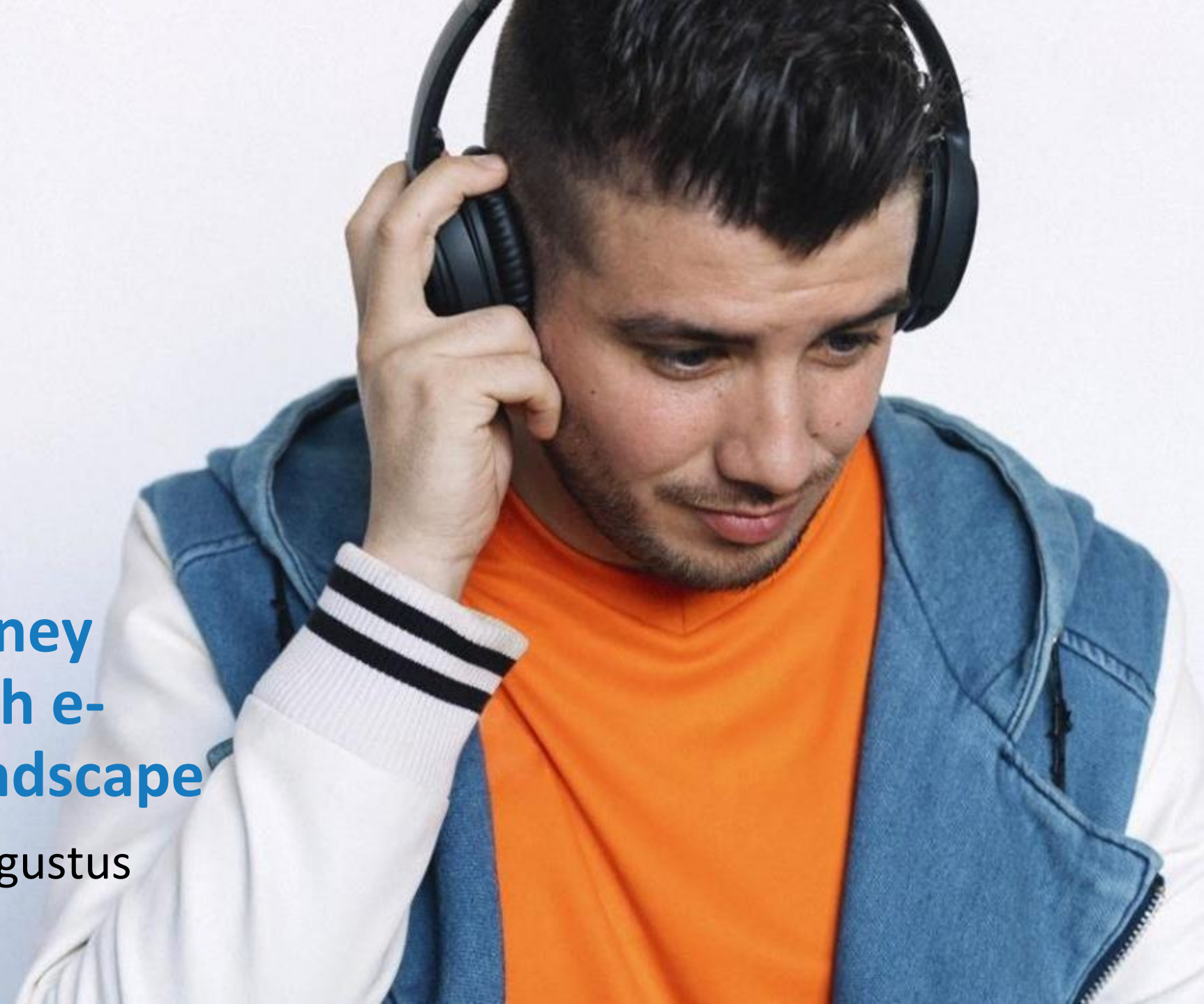


A (personal) journey through the Dutch e-Infrastructure landscape

Arjen van Rijn, Ron Augustus

21 June 2023

My institute: Nikhef

Nikhef: the Dutch National Institute for Subatomic Physics

1946: establishment of IKO (FOM i.e. the Physics Research Council, City of Amsterdam and Philips); institute for nuclear physics; legal predecessor of Nikhef

1975: formation of the Nikhef partnership (FOM and four Dutch universities) to coordinate Dutch activities in nuclear and particle physics;

1980: Nikhef main building concentrated on Amsterdam Science Park, adjacent to the Mathematical Center (MC – established 1946) and SARA (established 1971)

The (predecessors of the) Dutch e-infrastructure players

1971: establishment of SARA: compute centre for the two Amsterdam universities and the national Mathematical Center (‘CWI’)

1986: establishment Stichting SURF ‘Samenwerkende Universitaire RekenFaciliteiten’ by Hans Rosenberg, astrophysicist;

1988: establishment SURFnet: roll out of the first Dutch research and education network;

1988: establishment of Stichting NCF, tasked with providing supercomputing facilities in the Netherlands;

Meanwhile: internet really took of …

1989: Tim Berners-Lee submits a proposal for an information management system to his boss, Mike Sendall.

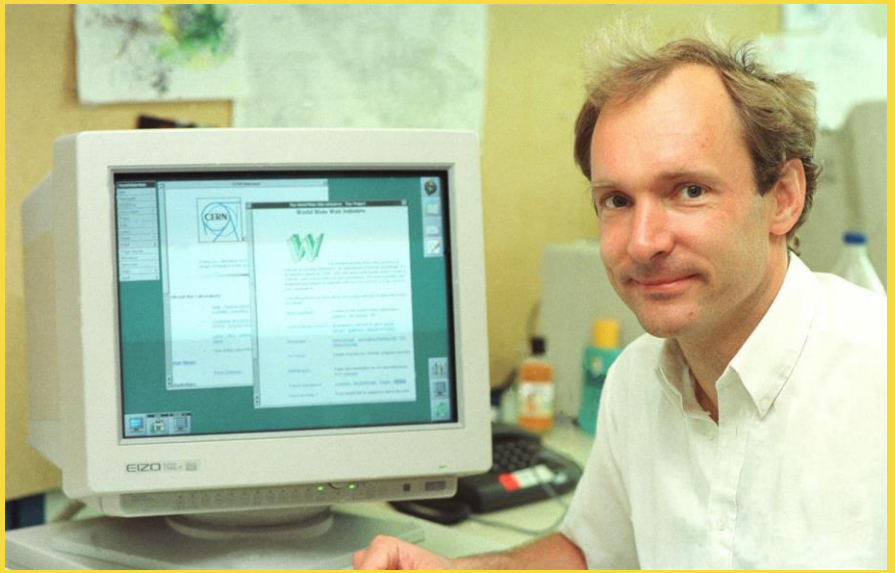
1986 – 1999: emergence of

RARE (TERENA)

RIPE NCC

AMS-IX (Amsterdam Internet Exchange)

…. all with their first offices at Nikhef;



The story continues …

[1.1.1999: Arjen joins Nikhef]

1999: first discussions at CERN on distributed processing of LHC data: ‘datagrid’

2000 – 2005: first national projects on development of grid infrastructure, supported by various national funds;

2007 – 2012: BiG Grid: 28 M€ project for the roll-out of distributed data processing facilities in The Netherlands; consortium: NCF, NBIC (Bioinformatics) and Nikhef; SARA a prominent partner in this project. Project delivered a.o. the Dutch Tier-1 for WLCG;

2008: report of the national ‘ICT regie-orgaan’ on ICT facilities for research, advising the Ministry of Education Culture and Science to ‘bring all ICT facilities under one roof, preferably SURF’;

SURF

… and continues …

[2009: Amsterdam Science Park wins competition for hosting head office EGI, first offices at Nikhef;]

[2012: Arjen joins e-IRG]

2013: SURF and SARA merge into one organization; under SURF three separate business units: SURFnet, SURFsara and SURFmarket; Grid infrastructure incorporated in national e-infrastructure; NCF meanwhile dissolved;

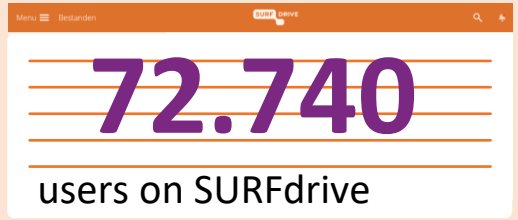
2021 – 2025: Nikhef and SURF continue to work together in the Dutch national e-Infrastructure;

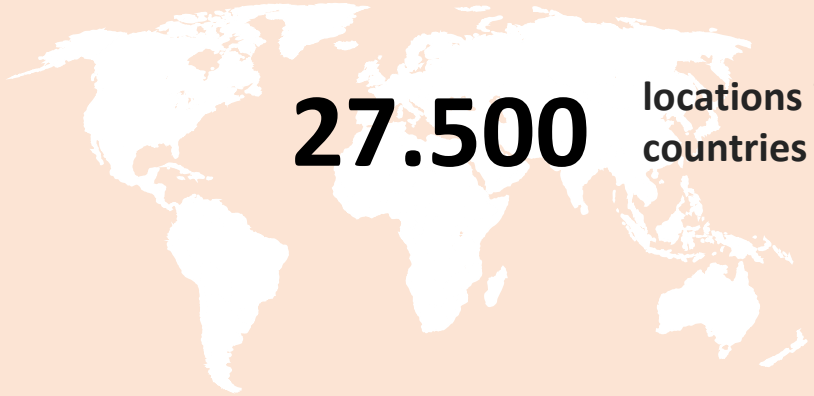
2021: merger of SURF business units in one entity (SURF B.V.)

My 20+ year take away

- Change takes time;
- You need a bit of luck now and then; and it helps being closely located together (such as Nikhef and SARA being colocated on the Amsterdam Science Park);
- e-Infrastructure innovation and development can profit from the dynamics of a demanding user community, that likes to work closely with technologies to serve their needs;
- Researchers and research communities are usually not interested in how the various (ICT) services (computing, data, networking) reach them; you better hide your organizational complexities from them …;
- SURF as *the* e-infrastructure service provider in NL really worked out.
- Hence my advocacy of the national node concept.

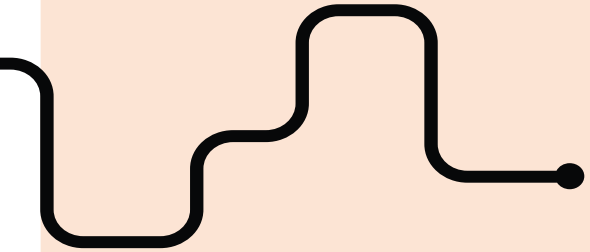
SURF Milestones





27.500 locations in 101 countries with Eduroam

100 million
in purchasing contracts



11.000 km
fiberconnections within The Netherlands and neighbour countries

14 petaflop/s
peak performance of the National Supercomputer Snellius

SURF

International programmes

...

EOSC

Euro-HPC

E-IRG

Géant

Programmes at national level

- Nguls
- Learning Materials
- Flexible Education
- Education Data
- Online Education

- OS Directing Body
- Open Science
- Sensitive Data
- (T) DCCs
- Infrastructure
- Skills & Capacity

- Integral Security
- Cybersecurity
- NREN
- **Public Values:** *open source, national cloud, GPT models*

Try out, pilot and test on local level

- International interoperability
- Future Campus/XR
- EdTech
- Education data
- Digital Testing

- International cooperation
- LCRDM
- Community VRE
- National Growth Fund
- Skills & capacity
- Sensitive data

- SSI/SRAM+/EduID
- 2STiC/SurfNet9
- SURF-SOC

Overarching Innovation Lab

o.a. Future computing, Quantum communication, AI, GPT-NL, XR, - 800Gb/s

Education

Research

Combined: ***Network-Security-Public Values***

6 Technologies, 29 trends!

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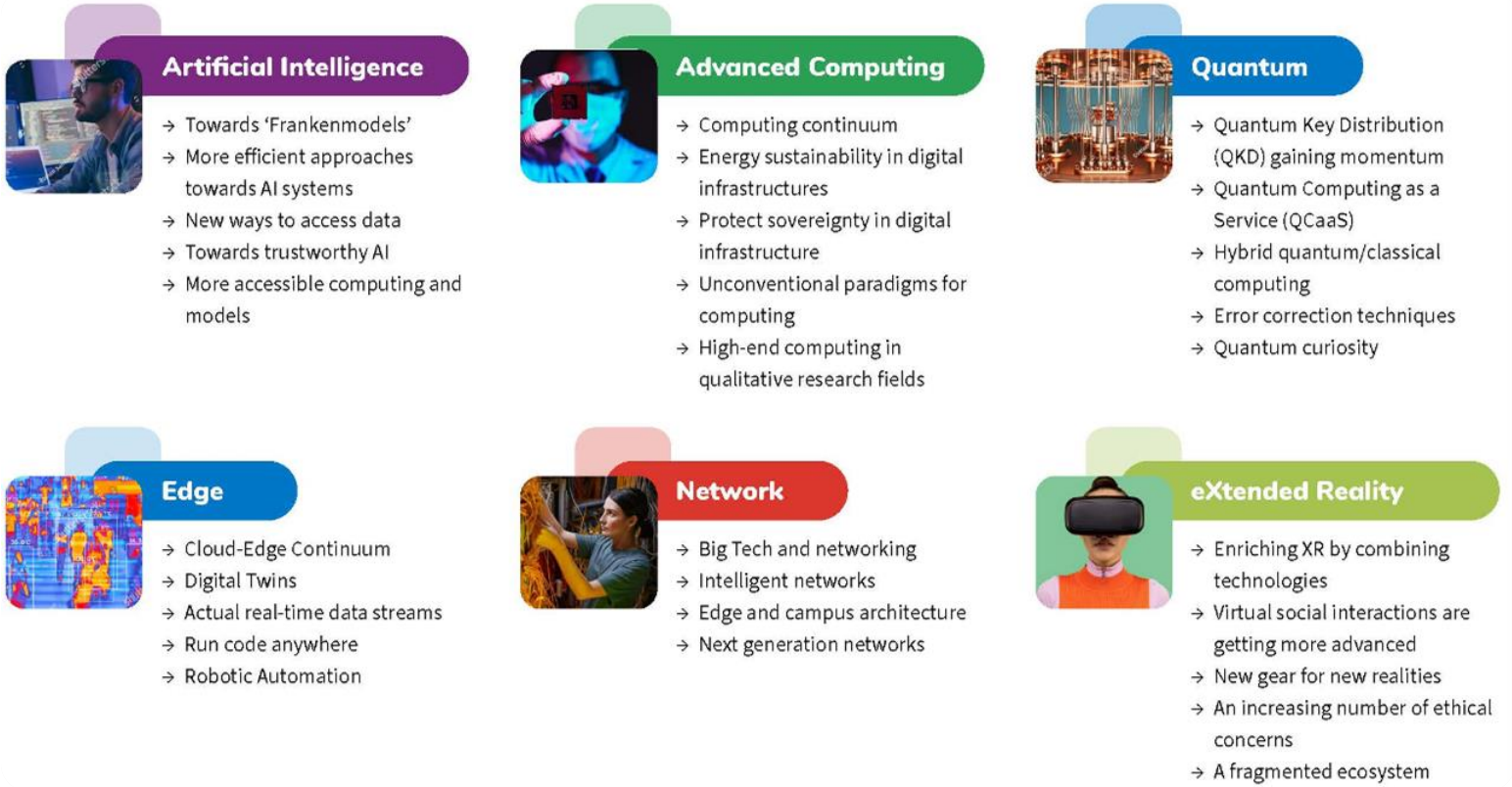
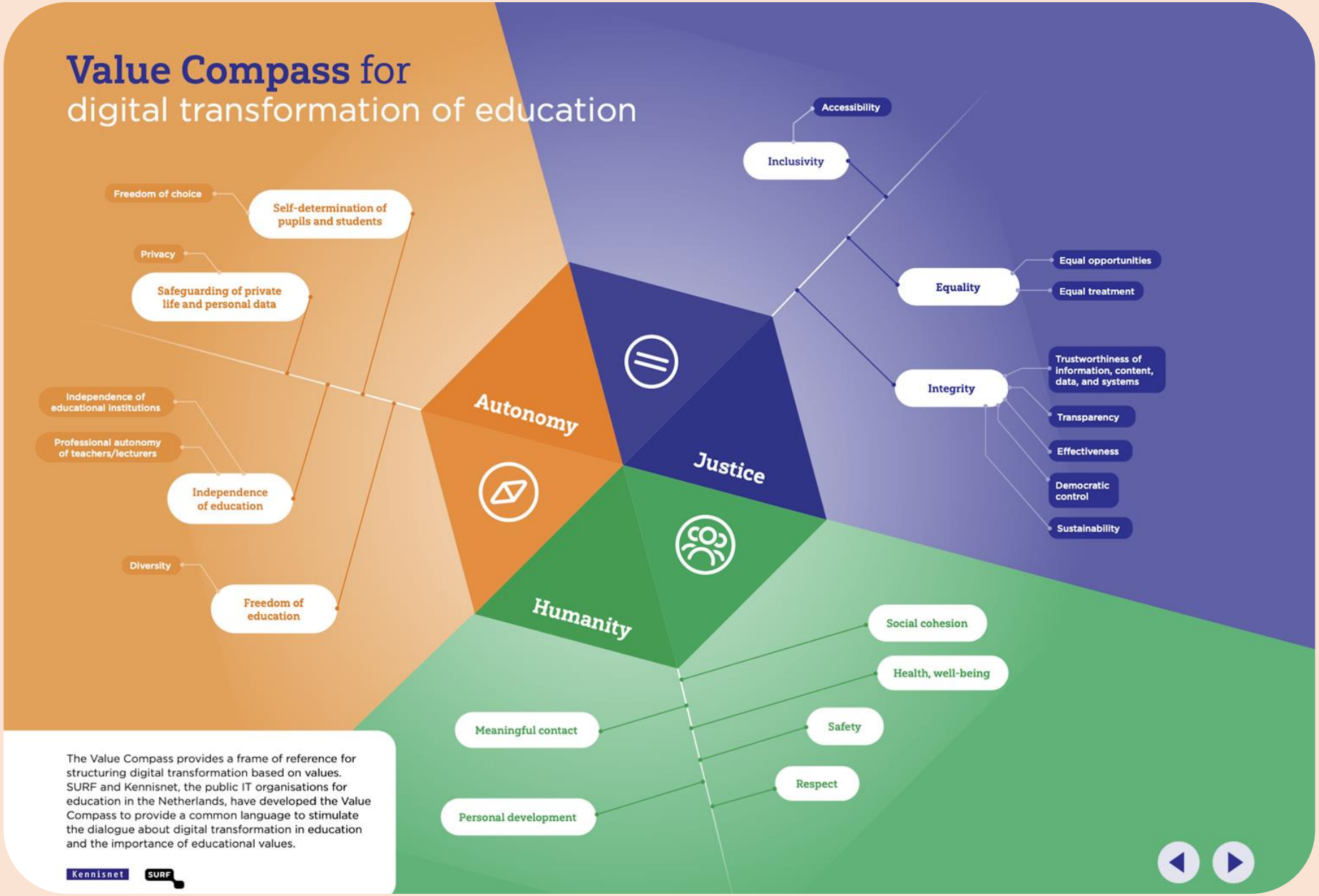
Public Values!