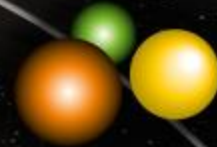




Cees de Laat

Systems and Networking



$$\frac{\partial u}{\partial t} + \frac{\partial^3 u}{\partial x^3} + 6u \frac{\partial u}{\partial x} = 0$$

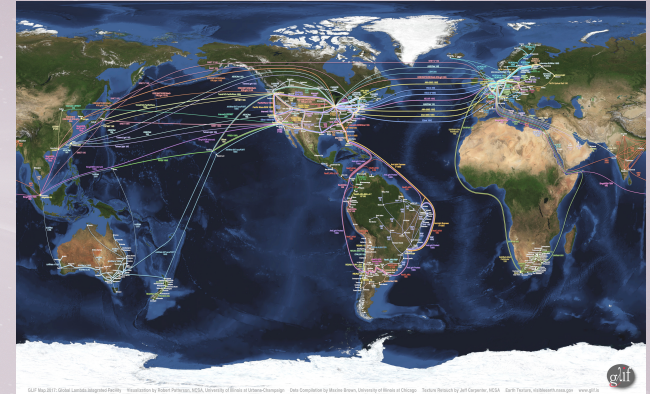
Mission

- **The Systems and Networking Lab conducts research on leading-edge computer systems of all scales, ranging from global-scale systems and networks to embedded devices.**
- **Across these multiple scales our particular interest is on extra-functional properties of systems, such as performance, programmability, productivity, security, trust, sustainability and, last but not least, the societal impact of emerging systems-related technologies.**

Broad spectrum of research

- Advanced networks / Internet architecture
- Network programmability / Overlays / Virtualisation
- Authorisation of Internet resources
- Quality of service for apps on Clouds
- Systems: Embedded / real time / parallel / design
- Performance & Compilers & ExaScale
- Safe Secure Data Sharing / Processing
- Data Sovereignty & Normative Agents & Trust → AmDEX

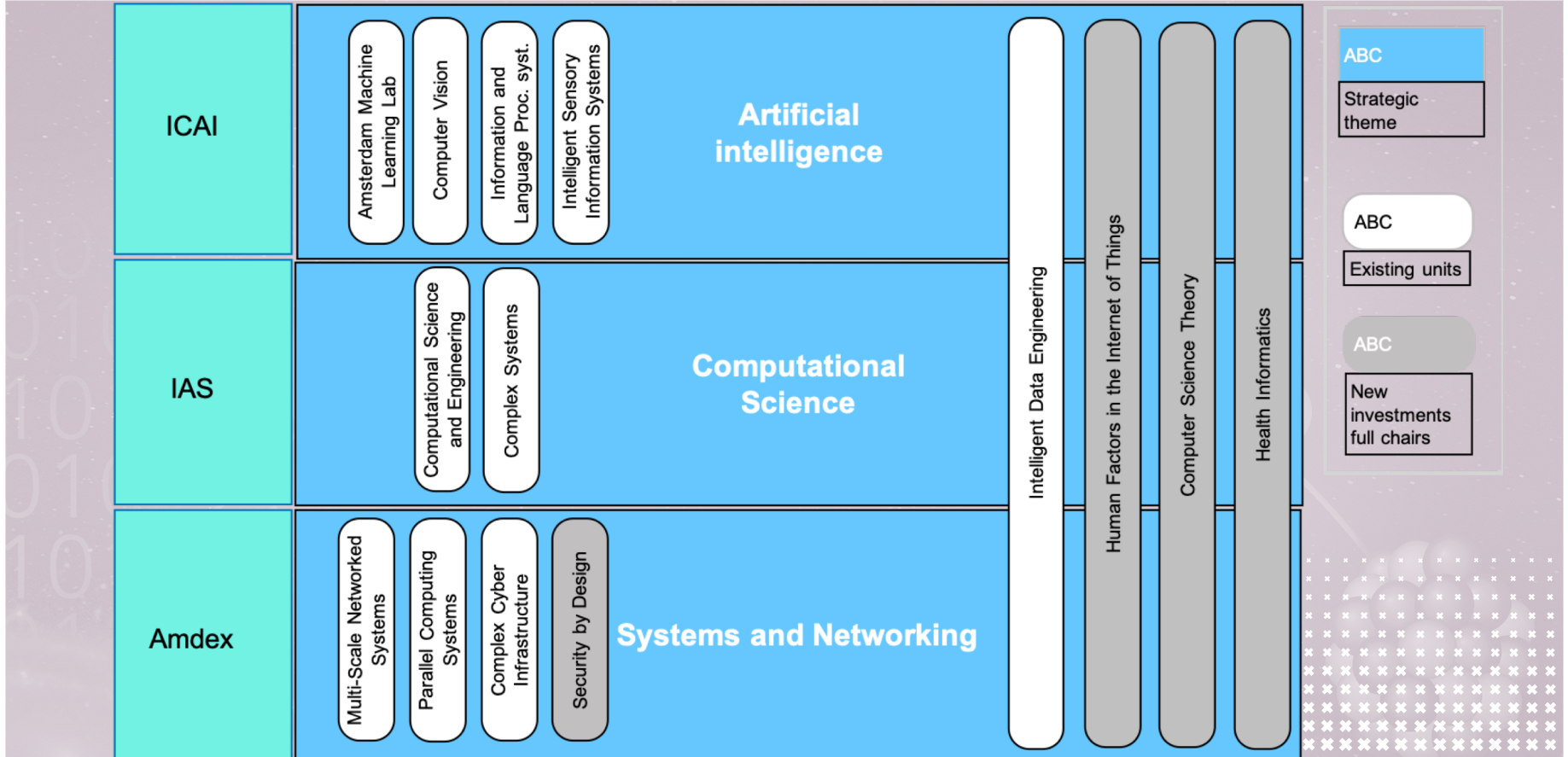
- **Well funded accross the theme → ~ 8,5 Meuro in last 3 years, mostly from NWO / EU and smaller portion from SURF and Industry**



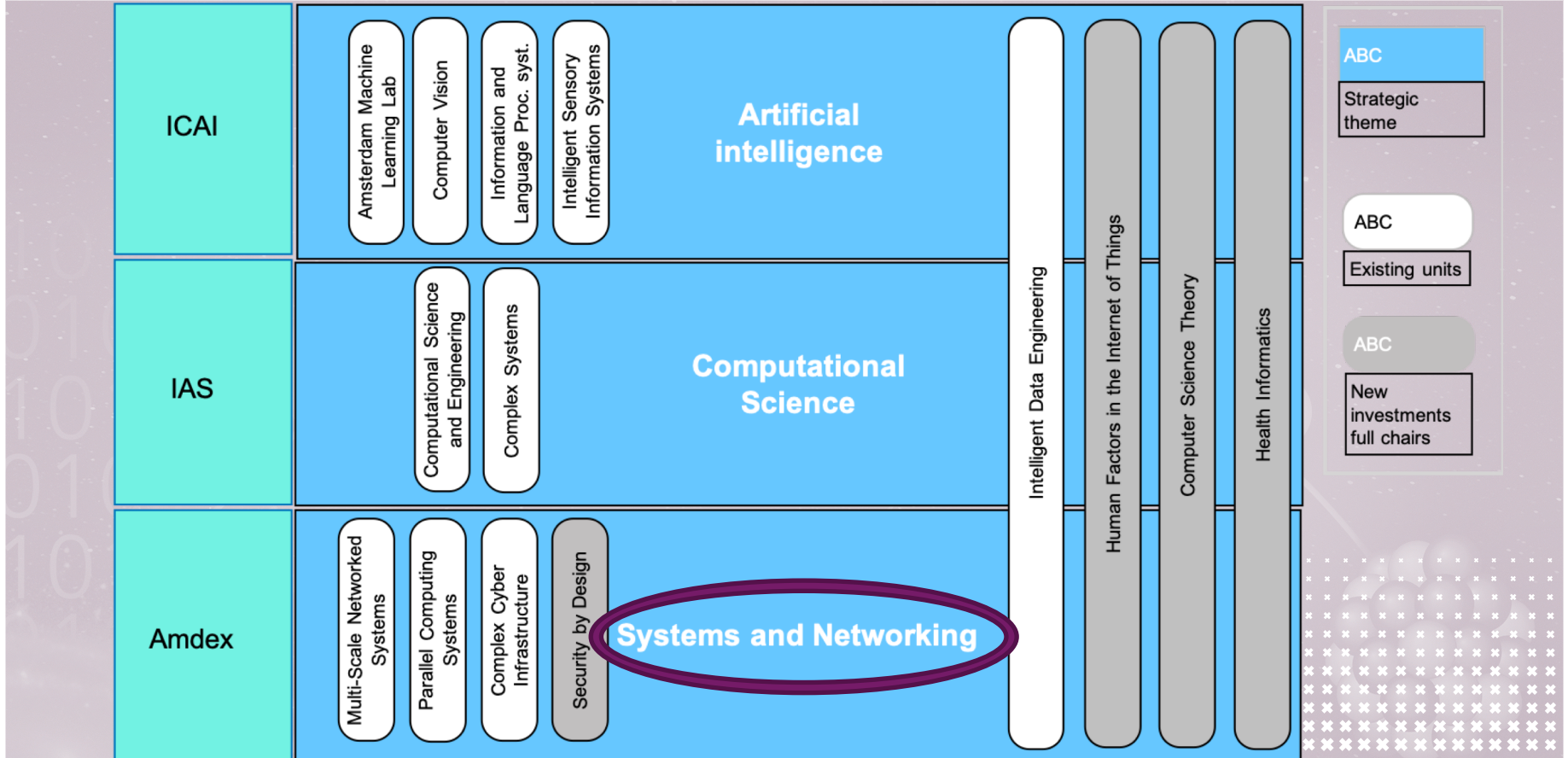
Staffing

- Group leader: prof.dr.ir. C. de Laat
- Deputy group leaders: dr. Paola Grosso, dr. Andy Pimentel
 - 1 full prof (CdL)
 - 3 associate professors (PG, AV, AP)
 - 4 assistant professors (AB, CG, SA, ZZ)
 - 3 part time professors (PA, PK, TvE)
 - 2 endowed professors (RvN, SK)
 - 2 senior researchers (YD)
 - 23 phd students, 6 postdoc's
 - 3 tech support/scientific programmers
 - 18 guests
 - Total about 67 people ~ 40 fte
- Yearly turnover ~ 2,5 MEuro research + similar education

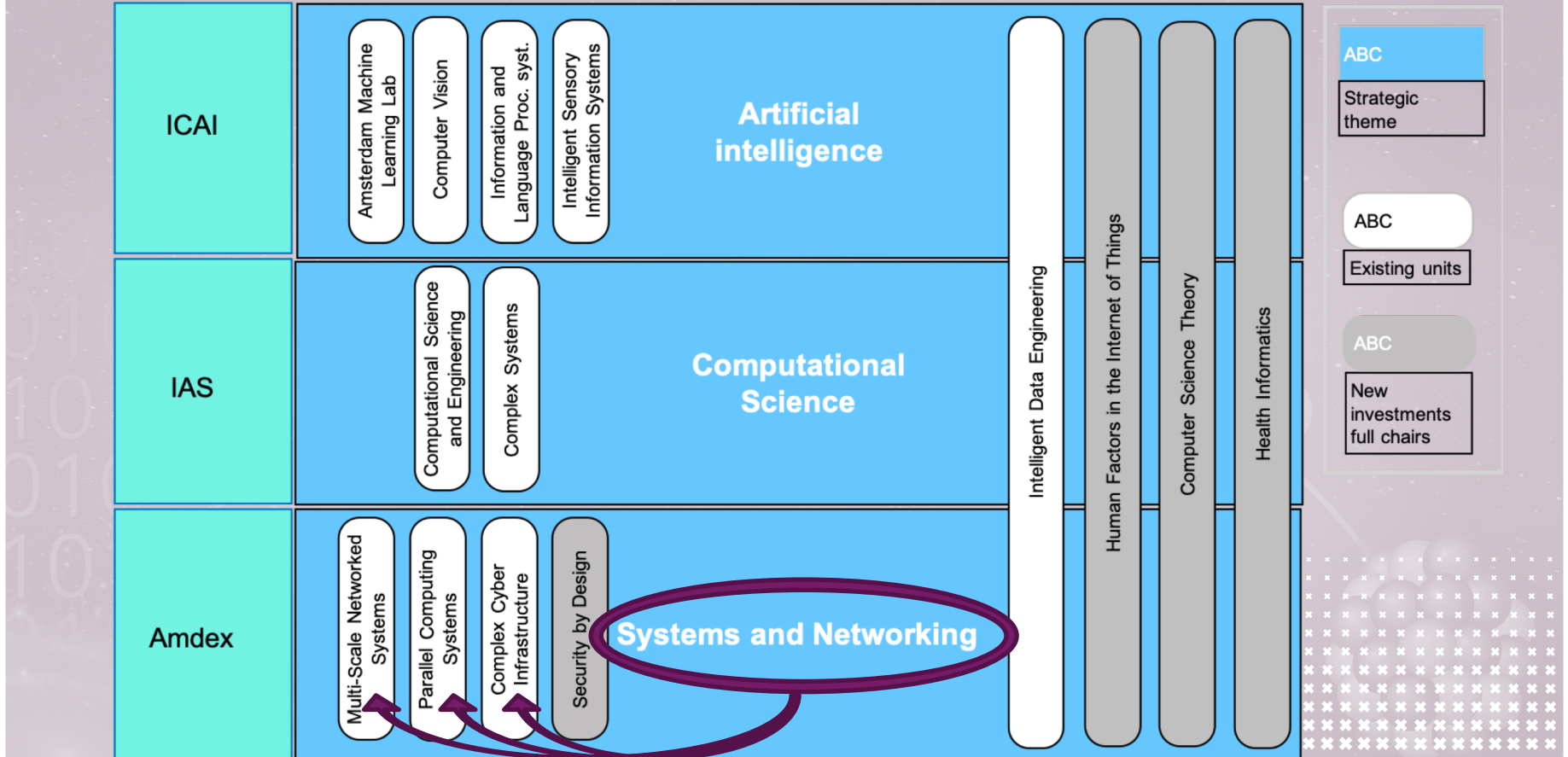
Position in the Instituut



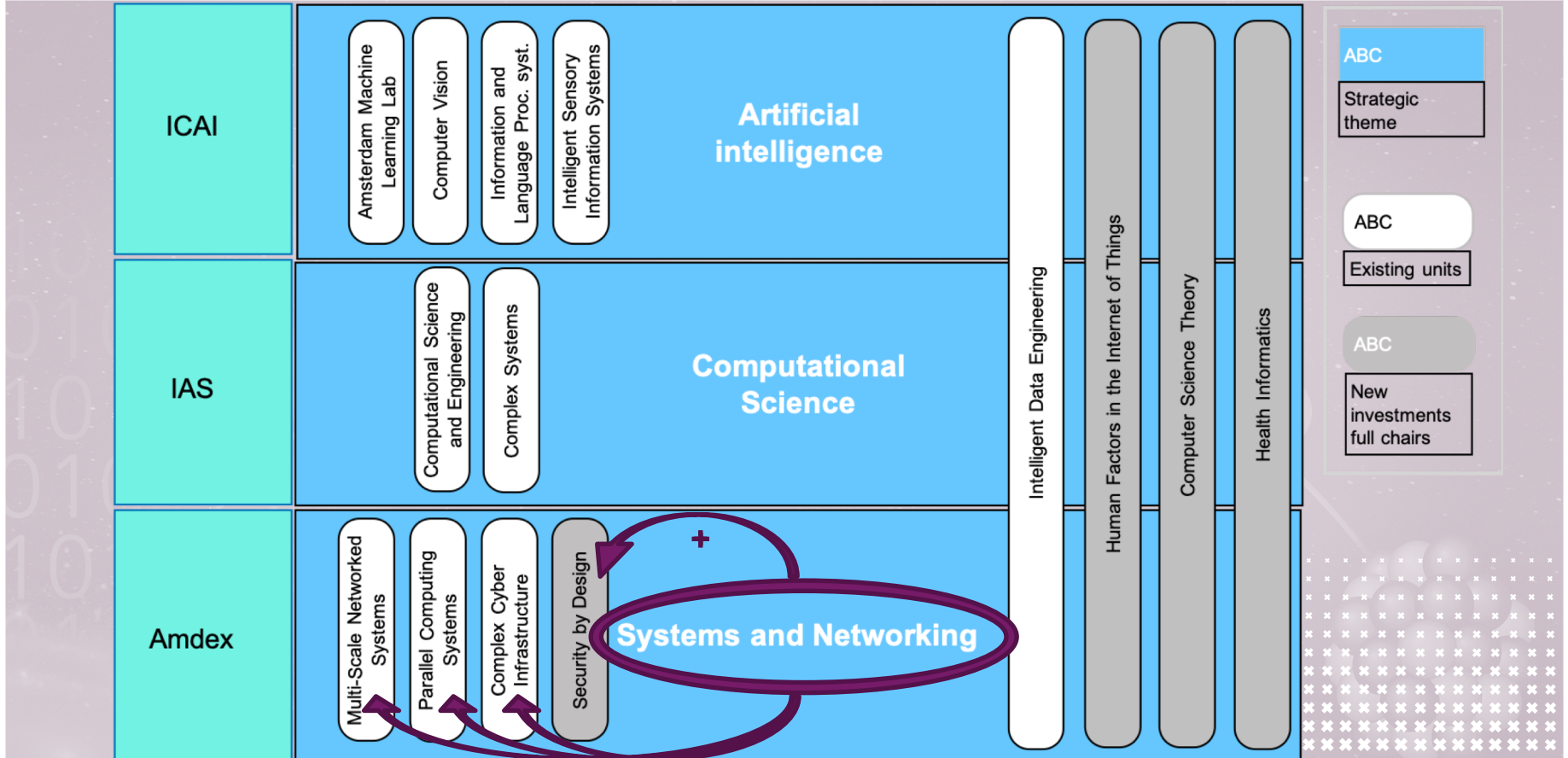
Position in the Instituut



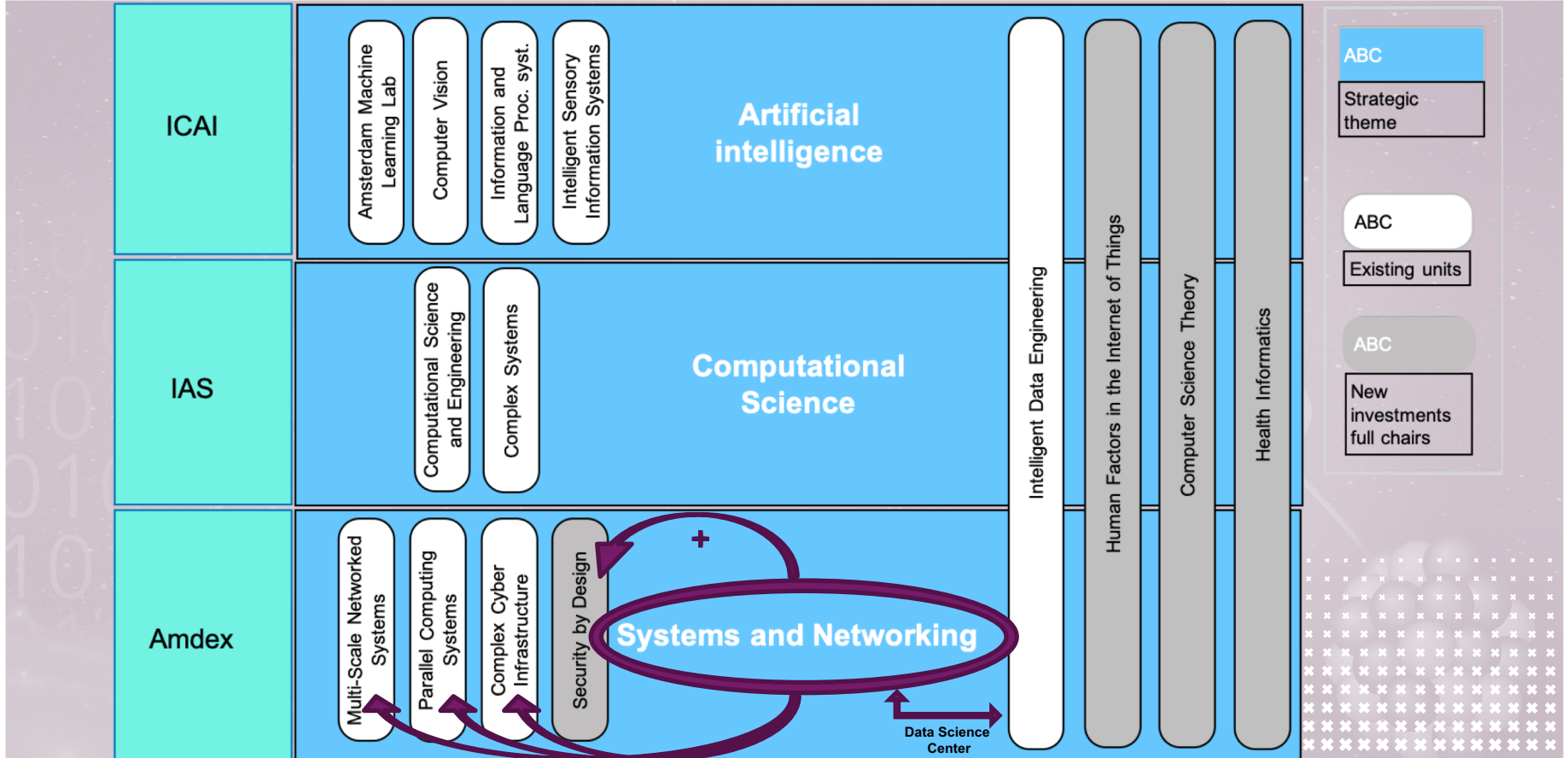
Position in the Instituut



Position in the Instituut



Position in the Instituut



Research based Education

- The SNE laboratory is closely working together with the SNE Master (www.os3.nl), Software Engineering Master (SE) and the Computer Science Master (CS) programs to disseminate knowledge through education.
- **Both SNE and SE masters score in the top nationwide**
- **SNE master Excellent in accreditation and**



Data Hub Firms

- Leading to monopolies
- Open Data Markets
- → AmDEX

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ECONOMY

Managing Our Hub Economy

by **Marco Iansiti** and **Karim R. Lakhani**

FROM THE SEPTEMBER–OCTOBER 2017 ISSUE

SUMMARY SAVE SHARE COMMENT TEXT SIZE PRINT \$8.95 BUY COPIES

THOMAS M. SCHERER/EYEM/GETTY IMAGES

I. The Problem

The global economy is coalescing around a few digital superpowers. We see unmistakable evidence that a winner-take-all world is emerging in which a small number of “hub firms”—including Alibaba, Alphabet/Google, Amazon, Apple, Baidu, Facebook, Microsoft, and Tencent—occupy central positions. While creating real value for users, these companies are also capturing a disproportionate and expanding share of the value, and that’s shaping our collective economic future. The very same technologies that promised to democratize business are now threatening to make it more monopolistic.

Data value creation monopolies



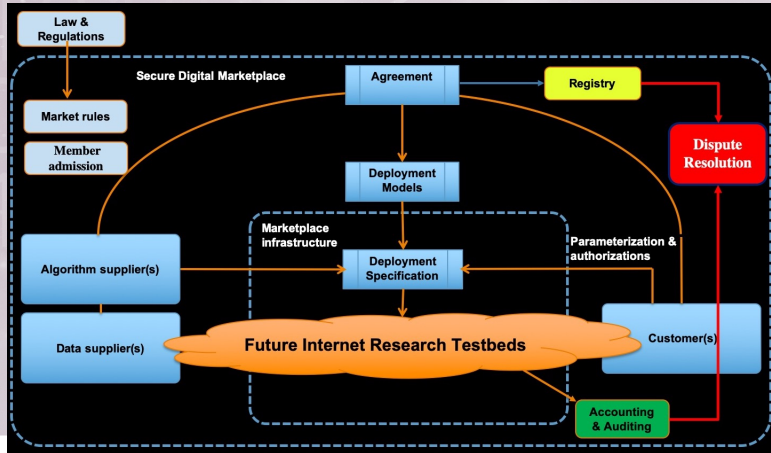
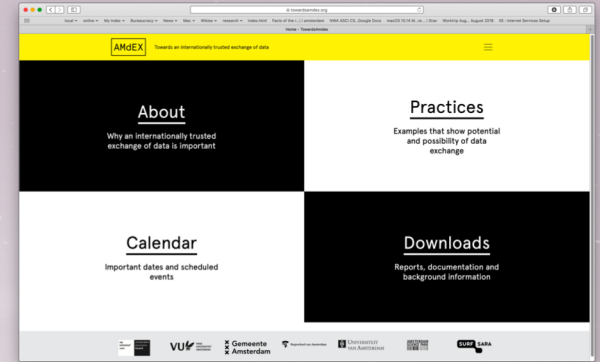
Create an equal playing field



Sound Market principles

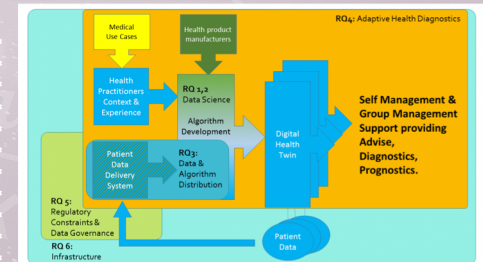
AMdEX.eu

- Competing organisations, share data for common benefit
- Trust, Risk, data ownership & control
 - Industry: AF-KLM, Health, etc
 - Science: European Open Science Cloud
 - Society: Amsterdam Economic Board



Aircraft Maintenance AF-KLM

Health:
Enabling
Personal
Interventions



Position

▪ Nationally

- ASCI research School
- Close cooperation with VU, eScience center, SURF, TU-Delft, TNO-ICT
- KPMG, KLM, ASML, TNO-ESI, THALES, PHILIPS

▪ Internationally

- Lawrence Berkeley National Lab, Dept of Energy, NSF, UC San Diego
- SuperComputing / SCinet
- Internet2, GEANT
- Environmental e-Infrastructures, LifeWatch
- Fraunhofer, IDSA
- Equinix, CIENA

Future

- Split the “old” group
- Add security by design
- Quantum node in national network
- Ethics
- Open Science



The constant factor in our field is **CHANGE!**