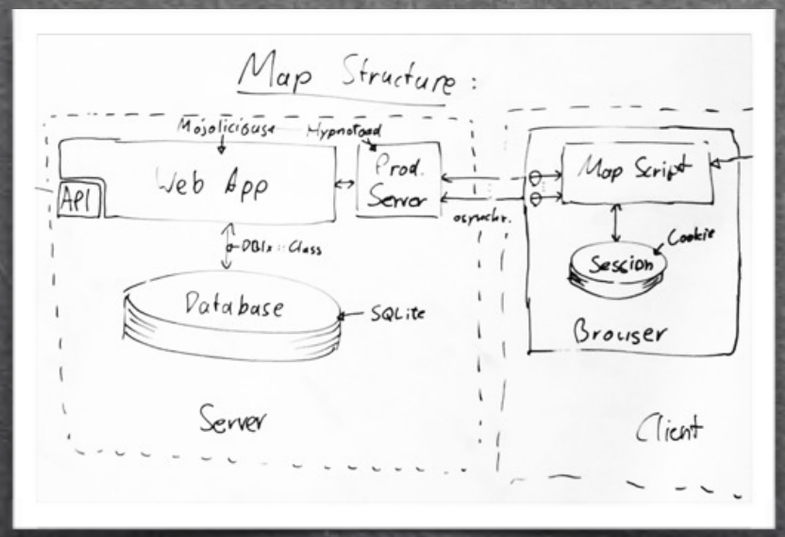


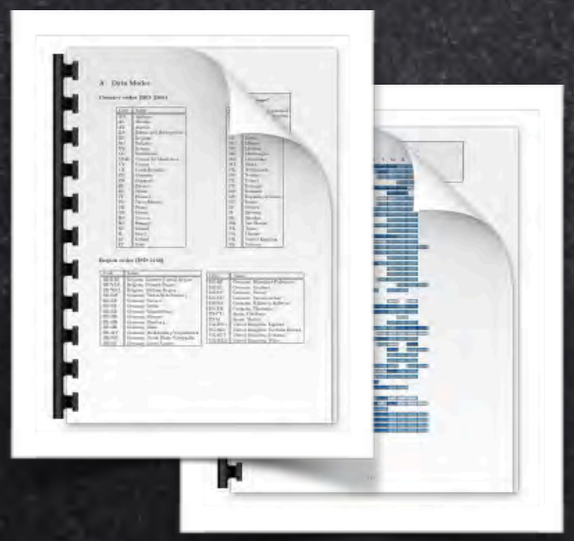
Image: © iStock.com / DNY59, Pali Rao

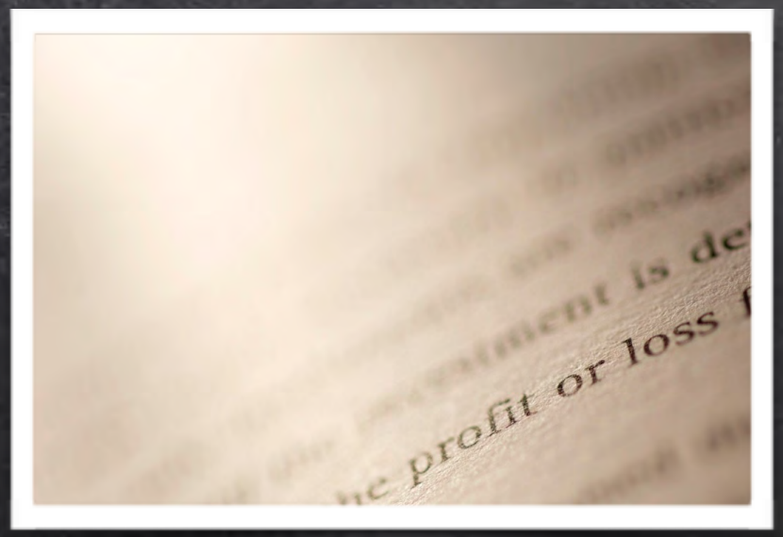
Committee on European Computing Education





http://cece-map.informatics-europe.org





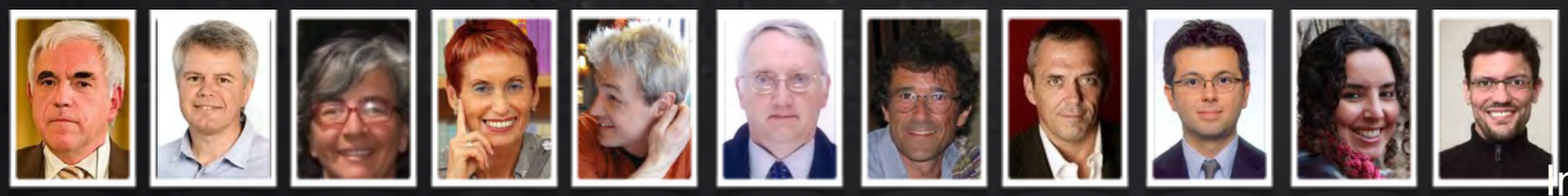


Image: © iStock.com / DNY59, Pali Rao

A Prestigious Computing Ed Conference in Europe

CEd Researchers & CEd Practitioners

Overall goals

1. To establish a conference that integrates
a thorough understanding of the evolving situation in Europe
to develop and target the focus of the conference.

2. To open the conference to new European communities.

Int'l CEd Conferences in Europe

ITiCSE CSERC (ICER)

There are already quite a few!

ISSEP

Koli Calling

IEE †

WiPSCE

Int'l CEd Conferences in Europe

ITiCSE CSERC (ICER)

There are already quite a few!

ISSEP

Koli Calling

WiPSCE

IEE †

Lots of activity, but fragmented; almost disjoint.

We don't need yet another one!

Process

Process

- **Bilateral discussions (oral and in writing), 2014-15**
  - **Agreement of collaboration with a joint goal:**
  - Establish a major conference in Europe by enhancing/recasting ITiCSE (and other conferences) – not by developing yet another CEd conference
  - A Federated Conference?

Process

- **Bilateral discussions (oral and in writing), 2014-15**
  - **Agreement of collaboration with a joint goal:**
  - Establish a major conference in Europe by enhancing/recasting ITiCSE (and other conferences) – not by developing yet another CEd conference
  - A Federated Conference?

Process

- **Bilateral discussions (oral and in writing), 2014-15**
  - **Agreement of collaboration with a joint goal:**
  - Establish a major conference in Europe by enhancing/recasting ITiCSE (and other conferences) – not by developing yet another CEd conference
  - A Federated Conference?
- **Joint meeting in Vilnius, July 2015**
  - Very positive meeting wrt. a federated conference, but...
  - afterwards (fall 2015) we experienced some friction but also legitimate concerns from some communities

Process

- **Bilateral discussions (oral and in writing), 2014-15**
  - **Agreement of collaboration with a joint goal:**
  - Establish a major conference in Europe by enhancing/recasting ITiCSE (and other conferences) – not by developing yet another CEd conference
  - A Federated Conference?

- **Joint meeting in Vilnius, July 2015**
  - Very positive meeting wrt. a federated conference, but...
  - afterwards (fall 2015) we experienced some friction but also legitimate concerns from some communities

- **Discussions with ACM SIGCSE, March 2016**
  - Major conference in Europe based on ITiCSE
  - Two ACM/IE representatives on future ITiCSE Committees

Process

- **Bilateral discussions (oral and in writing), 2014-15**
  - **Agreement of collaboration with a joint goal:**
  - Establish a major conference in Europe by enhancing/recasting ITiCSE (and other conferences) – not by developing yet another CEd conference
  - A Federated Conference?
- **Joint meeting in Vilnius, July 2015**
  - Very positive meeting wrt. a federated conference, but...
  - afterwards (fall 2015) we experienced some friction but also legitimate concerns from some communities
- **Discussions with ACM SIGCSE, March 2016**
  - Major conference in Europe based on ITiCSE
  - Two ACM/IE representatives on future ITiCSE Committees

Upcoming ITiCSE Conferences

Upcoming ITiCSE Conferences

- **2017: Bologna, 1-5 July**
  - exploring the opportunity to implement an improved review process for ITiCSE 2017
  - similar to the one just implemented for SIGCSE 2017
  - https://eventi.unibo.it/iticse2017

Upcoming ITiCSE Conferences

- **2017: Bologna, 1-5 July**
  - exploring the opportunity to implement an improved review process for ITiCSE 2017
  - similar to the one just implemented for SIGCSE 2017
  - https://eventi.unibo.it/iticse2017

- **2018: Cyprus**

Upcoming ITiCSE Conferences

- **2017: Bologna, 1-5 July**
  - exploring the opportunity to implement an improved review process for ITiCSE 2017
  - similar to the one just implemented for SIGCSE 2017
  - https://eventi.unibo.it/iticse2017

- **2018: Cyprus**
- **2019: Helsinki?**

Upcoming ITiCSE Conferences

- **2017: Bologna, 1-5 July**
  - exploring the opportunity to implement an improved review process for ITiCSE 2017
  - similar to the one just implemented for SIGCSE 2017
  - https://eventi.unibo.it/iticse2017

- **2018: Cyprus**
- **2019: Helsinki?**

- **Next steps**
  - Work on future ITiCSE conferences
  - Work to establish a long-term Steering Committee for ITiCSE
  - Potential collocation with other CEd conferences...