The European Commission's science and knowledge service

Joint Research Centre

DigComp: the European framework helping young people to gain digital competence

Stockholm Sept 8 2017

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DG JRC – Directorate Innovation and Growth

Unit B4 Human Capital and Employment

European Commission

The Joint Research Centre (JRC)

Focus on the priorities of the European Commission:

creating research evidence to support policy-making

Policy neutral and Independent:

no private, commercial or national interests

Directorate Growth & Innovation Seville

Who am I?

- Riina Vuorikari, from Finland - but I now work in Seville, Spain!
- Research fellow in the JRC since 2013
- 2013-2000 in European Schoolnet as Senior Research Analyst and Project Manager
- Background: Teacher education in Finland, Hypemedia studies in Paris, Doctoral in 2009

- Slideshare: https://www.slideshare.net/vuorikari
- Twitter: https://twitter.com/vuorikari
- https://ec.europa.eu/jrc/en/person/riina-vuorikari

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Outline:

1. **Part: Digital competence –** what do *we* mean?

2. **Part:** What do we know about **digital competence acquisition** before school**?**

3. **Part: Land ahoy**, the way ahead looks good!

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1. Context

The Treaties of Rome paved the way for a Union of peace, solidarity and democracy

Commission sets out strategy for quality education for all

NEWS

3 months 1 week ago

Communication: [School development and excellent teaching for a great start in life]

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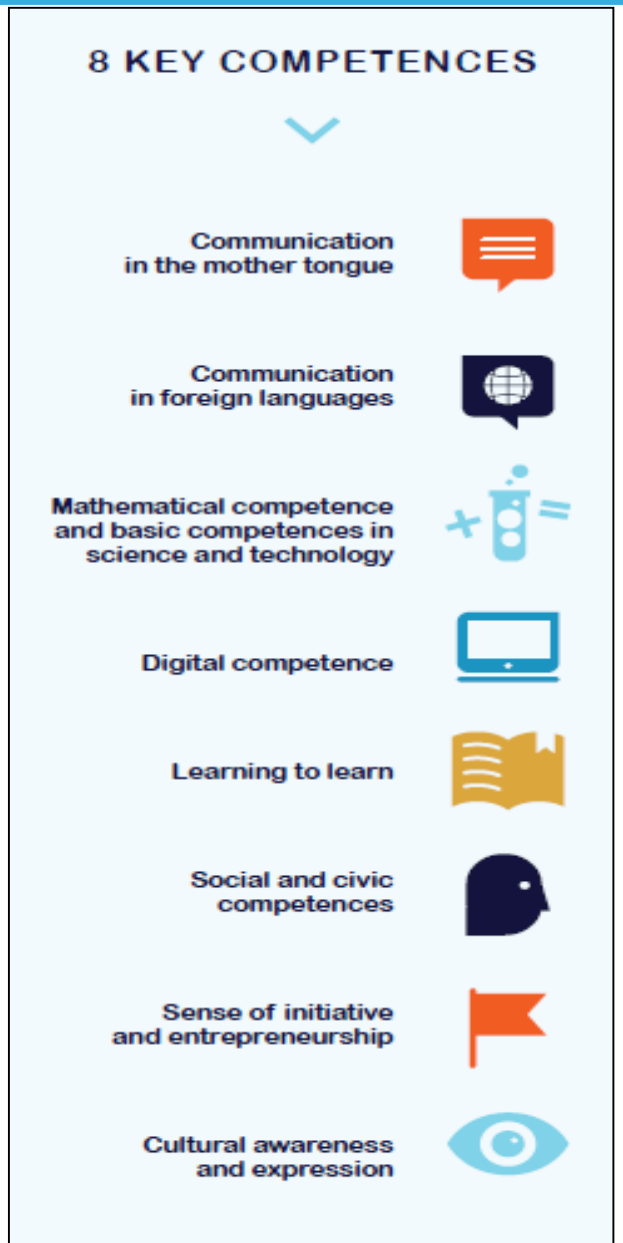


Digital Competence is one of the 8 key competences

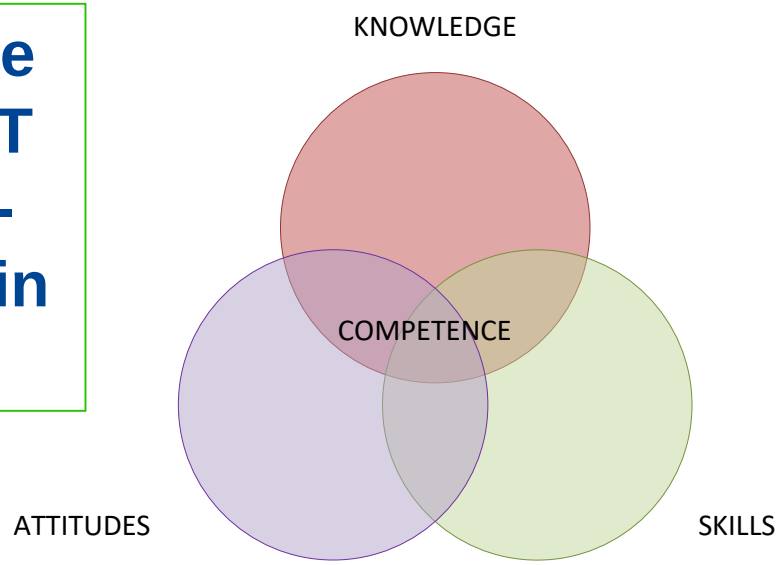
Digital Competence is a transversal key competence enabling us to acquire other key competences

Image source

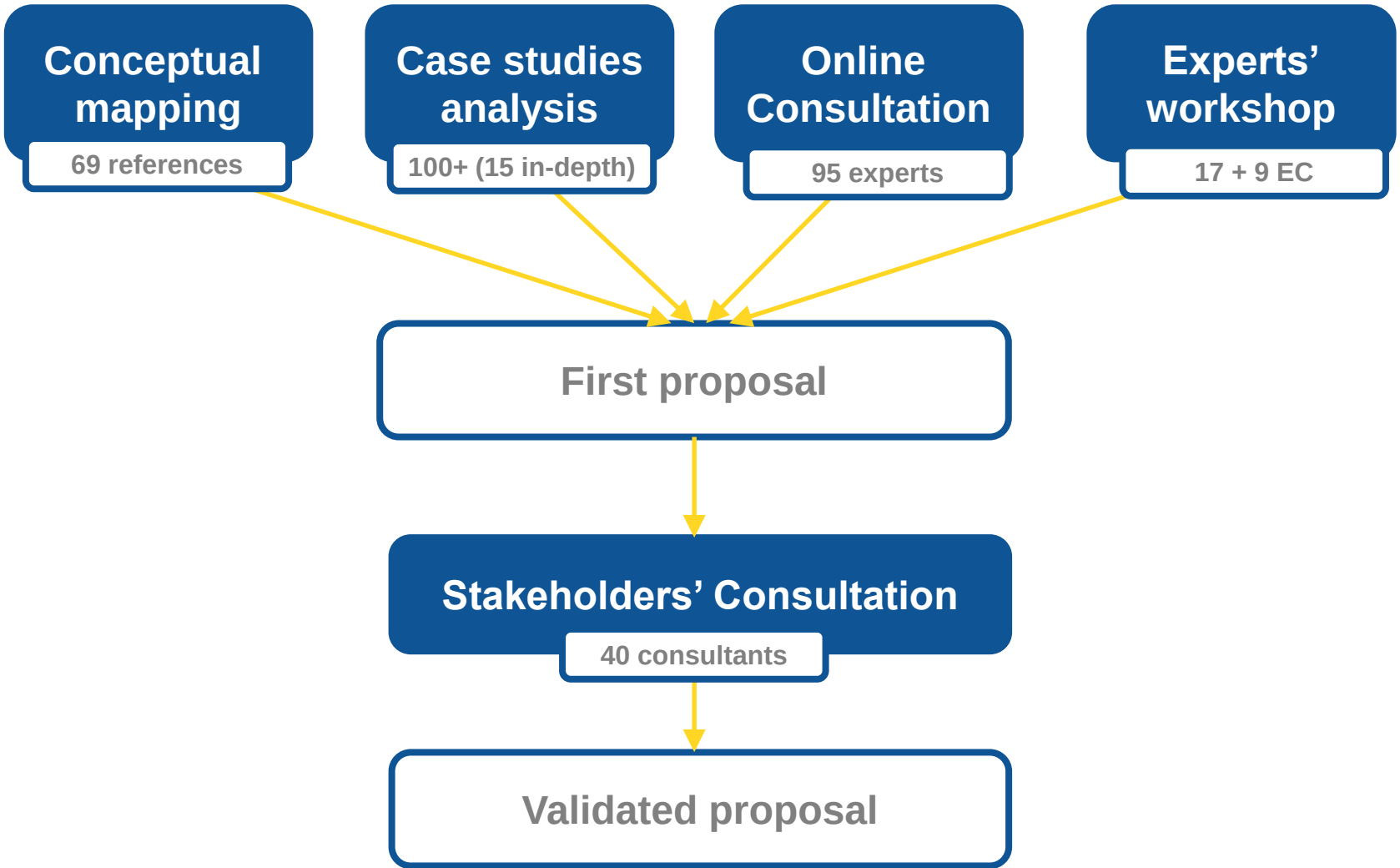
What does it mean to be digitally competent?

Digital competence ≠ use of ICT tools

Digital competence involves the confident and critical use of ICT for employment, learning, self-development and participation in society (EC, 2006).



Multi-method approach since 2010…



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JRC SCIENTIFIC AND POLICY REPORTS

DIGCOMP: A Framework for Developing and Understanding Digital Competence in Europe.

Author: Anusca Ferrari
Editors: Yves Punie and Barbara N. Brečko

2013

JRC SCIENCE FOR POLICY REPORT

DigComp 2.0: The Digital Competence Framework for Citizens

Update Phase 1: The Conceptual Reference Model

Riina Vuorikari, Yves Punie, Stephanie Carretero, Lieve Van den Brande

2016

Joint Research Centre

EUR 27948 EN

European Commission

DigComp 2.1

The Digital Competence Framework for Citizens

With eight proficiency levels and examples of use

Authors:
Stephanie Carretero,
Riina Vuorikari and
Yves Punie

Joint Research Centre

EUR 28558 EN

DIGCOMP 2.0

THE DIGITAL COMPETENCE FRAMEWORK FOR CITIZENS

THE COMPETENCES

DIGCOMP 2.0

THE DIGITAL COMPETENCE FRAMEWORK FOR CITIZENS

THE COMPETENCES

Inter-related areas

1) **Information and data literacy:** To articulate information needs, to locate and retrieve digital data, information and content. To judge the relevance of the source and its content. To store, manage, and organise digital data, information and content.

2) **Communication and collaboration**: To interact, communicate and collaborate through digital technologies while being aware of cultural and generational diversity. To participate in society through public and private digital services and participatory citizenship. To manage one's digital identity and reputation.

3) **Digital content creation**: To **create and edit** digital content. To **improve and integrate** information and content into an existing body of knowledge while understanding how **copyright** and licences are to be applied. To know how **to give understandable instructions for a computer system**.

4) **Safety**: To protect devices, content, personal data and privacy in digital environments. To protect physical and psychological health, and to be aware of digital technologies for social well-being and social inclusion. To be aware of the environmental impact of digital technologies and their use.

5) **Problem solving**: To identify needs and problems, and to resolve conceptual problems and problem situations in digital environments. To use digital tools to innovate processes and products. To keep up-to-date with the digital evolution.

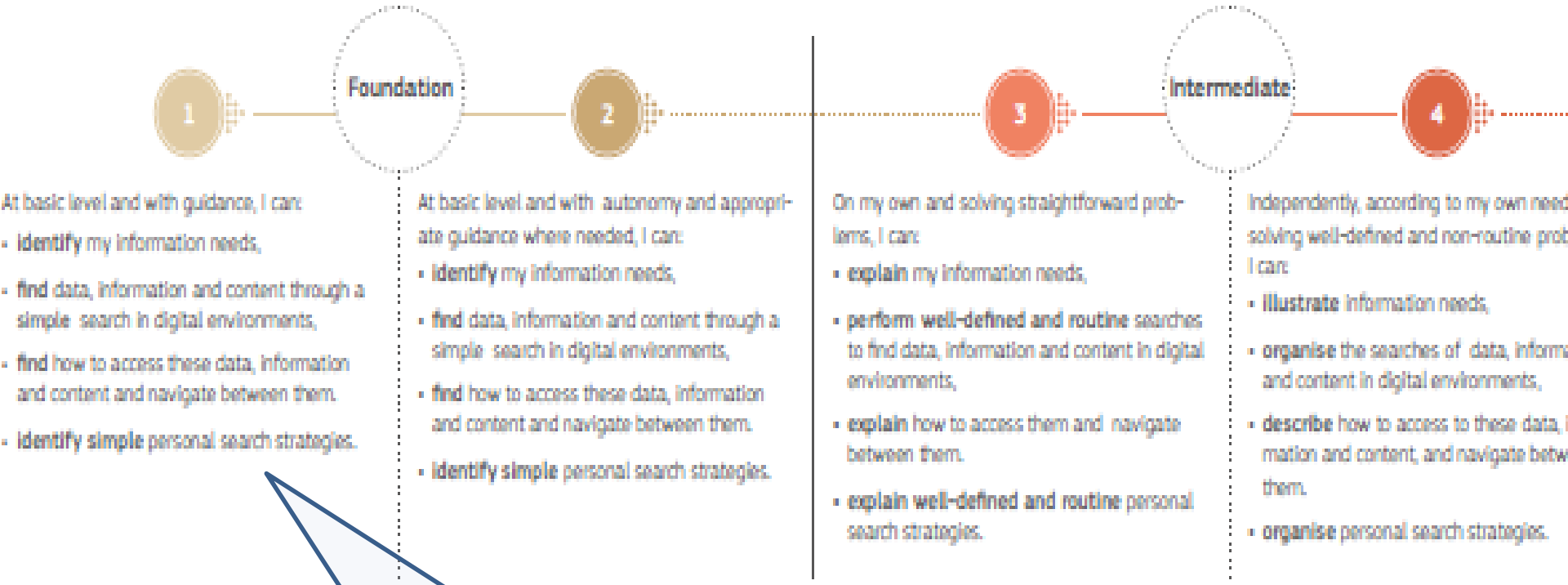
Cross-cutting

Competence areas	Competences
1. Information and data literacy	1.1 Browsing, searching and filtering data, information and digital content 1.2 Evaluating data, information and digital content 1.3 Managing data, information and digital content
2. Communication and collaboration	2.1 Interacting through digital technologies 2.2 Sharing through digital technologies 2.3 Engaging in citizenship through digital technologies 2.4 Collaborating through digital technologies 2.5 Netiquette 2.6 Managing digital identity
3. Digital content creation	3.1 Developing digital content 3.2 Integrating and re-elaborating digital 3.3 Copyright and licences 3.4 Programming
4. Safety	4.1 Protecting devices 4.2 Protecting personal data and privacy 4.3 Protecting health and well-being 4.4 Protecting the environment
5. Problem solving	5.1 Solving technical problems 5.2 Identifying needs and technological responses 5.3 Creatively using digital technologies 5.4 Identifying digital competence gaps

"To plan and develop a sequence of understandable instructions for a computing system to solve a given problem or perform a specific task"

Digital competence (DigComp) is a wider concept than "digital literacy"

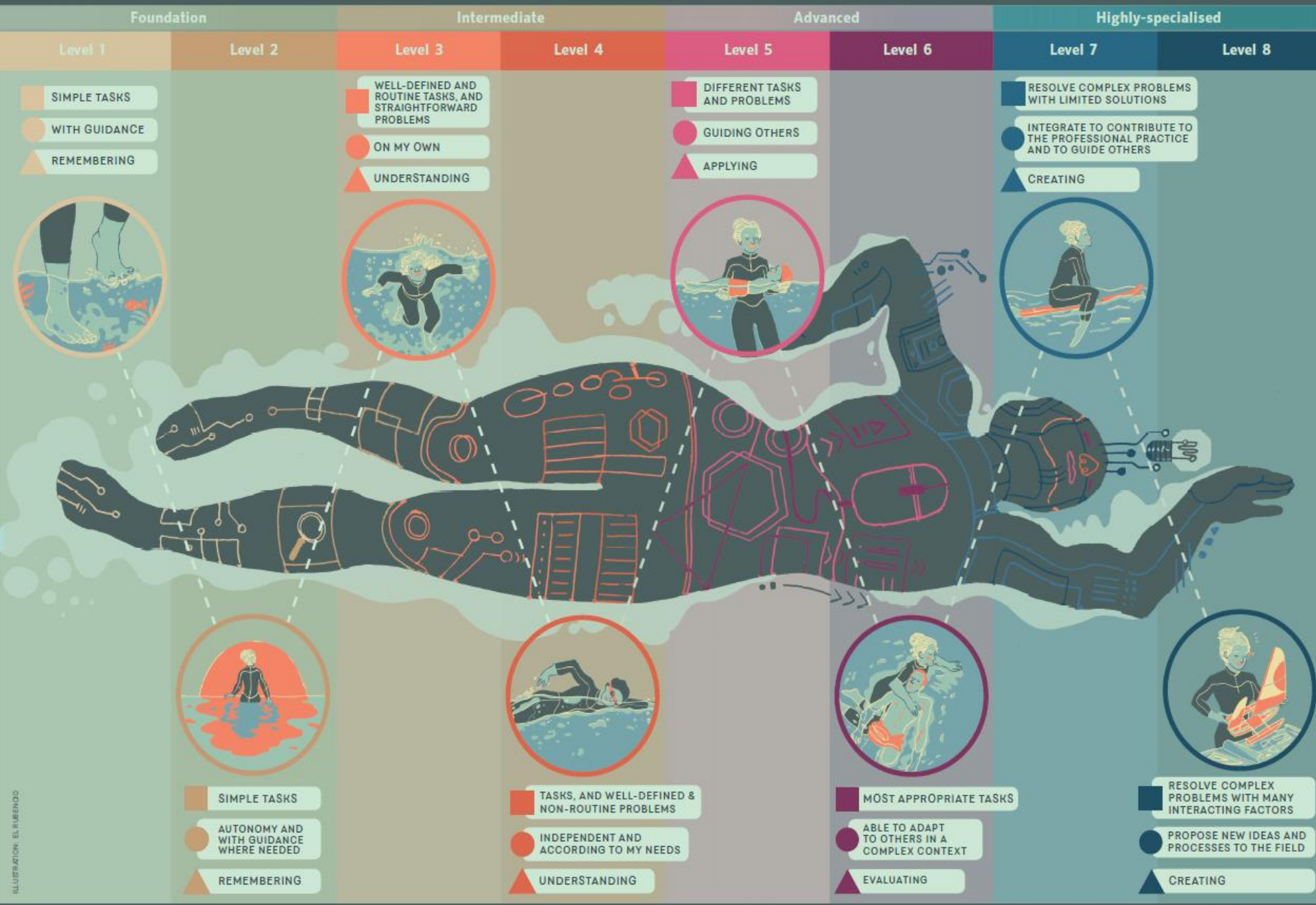
5. Problem solving	**5.1 Solving technical problems** To identify technical problems when operating devices and using digital environments, and to solve them (from trouble-shooting to solving more complex problems). **5.2 Identifying needs and technological responses** To assess needs and to identify, evaluate, select and use digital tools and possible technological responses to solve them. To adjust and customise digital environments to personal needs (e.g. accessibility). **5.3 Creatively using digital technologies** To use digital tools and technologies to create knowledge and to innovate processes and products. To engage individually and collectively in cognitive processing to understand and resolve conceptual problems and problem situations in digital environments. **5.4 Identifying digital competence gaps** To understand where one's own digital competence needs to be improved or updated. To be able to support others with their digital competence development. To seek opportunities for self-development and to keep up-to-date with the digital evolution.



At basic level and with guidance, I can

- **Identify** my information needs
- **Find** data, information,…through **simple search** in digital environment
- …

Learning to swim in the Digital Ocean: THE DIGITAL COMPETENCE FRAMEWORK FOR CITIZENS (V. 2.1)



DigComp 2.1 is a collaboration between the Joint Research Centre and DG Employment Social Affairs and Inclusion

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Example of use: With help from an employment adviser
I can identify, from a list, those job portals which can help me look for a job.
I can also find these job portals in my smartphone's app store, and access and navigate between them.

Example of use: I can also show a friend how to find apps on his smartphone, using different keywords and evaluation criteria to select those that fit her job profile.
I can explain to her how to access and navigate between these apps to find appropriate job vacancies.

Example of use: By myself
I can use well-defined keywords to find jobs portals in my smartphone's app store, and explain to the employment adviser how I access and navigate between them.

Example of use:
I can create new apps for browsing, searching and filtering job portals and offers, according to job seekers' needs.

Assessment tool and piloting

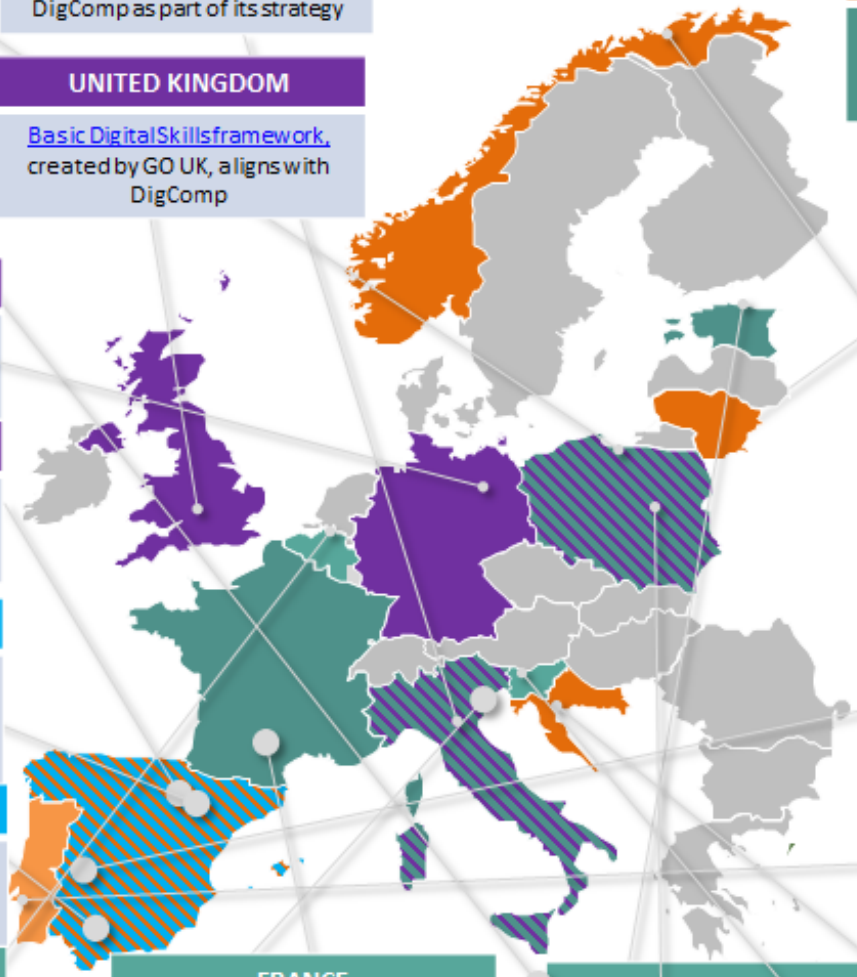
- Make available a reliable and valid instrument to assess citizen's digital competence (end of 2018)

- JRC to create a battery of items (now):
  - dependent variable: digital competence, its five competence areas and 21 competences
  - a combination of self-assessment and knowledge-based tests
  - 42 items (2 per competence), and it will be multiple choice with 3 options

- PILOT: a sample of between 200 and 500 individuals with no o low level of digital competence in three Member States

- Psychometric properties will be then estimated following the Classical Test Theory

Member State implementations



TEACHER PROFESSIONAL DEVELOPMENT

ASSESMENT FOR EMPLOYABILITY

E & T CONTENT /STUDENT ASSESSMENT

POLICY SUPPORT, FRAMEWORK IMPLEMENTATION

POLAND

The Min. of Digital Affairs published a catalogue of digital competence frameworks for Digital Poland 2014-2020 referring to DigComp

ITALY

Italian Digital Agenda will translate and implement DigComp as part of its strategy

UNITED KINGDOM

Basic Digital Skills framework, created by GO UK, aligns with DigComp

MALTA

Use of DigComp by the Ministry for Education and Employment in Maltese "Digital Strategy"

GERMANY

A new strategy 'Education in the digital world' (Bildung in der digitalen Welt) builds on DigComp (+2 other frameworks)

NAVARRA, SPAIN

Navarra Department of Education uses DigComp as a key reference for strategic planning

BASQUE COUNTRY, SPAIN

Ikanos project developed by the Basque Government to deploy the Digital Agenda. Free DigComp self-assessment and training

ANDALUCIA, SPAIN

"Andalucia digital" offers free DigComp self-assessment and training for job-seekers

FLANDERS, BELGIUM

Dept. of Education use DigComp for a curricula review and development of adult education courses

REBIUN, SPAIN

The Network of Spanish University Libraries (REBIUN) uses DigComp to upskill students in 76 Spanish universities

FRANCE

PIX platform being developed by the Min. of Education to certify digital skills based on DigComp

EMILIA-ROMAGNA REGION, IT

Uses DigComp to re-design courses/materials in Pane e internet, an e-inclusion initiative

ESTONIA

From 2017 on, all 9th graders will be evaluated using DigComp

POLAND

Training for certification purposes based on DigComp provided by ECCC Foundation and ECDL in Poland.

LITHUANIA

Translation of the DigComp framework by the Education Development Centre. Used for Teacher PD

NORWAY

The Centre for ICT in Education uses DigComp as a references to develop a DigComp framework for the teaching profession

SPAIN

The Min. of Education, INTEF created Common Framework for Teacher Digital Competence based on DigComp. Use agreed between State and Regional governments.

EXTREMADURA, SPAIN

Extremadura implements Teachers Digital Competence Portfolio based on DigComp

PORTUGAL

The Min. of Education uses DigComp as an input for teachers' PD. Translation by CIDTFF, supported by the MoE

CROATIA

e-Schools project by Croatian Academic and Research Network uses DigComp to support teachers

SLOVENIA

Translated by National Education Institute. DigComp used in assessing students in ICT

Summarising Part 1:

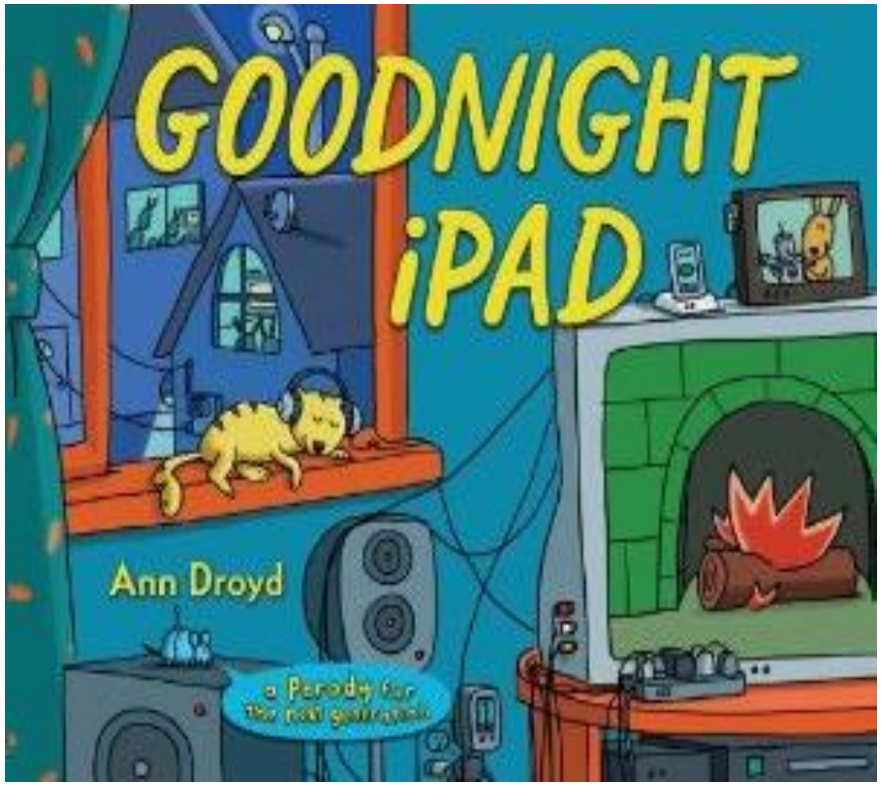
- DigComp: Identifies and describes key components of Digital Competence in terms of knowledge, skills and attitudes
- Why: provides a common European understanding and guidelines
- Supports EC and MS in implementing EU and national policies, curriculum and training syllabi makers, teachers, …

Part 2: What do we know about **digital competence acquisition** before school**?**

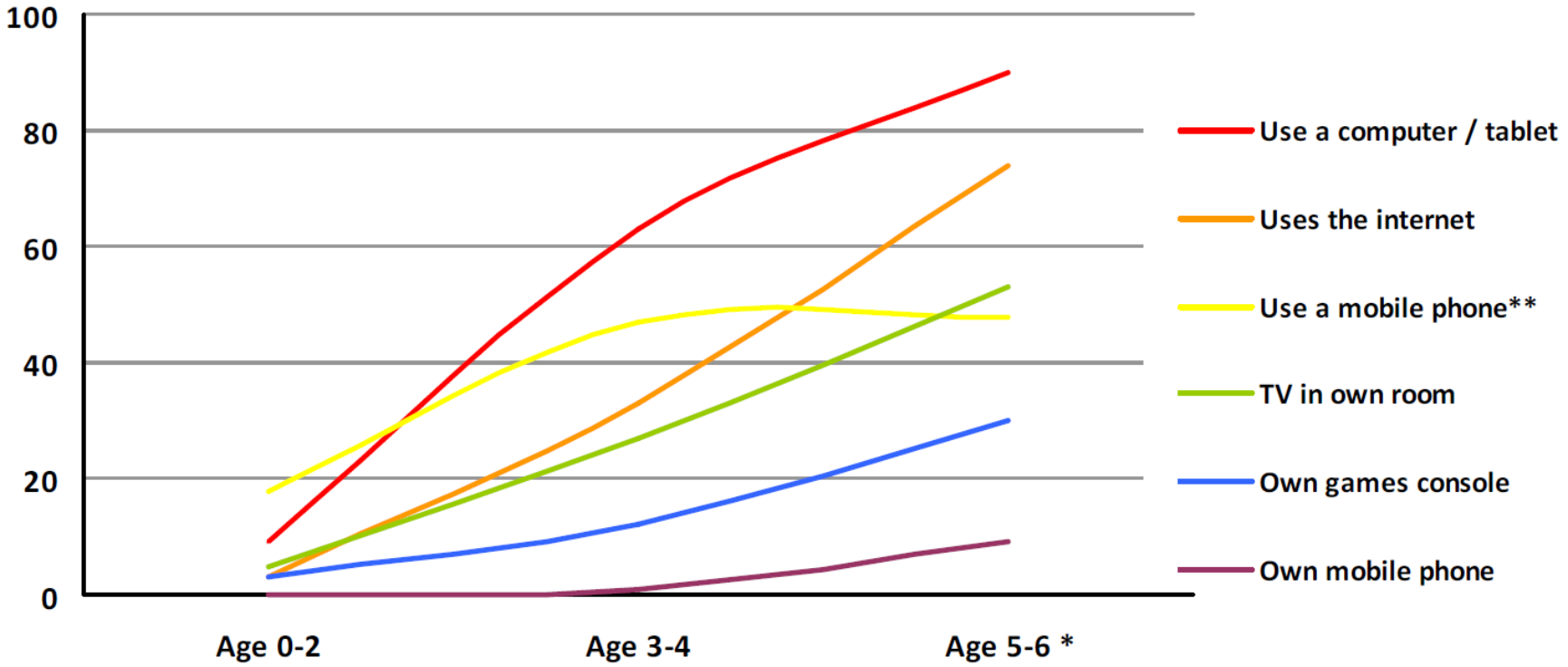
'The day I realised my toddler was addicted to the iPad':

Three-year-old William tugged at the duvet and woke his father demanding the tablet... at 4am

Dailymail, 29 January 2014

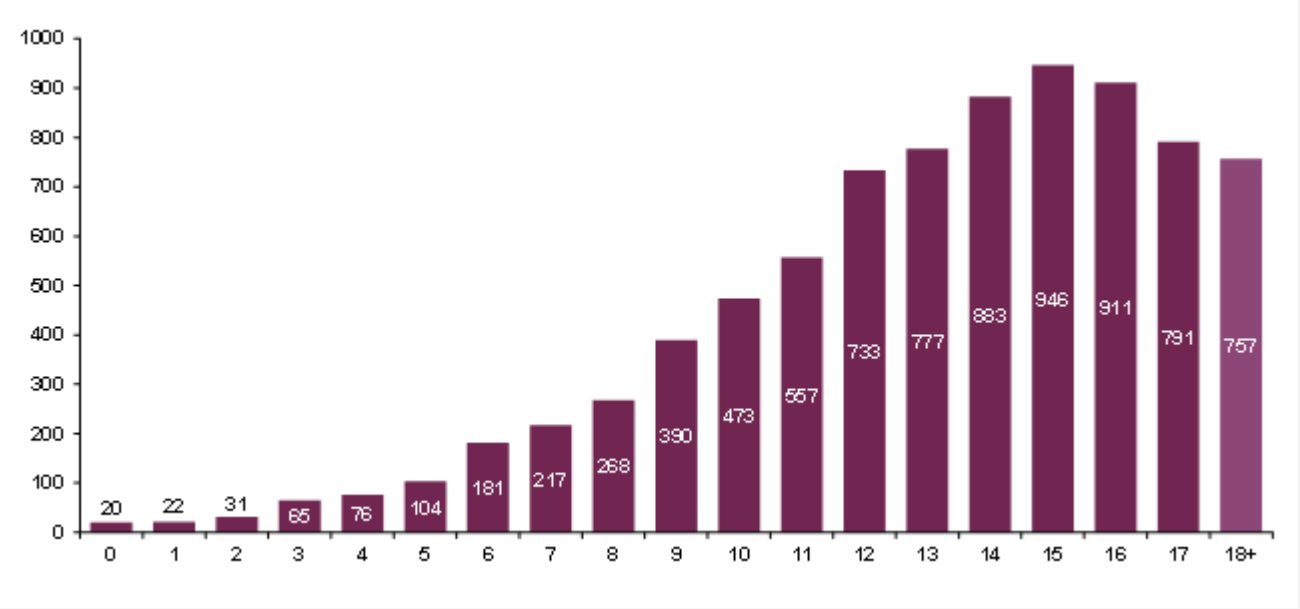


Children use digital technology younger and younger



Base: All age 0-4 (200) * *Data for 5-6 year olds from CHILDWISE Monitor 2013-14*
** *Mobile phone use, data for 5-6 year olds from CHILDWISE Monitor 2012-13*

Studies by age of child studied



Number of studies conducted by age of child studied. See EU Kids Online's searchable European Evidence Database (www.eukidsonline.net)

See EU Kids Online Zero to Eight report

- Most research is conducted with teenagers
- Most is quantitative rather than qualitative
- Most is on access, then risks; least is on parenting
- Most is single-country rather than cross-national

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Research Questions

1. What children can do with a tablet ?

2. …how parents manage and mediate their use?

3. …what are the potential benefits and risks?

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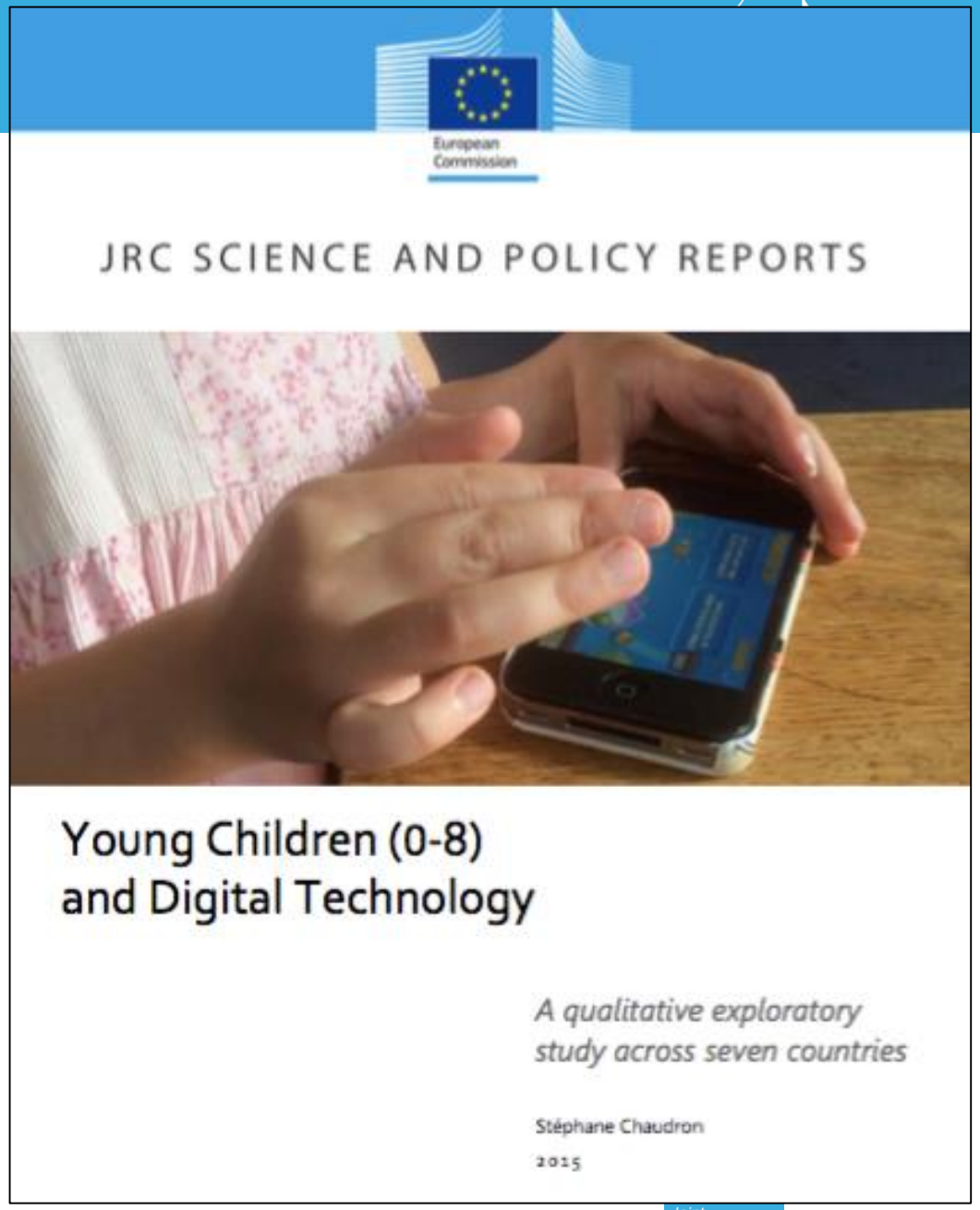

Second study with 21 countries coming out by the end of the year!

Contact:
stephane.chaudron@ec.europa.eu

http://ec.europa.eu/jrc

Research in action

FIG. 9 6 YEAR OLD BOY'S PREFERRED ONLINE AND OFFLINE ACTIVITIES

Pictures - Veronica Donoso

Communication and collaboration

She independently uses her mother's Facebook account in order to communicate with some relatives (girl 7y)

Even though she doesn't have a FB account yet, she uses her mom's account to communicate with her when she is working abroad (girl 7y)

Information and data literacy

He can perform some basic searches online (especially for apps in Google play and for videos, starting from the tablet or from the SmartTV); -still, as he doesn't know how to write, he partially depends on his mother for these searches. Boy 6y

She performs basic searches on the computer using Google, but she is not always successful (as she does not know to write, she has the keywords written by her brother on a piece of paper).(girl 6y)

Digital content creation

She can and loves to take photos and she often shares them publicly on her mother's Facebook account **(girl 6y)**

He and his brother know about the option to run voice-searching in Google (but the option is limited as they try it in a non-English language)**(boy 5y)**

Safety

She has some knowledge of the online risks (as the computer was once 'broken' by viruses) and she would want to set a password for her tablet, but her mother doesn't allow her (girl 6y)

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Some recommendations from the study:

To develop educational material for parents and careers on how to support young children in learning and acquiring digital competence for a balanced life

Needs for practical suggestions, e.g.

- Ideas for active mediation strategies;
- How to talk to young children about managing and mediating online risks;
- Information about positive effects of digital media;
- Practical information on:
  - Safety settings, passwords, privacy protection and content filters;
  - Awareness on commercial and advertising strategies, such as the difference in risks exposure between free and non-free apps or games;
- Encourage ECEC and pre-schools to take a more active role, but also to support teachers, caretakers and staff

Summarising Part 2:

- Kids today might have super powers, but they don't seem to be the digital ones!

- The skills' acquisition is
  - through observing others around them and through repetitive trial-and-error to gain operational skills
  - largely influenced by the family's skills, knowledge, attitudes

- This results in a very patchy, haphazard skills' acquisition and uneven playground regarding the readiness to starting school

3. Part: “Land ahoy!”

-

The way ahead
looks good

NEWS 08/24/2017 04:10 am ET

There's No Such Thing As 'Digital Natives'

And the myth that they exist is hurting the entire workforce.

By Ann Brenoff

Let me share a bit of my optimism with you!

The same may be true in the classroom, said Paul Kirschner, a professor of educational psychology at the Open University in the Netherlands and co-author of a study in an upcoming issue of the journal Teaching and Teacher Education. He argues that we hurt students, rather than help them learn, when we assume they have certain unique technological skills.

Kirschner's report, discussed in Discover magazine, noted that educational policy and practice are often based on the faulty premise that students who were born in the age of digital media are fundamentally different from previous generations of students.

http://www.huffingtonpost.com/entry/digital-natives-dont-actually-exist_us_599c985de4b0a296083a9e8a

Skolutveckling

- Lärande
- Resurser för lärande
  - Skolbibliotek
  - Kolla källan
  - Skolans digitalisering
    - Nationella strategier
    - Digital kompetens, styrdokument
    - Förskola
    - Grundskoleutbildning
    - Gymnasieutbildning
    - Programmering i gymnasieskolan
    - Vuxenutbildning

Tydligare om digital kompetens i läroplaner, kursplaner och ämnesplaner

Dagens elever lever i ett alltmer digitaliserat samhälle och därför har regeringen beslutat om förändringar i styrdokumenten för grundskole-, gymnasie- och vuxenutbildningen. Eftersom det finns ett stort behov av kompetensutveckling har vi material för det redan nu. Mer kommer i höst, till exempel en webbkurs om programmering.

Skolverket LÄRPORTALEN

Moduler | Arbeta med modulerna | Handledare | Rektor och förskolechef | Kollegialt lärande

Start > Digitalisering

Moduler för Digitalisering

Digitalisering | Alla skolformer | Alla målgrupper

s://larportalen.skolverket.se/#/modul/0-digitalisering/Grundskola/202_Digitalt_berattande

Digitalt berättande

DIGITALISERING

Grundskola och gymnasieskola

Målgrupp: Lärare i grundskolan och gymnasieskolan
Innehåll: Modulen visar hur publika arbetssätt och digitalt berättande inom olika medier som film, ljud och bild kan utveckla undervisningen..

Exempel på aktiviteter:
• Planera för digitalt berättande

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DigComp competence araes

1) **Information and data literacy**: To articulate information needs, to locate and retrieve digital data, information and content. To judge the relevance of the source and its content. To store, manage, and organise digital data, information and content.

2) Communication and collaboration: To interact, communicate and collaborate through digital technologies while being aware of **cultural** and generational **diversity**. To participate in society through public and private digital services and **participatory citizenship**. To manage one's **digital identity** and reputation

3) **Digital content creation**: To **create** and **edit digital content**. To improve and **integrate** information and content into an

DigComp competence araes	Lärportalen: "Digitalisering" modules available for teachers
1) **Information and data literacy**: To articulate information needs, to locate and retrieve digital data, information and content. To judge the relevance of the source and its content. To store, manage, and organise digital data, information and content.	I modulen **Kritisk användning av nätet** får ni fördjupa er i hur ni kan handleda elever i informationssökning och källkritik. Ni får också arbeta med att anlägga kritiska perspektiv på algoritmer, sökning och sociala nätverkstjänster. (Publicerad)
2) Communication and collaboration: To interact, communicate and collaborate through digital technologies while being aware of **cultural** and generational **diversity**. To participate in society through public and private digital services and **participatory citizenship**. To manage one's **digital identity** and reputation 3) **Digital content creation**: To **create** and **edit digital content**. To improve and **integrate** information and content into an	I modulen **Digitalt berättande** arbetar ni i gruppen med att utveckla er kunskap kring hur undervisningen kan utformas på ett varierat sätt med digitalt, kreativt skapande. Ni för också diskussioner kring och provar på att arbeta med publika arbetssätt. Den här modulen är tänkt för er som har hittat strukturen kring er digitalisering och vill vidareutveckla er digitala didaktik. (Publicerad)

Take-home message

Now that we have a vision and a mandate … Let's work!

DigComp framework and material can support schools and teachers

- To support and inspire teachers in their Professional Development activities
- The self-assessment tool can (eventually) also be used to get a diagnostics of one's digital competence
- http://ec.europa.eu/jrc/digcomp

Children (8-12) - Happy Onlife

a game for children and adults, aimed at

- Raising awareness of the risks and opportunities of ICT
- Promotes best online practices
- Supports parents and teachers in their active mediation

Game and activity booklet (IT – EN)
https://ec.europa.eu/jrc/en/scientific-tool/happy-onlife-game-raise-awareness-internet-risks-and-opportunities

Overview of the take up of DigComprOrg & SELFIE

PARTICIPATION IN SELFIE PILOTS: DK, EE, ES, IT (CY, EL, GE, IE, RU, UK, ...)

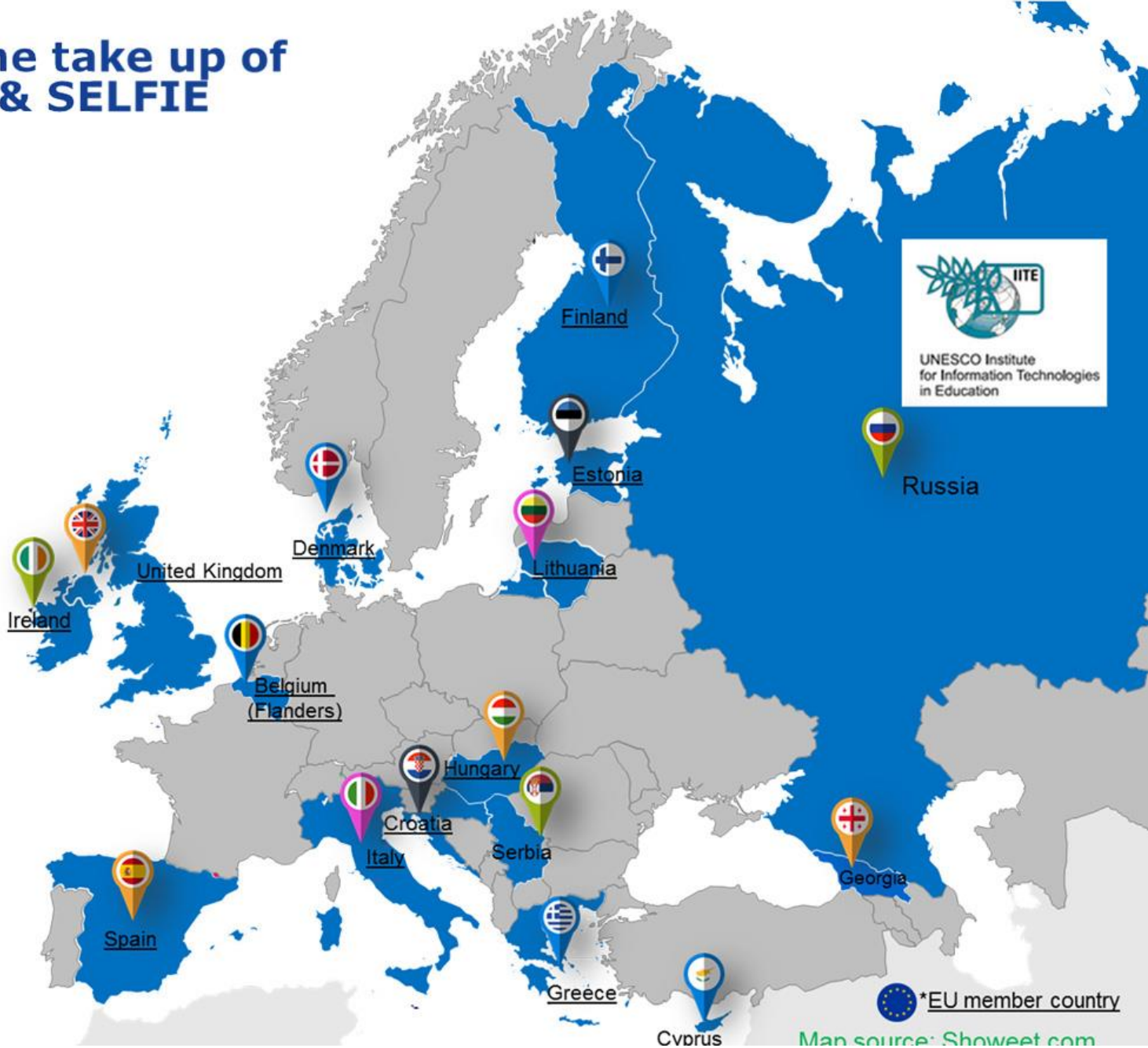
TRANSLATION OF DIGCOMPORG REPORT: EE, ES, IT , CY, LT, HU, BE ...

REFERENCE MODEL FOR NATIONAL DIGITAL STRATECIES: ES, HR, HU ...

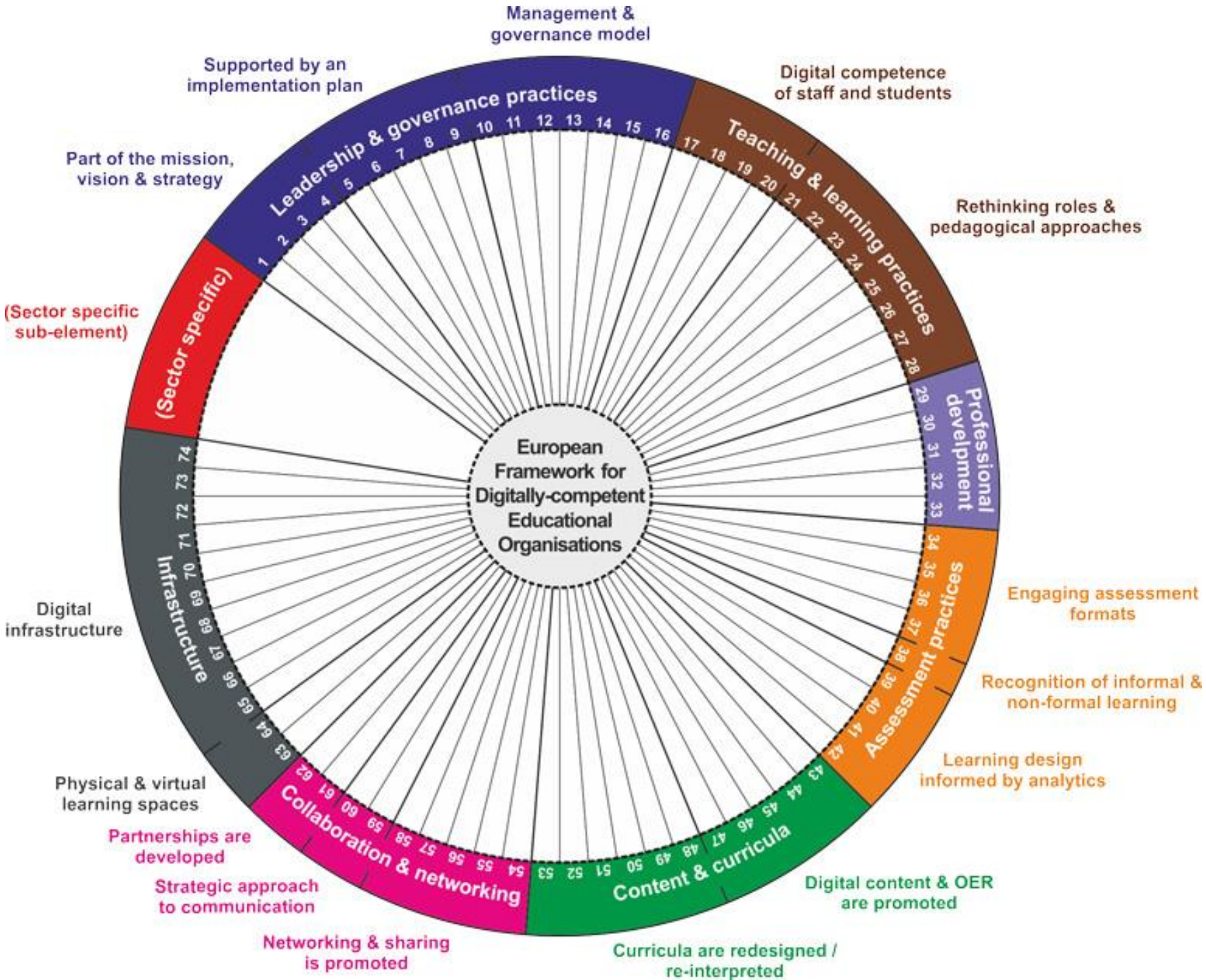
POLICY SUPPORT MEETINGS: ES, HR, IE, EL ...

REFERENCE MODEL FOR NATIONAL CALLS & TRAINING MATERIALS: ES, HU,FI, RS ...

REFERENCE MODEL FOR NATIONAL TOOLS: EE, HR, FI ...



SELFIE is a tool to support European schools to reflect on their take up of digital technologies


Management & governance model
Supported by an implementation plan
Part of the mission, vision & strategy
(Sector specific sub-element)
Digital infrastructure
Physical & virtual learning spaces
Partnerships are developed
Strategic approach to communication
Networking & sharing is promoted
Curricula are redesigned / re-interpreted
Digital content & OER are promoted
Learning design informed by analytics
Recognition of informal & non-formal learning
Engaging assessment formats
Rethinking roles & pedagogical approaches
Digital competence of staff and students
Leadership & governance practices
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
Teaching & learning practices
17 18 19 20 21 22 23 24 25 26 27 28
Professional development
29 30 31 32 33
Assessment practices
34 35 36 37 38 39 40 41 42
Content & curricula
43 44 45 46 47 48 49 50 51 52 53
Collaboration & networking
54 55 56 57 58 59 60 61 62
Infrastructure
63 64 65 66 67 68 69 70 71 72 73 74
(Sector specific)
European Framework for Digitally-competent Educational Organisations

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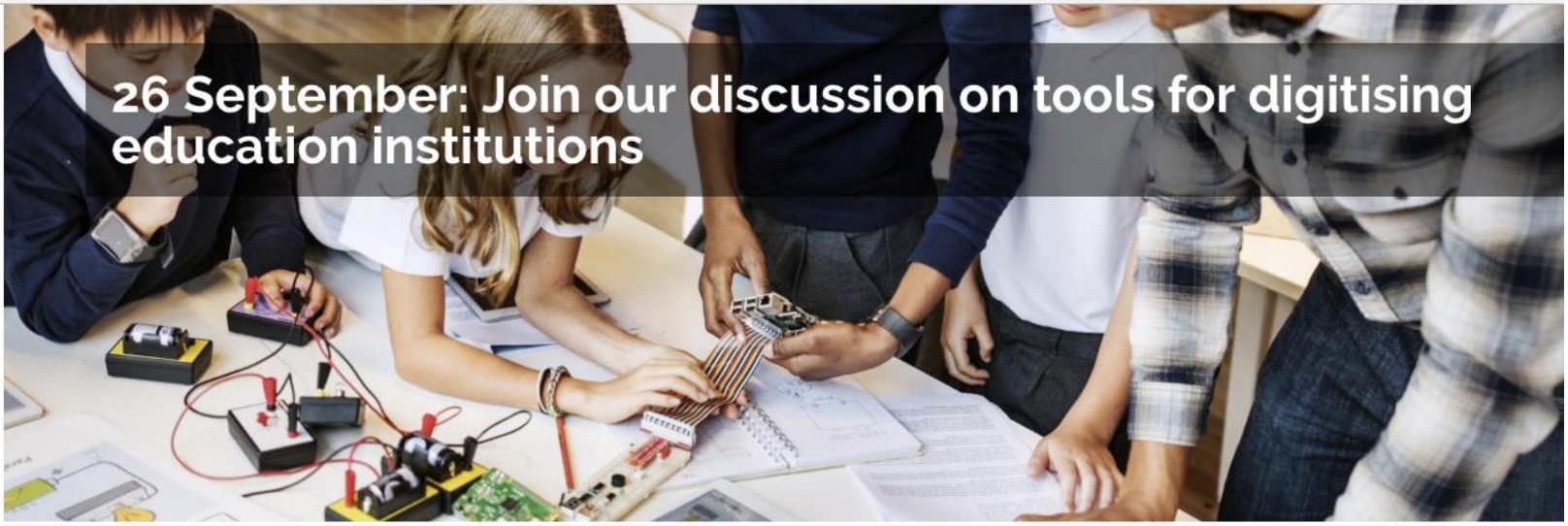
Thank you!!
and
Let's talk more!

OpenEducationEuropa
Europe's community for innovative education

Secure | https://www.openeducationeuropa.eu/en/live-discussion/26-september-join-our-discussion-tools-digitising-education-institutions



On 26 September 2017 Open Education Europa is inviting you to join an online discussion on tools for digitising education institutions.

The live chat session is organised as part of OEE's September focus on digitising education institutions and will be moderated by **Dr Riina Vuorikari** from the **Joint Research Centre**. Riina contributes to research and policy support in the field of "ICT for Learning and Skilling". Her work focuses on Digital Competence for citizens and on an exploratory project of Open Science 2.0.

TOPICS:

Digitising Education Instit

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