FINNISH OPEN SCIENCE AND RESEARCH INITIATIVE 2014–2017

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e-IRG Workshop
Open Science and e-Infrastructures
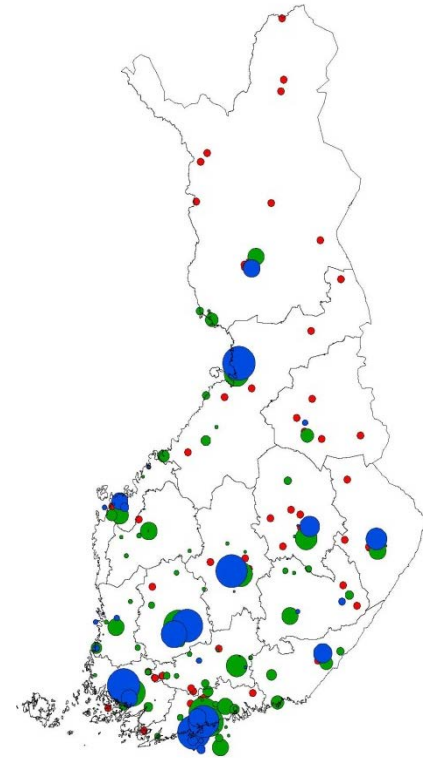Session 1: Open Science - Directions and main issues
June 3, 2015
Riga, Latvia

Ministry of Education and Culture
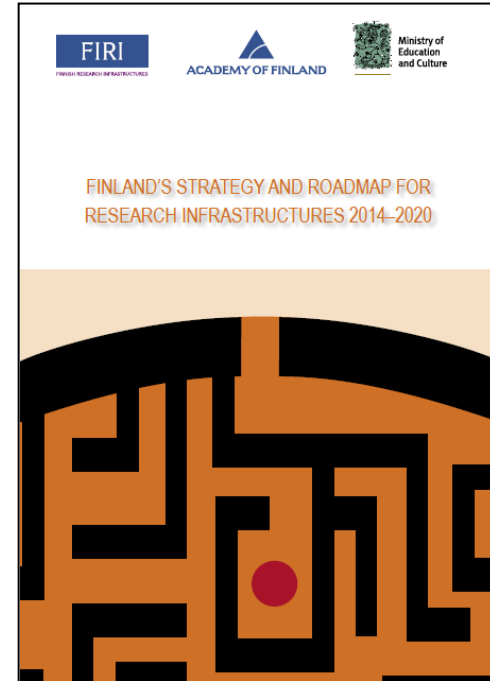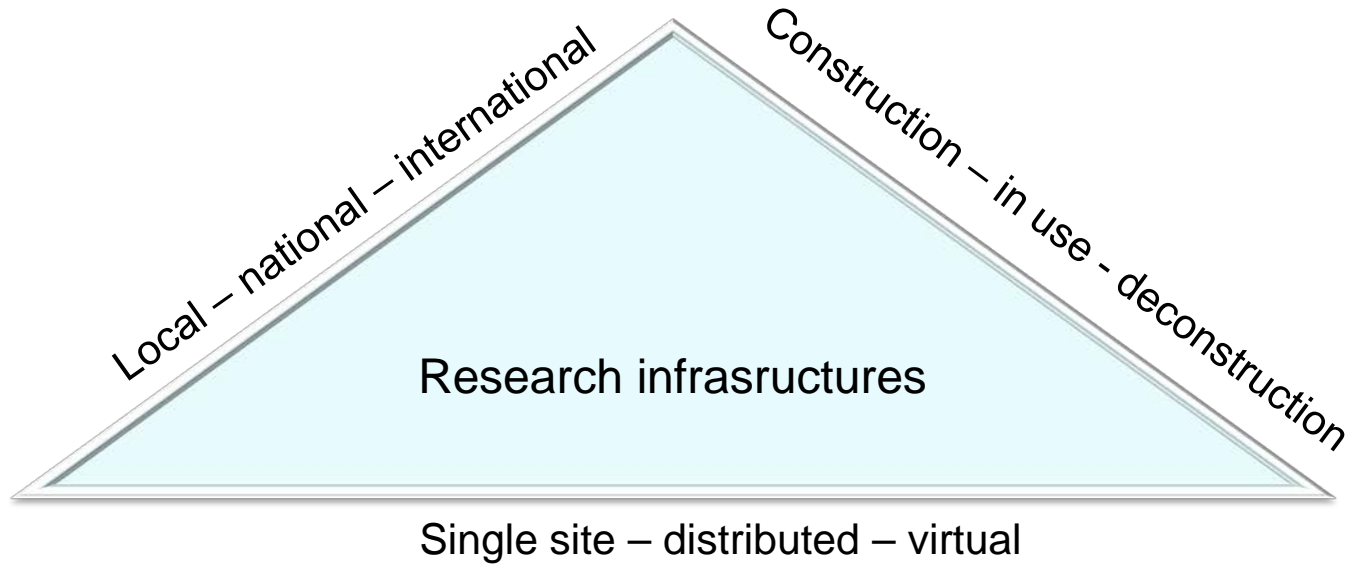**Ministère de l'Éducation et de la culture**

Selected facts about Finland

- Population of 5,4 million
- Higher education institution network covers the populated parts of the country
  - 14 universities (four in the great Helsinki area)
  - 24 polytechnics
- 18 research institutes and 5 university hospitals
- Student enrollment 316 000 of which 18 000 doctoral students

University (blue)
Polytechnic (green)
Research institute (red)

Strategy and roadmap of Finnish research infrastructures in 2014-2020

Local – national – international

Construction – in use - deconstruction

Research infrasructures

Single site – distributed – virtual

Recommendations from Finland's research infrastructure strategy

- Improvements of access to and collaborative use of research infrastructure
    - Collaboration will be promoted so as to enable the realisation of the research and innovation potential provided by research infrastructures, in the development of Finnish business life and society
    - The collaborative use of and access to research infrastructures will be systematically promoted between various actors, universities, research institutes, hospitals and companies, by developing collaboration mechanisms and creating new innovation ecosystem
    - Research infrastructure solutions that promote the creation of open science and knowledge will be developed
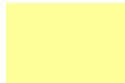   - The utilisation rate of research infrastructures will be raised

More recommendations from Finland's research infrastructure strategy

- Shoring up of the funding base of research infrastructures
  - Sufficiently long-term and effectively targeted research infrastructure funding will be secured, while acknowledging that such funding from the Academy of Finland can only cover part of the funding
  - Collaboration on research infrastructure funding with ministries, universities, research institutes, hospitals, companies and foundations will be extended
  - Funding systems will be rendered more clearly supportive of collaborative activities
  - At national and organisational level, a funding plan will be drawn up that takes into account possible changes in the lifecycle and characteristics of research infrastructures

ESFRI Roadmap 2010

Social Sc. & Hum. (5)	Life Sciences (13)		Environmental Sciences (9)		Energy (7)	Material and Analytical Facilities (6)	Physics and Astronomy (10)		e-Infra-structures (1)
SHARE	BBMRI	ELIXIR	ICOS	EURO-ARGO	ECCSEL	EUROFEL	ELI	TIARA*	PRACE
European Social Survey	ECRIN	INFRA FRONTIER	LIFEWATCH		IAGOS	EMFL	SPIRAL2	CTA	
CESSDA	INSTRUCT	EATRIS	EMS	EPOS	EU-SOLARIS	European XFEL	E-ELT	SKA	
CLARIN	EU-OPENSCREEN	EMBRC	SIOS	EISCAT_3D	JHR	ESRF Upgrade	KM3NeT	FAIR	
DARIAH	Euro BioImaging	ERINHA BSL4 Lab			COPAL	IFMIF	NEUTRON ESS	SLHC-PP*	ILC-HIGRADE*
	ISBE	MIRRI			HiPER	ILL20/20 Upgrade			
	ANAEE				MYRRHA				

FI participation

*Projects from CERN Strategy for Particle Physics

Distributed research infrastructures

Single sited research infrastructures

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Direct financial resources for Open Science and Rersearch

- Research Data Survey Initiative
- Finnish Research Data Initiative
- Research LTP
- Infrastructure investments
- Open Science and Research Initiative

Total approx. 9 M€

2009-2014

- ATT initiative 2,5 M€
- Research LTP 1 M€
- Infrastructure 1,5 M€
- Funding call 1 M€
- Open data actions 2 M€

Total approx. 8 M€

2015

- ATT initiative 2,5 M€
- Research LTP 1 M€
- Infrastructure 1,5 M€

Total approx. 5 M€

2016

ATT initiative 1 M€
Research LTP 1 M€
Infrastructure 1 M€

Total approx. 3 M€

2017

Opening Science in Finland (ATT)

Open Science and Research 2014-2017 initiative (ATT)

Planning → Information gathering → Preparation and Analysis → Storage and Management → Utilization of Results

Services

Open Knowledge Program

Research Institute Renewal

Horizon 2020

National Digital Library

Network (Open Science etc.)

Citizen Science

Companies

Government

Education and research
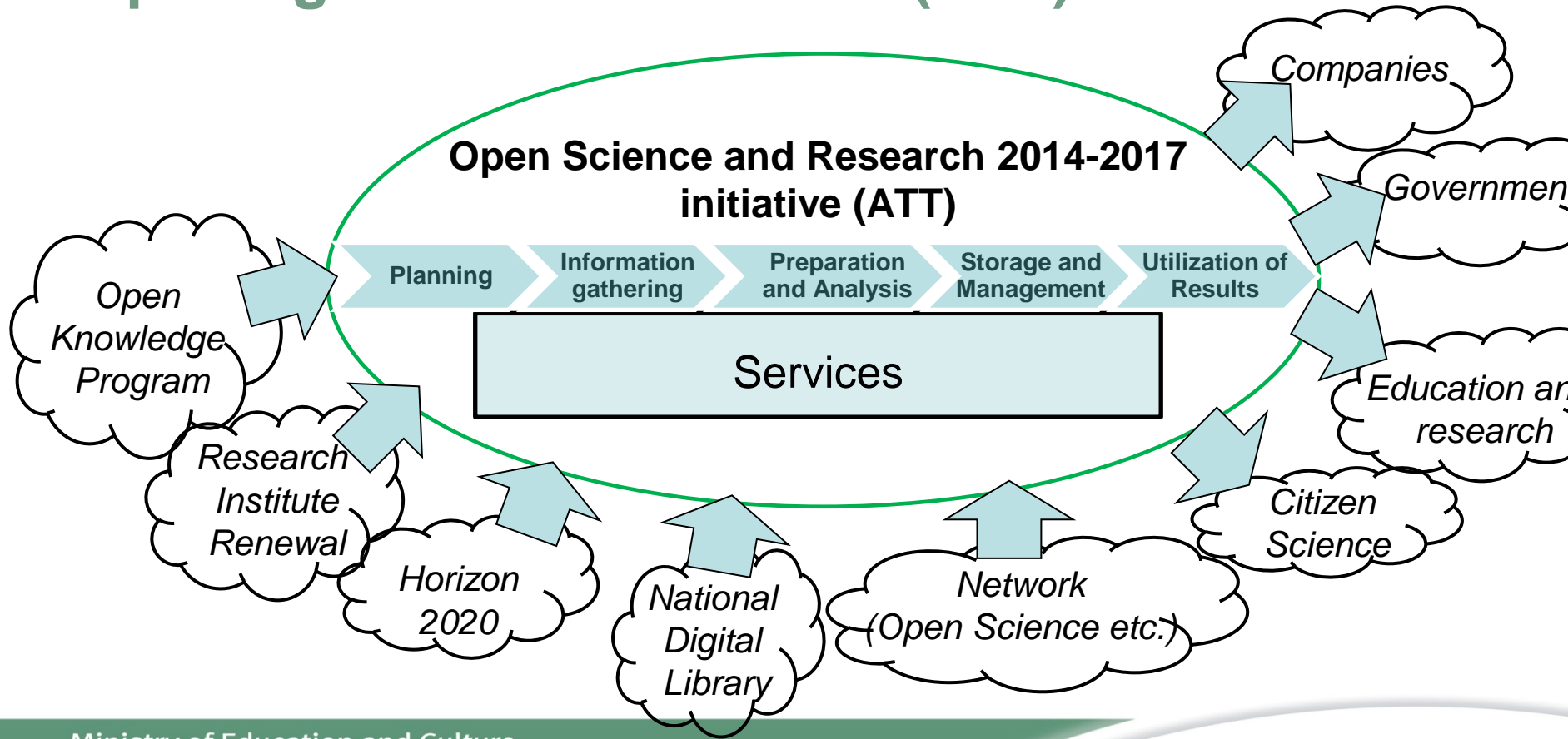
OA policies internationally

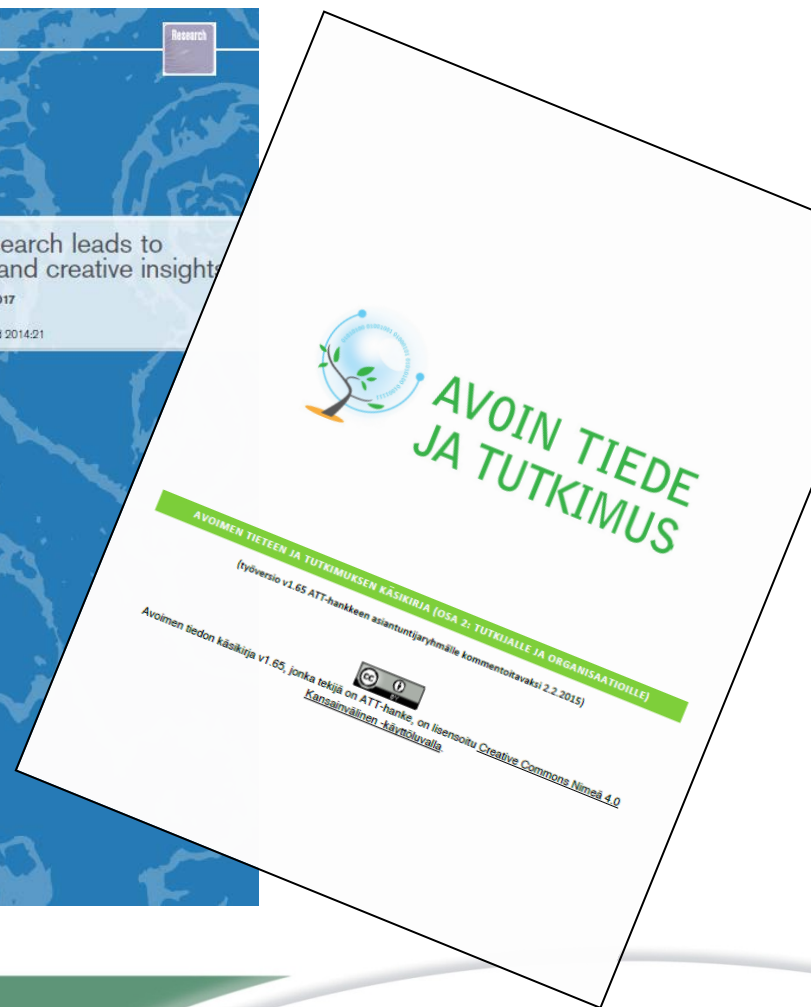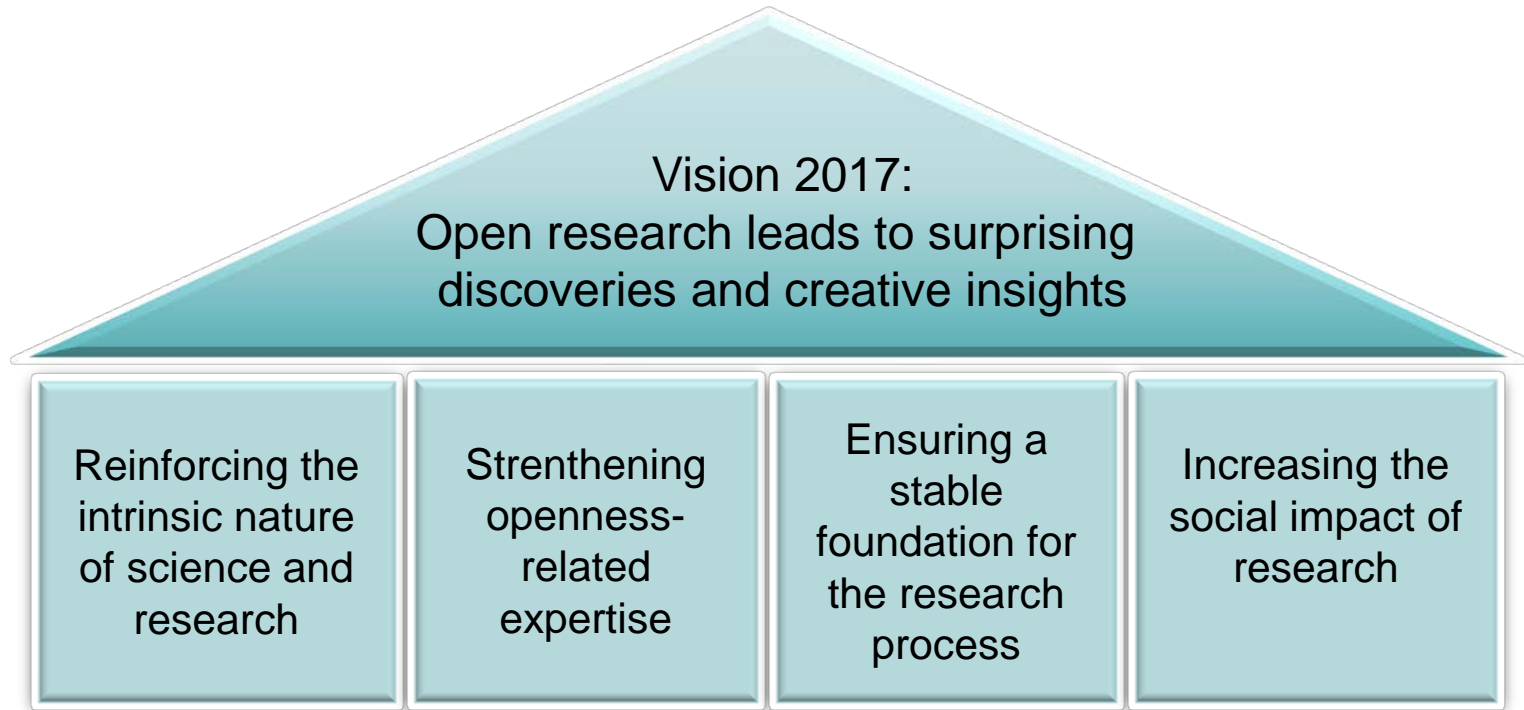|	
Countries that have no national open access mandate and policy	Romania, Cyprus, Greece, Estonia, Bulgaria, Malta, Slovakia, Lithuania, Czech Republic, Luxembourg
Countries where there's a consultation in progress	Poland, Slovenia, The Netherlands, France
Countries where there are funder mandates	United Kingdom, Denmark, Finland, Sweden, Austria, Hungary
Countries where there's a national policy via recommendation	Belgium, Ireland, Portugal, Croatia
Countries where there's a national policy via law	Latvia, Spain, Germany, Italy

Opening up Science in Finland

- Targets of Open Science and Research 2014-2017 initiative (ATT)
  - To incorporate open science and research to the whole research process **to improve the visibility and impact of science and research** in the innovation system and society at large
  - To foster the research system in Finland towards better competitiveness and higher quality, **transparent, collaborative and inspirational research process** should be promoted.
  - The measures **promote open publications, open research data, open research methods and tools**, as well as increasing skills and knowledge and support services in open science domain.
  - Contributions from all research system actors are welcome to **change the research culture** towards openness.
  - Finland will engage in **international collaboration** to promote open science and research.

Open Science: Gradual and practical approach in Finland

Challenges	Solutions
Creating ownership	Engaging key actors at different organizational levels
Availability of infrastructures	Infrastructure roadmap including Open Science, funding for infrastructures and services
Harmonization of metadata	Best practises in applying standards
Open access, licence policy	Detailed planning in progress, implementation to follow
Cultural change towards openness	Seminars, training, guidance (education of researchers)
International collaboration	Skillful use of existing standardization, making use of researchers' networks, active role in key initiatives

Open Science and Research vision

Vision 2017:
Open research leads to surprising discoveries and creative insights

| Reinforcing the intrinsic nature of science and research | Strenthening openness-related expertise | Ensuring a stable foundation for the research process | Increasing the social impact of research |

Open Science and Research Roadmap and the maturity evaluation cycle of HEIs
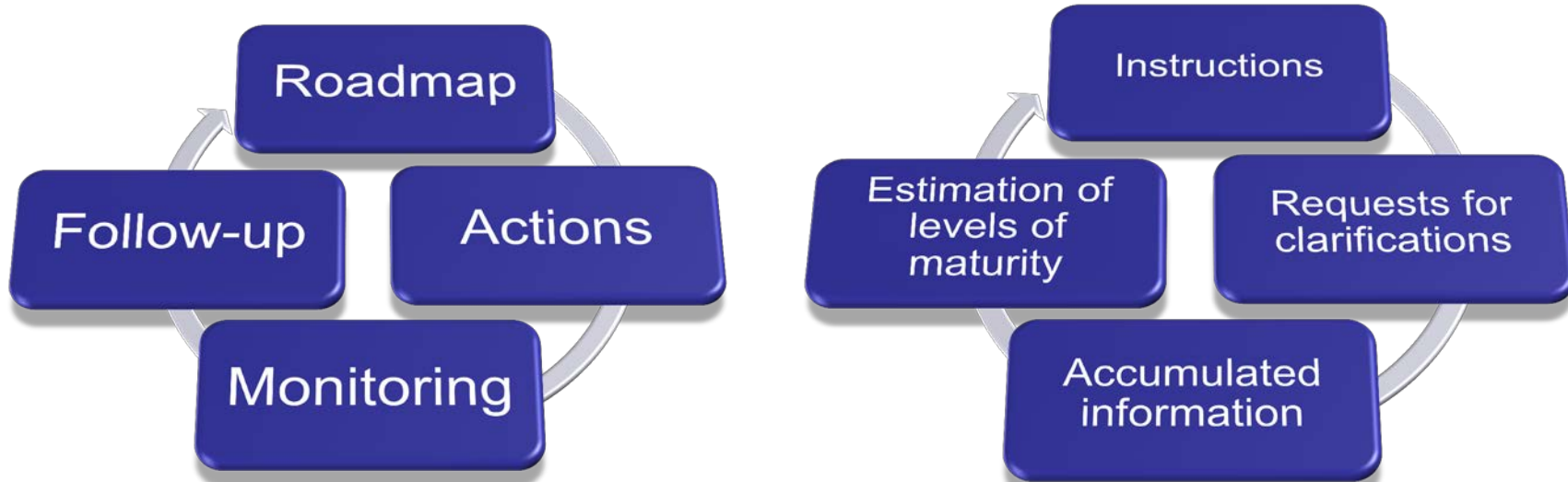
Implementing open science operating culture in HEI's in 2015

- The operating culture was studied in four sections:
  - Strategic guidance
  - Policies and principles
  - Supporing openness
  - Reinforcing know-how
- The maturity assessment:
  - Basic information from openly available material on the web was collected to assess the open science operating culture in December 2014
  - This information base was improved with supplementary information from a survey to the HEIs, response rate 88%
  - The HEI's commitment and perceived challenges to the Open Science and Reseach roadmap was assessed

The overall maturity level of the open science operating culture in 2015

LEVEL 5

LEVEL 4
UH
JYU

LEVEL 3
AALTO
TTU
UTA
UEF
UT

LEVEL 2
LUT
MAMK
SAMK   ÅA
CENTRIA
KARELIA
HUMAK   HANKEN
HAAGA-HELIA   UO
UV   SEAMK   LAUREA   UL

LEVEL 1   SEVERAL HEIs   SEVERAL HEIs

Progress   No progress   In the rise
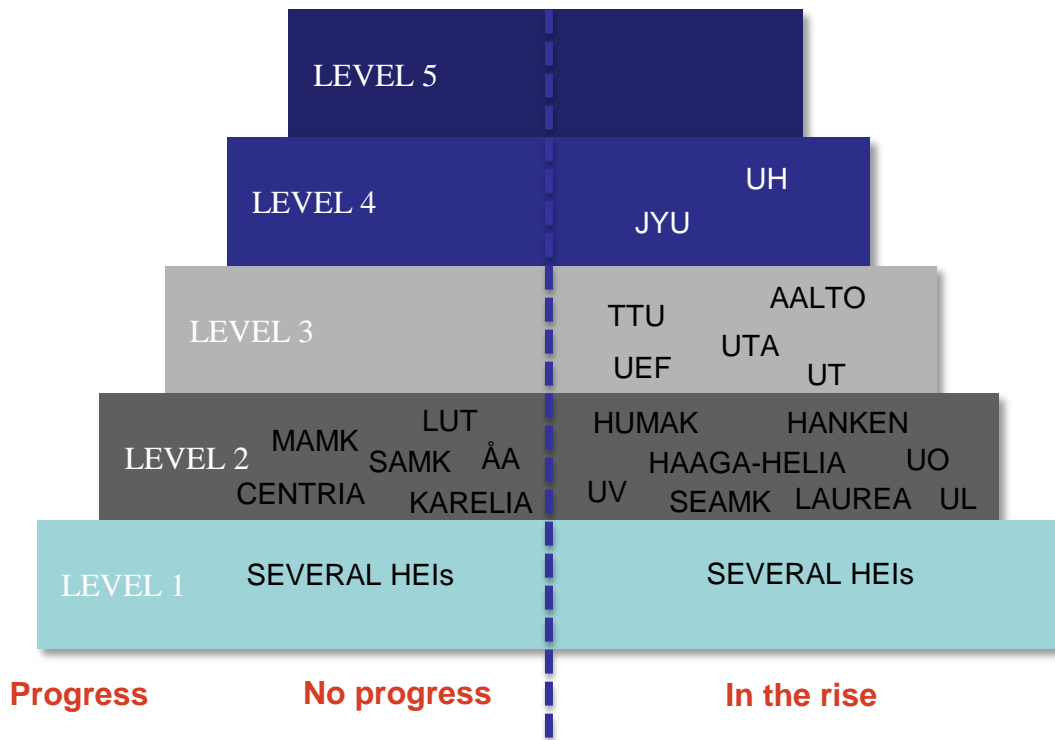
Promoting openness at different stages of the research process

- Consider financiers' requirements

- Clarify usage rights
- Ensure that you give credit through citations

- Clear citations
- Ensure the accumulation of credits

- Make use of open-source software and open interfaces

- Publish metadata with an open licence
- Use open evaluation
- Ensure interlinkage between publications, data and methods
- Make use of institutional repositories

- Make use of service infrastructure
- Attach a persistent identifier to your results
- Attach descriptive metadata to your results; publish metadata with an open licence

- Use services that safeguard the preservation and integrity of materials
- Produce standard metadata

Hypothesis

Data collection

Reuse

Research infrastructure database

Processing

Publication and distribution

Research infrastructure

Long-term preservation

Storing data and results

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Higher quality, more impact, more effective and more international science community

Photo: Väisänen A.O. (1918) National Board of Antiquities, Kansantieteen kuvakokoelma (source Finna)

Principles of the ATT initiative:

- Open operational model
- Common and integrated services and infrastructures
- Solutions to common problems
- Centralized funding as a seed money
- Both individuals and organizations have their responsibilities
- National and international activities
- Follow-up, monitoring and adjustments, when necessary

Want to know more?

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