

# Informatics for All in Denmark

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# Emerging political awareness in DK

- January 2016
  - World Economics Forum, Davos (4<sup>th</sup> Industrial Revolution)
- December 2016
  - Report from *The Danish Growth Council* (on qualified labour)
  - “Computational thinking for all” (one of five “here and now recommendations”)
- May 2017
  - Report from *Digital Growth Panel*
  - Entire section on digital competencies
- January 2018
  - The Government: *Strategy for Denmark’s digital growth*
  - Several concrete actions: **Informatics in K-9**, ...
- March 2019
  - On March 14<sup>th</sup>, the Government hosts **Digital Summit 2019**
  - Presentation of K-9 Informatics and discussion of further initiatives
- Plenty of lobbying along the way...



# Informatics for All in Denmark

- Two-tier strategy at all educational levels (more or less explicit)

Higher education: as AND in study programmes 2018<sup>1</sup>  
Age: ~ 19-24 +

Upper secondary school: as AND in subjects 2016<sup>2</sup>  
Age: ~ 16-19

Primary and lower secondary: as OR in subjects ! (→ AND) 2018<sup>3</sup>  
Age: ~ 6-16

<sup>1</sup> Awareness since 2018.

<sup>2</sup> Long history as optional subject; see [Computational Thinking and Practice – A Generic Approach to Computing in Danish High Schools](#) for further details.

<sup>3</sup> Curriculum developed in 2018; made public on 21<sup>st</sup> December 2018. Trial subject for three years (2019-2021) in 46 selected schools; associated implementation project...

# Informatics in K-9 (new trial subject)

- Current designation
  - 'Teknologiforståelse' (~ Technology comprehension)
- Four competence areas
  - Computational empowerment
  - Digital design and design processes
  - Computational thinking
  - Technological knowledge and skills

} Novel and complementary informatics topics

} "Traditional" informatics topics
- Two lessons per week in all grades

# Four Competence Areas

## 1. Computational empowerment

Critical, reflexive and constructive examination and understanding of possibilities and consequences of digital artefacts.

Analysis of technology—intention and use | Evaluation | Redesign

## 2. Digital design and design processes

Organisation and implementation of iterative and incremental design processes considering the context of future use.

Problem framing | Ideation | Prototyping | Argumentation

## 3. Computational thinking

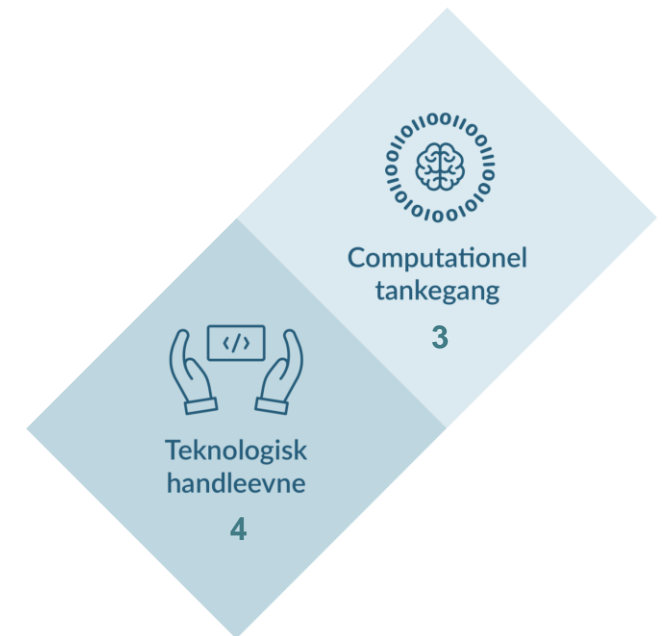
Analysis, modelling and structuring of data and data processes.

Data | Algorithms | Structuring | Modelling

## 4. Technological knowledge and skills

“Mastery” of digital technologies (computer systems and networks), associated languages and programming.

Programming | Computer systems | Network | Security



# Informatics (aka 'Teknologiforståelse')

