



Key project funding

THE ACADEMY OF FINLAND

“Forging ahead
with Research”

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Academy Programme Unit



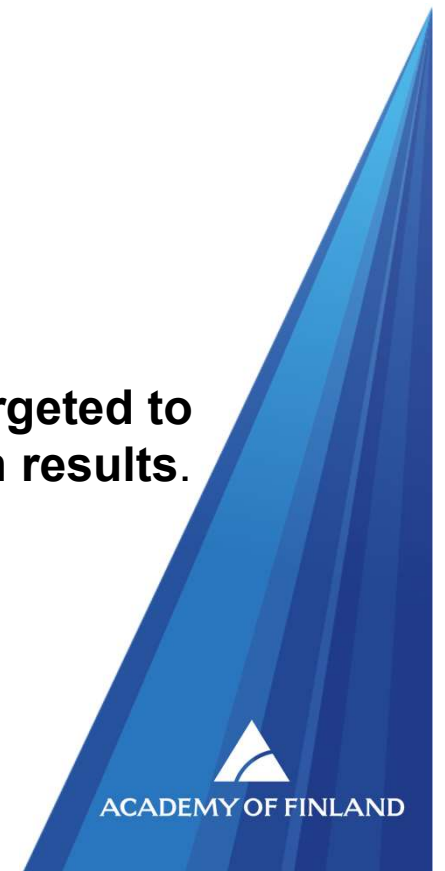
ACADEMY OF FINLAND

Key Projects in the Action Plan of the Government Programme in Finland

Prime Minister Juha Sipilä's Government's objectives are to bring the Finnish economy onto a path of sustainable growth and higher employment and to safeguard sufficient financial resources for public services and social protection. The strategic objectives of the Finnish Government Programme were materialised in the form of 26 key projects.

Focus areas of the implementation plan:

- 1) Employment and competitiveness (5)
- 2) Knowledge and education (6):
 - **Key project funding granted by the Academy of Finland was targeted to support early career researchers and the utilisation of research results.**
- 1) Wellbeing and health (5)
- 2) Bioeconomy and clean solutions (5)
- 3) Digitalisation, experimentation and deregulation (5)



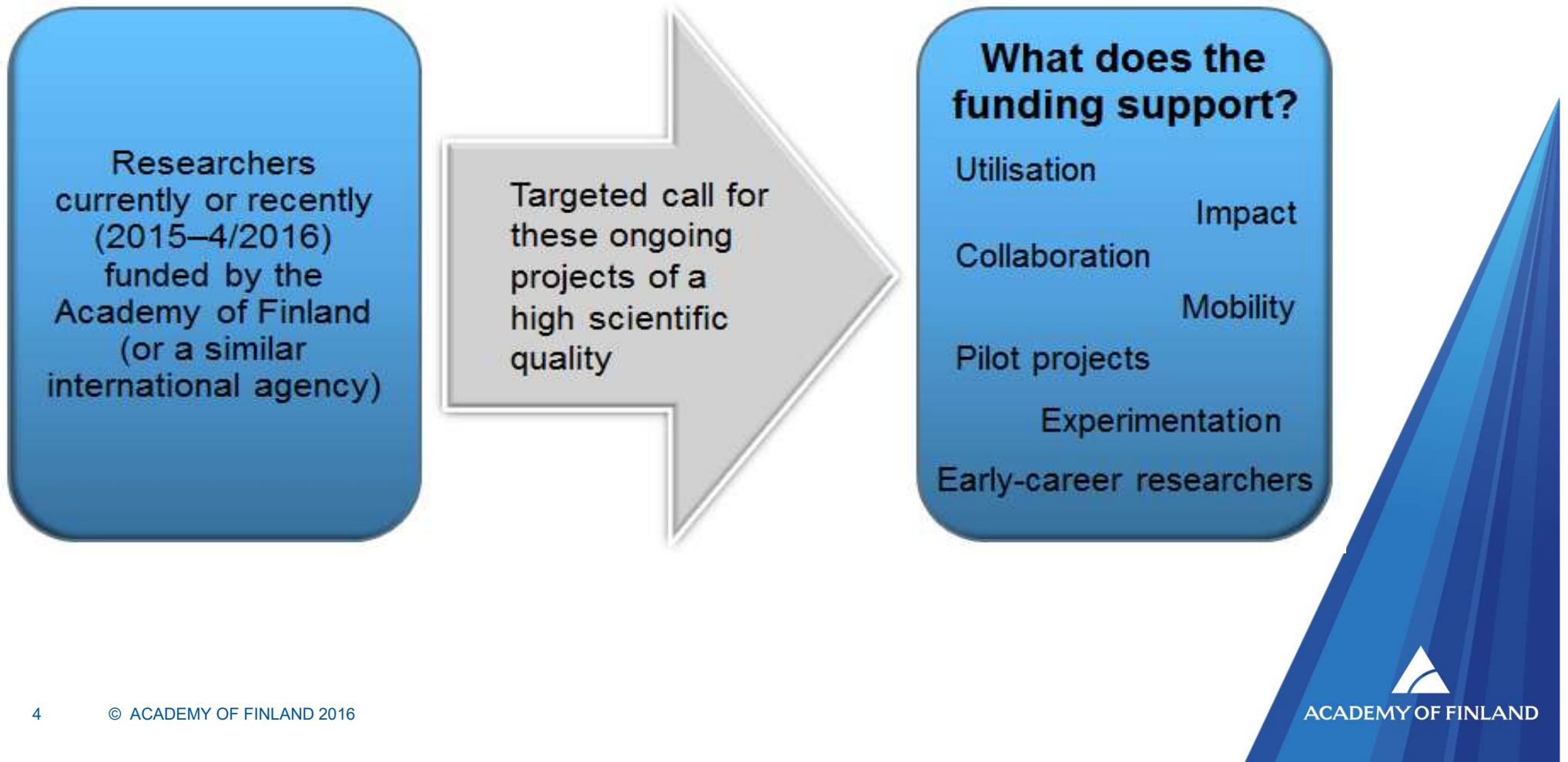
“Forging Ahead with Research” – 30 M€ Key Project Funding for the Academy of Finland

- In total 30 M€ was allocated to the Academy of Finland to be shared through its' research funding.
- Simultaneously, 59 M€ was allocated to Tekes (now: BF).
- 2016 call and granting of Key Project funding by AoF "Forging ahead with Research"
- Due to tight schedule, pre-survey was sent to potential applicants to plan the new evaluation process
- Call Info Days were organised twice (AoF alone, AoF&Tekes) to better attract researchers – around 300 participants did register
- In addition, 30 m€ additional funding was allocated in 2017 by the government for the younger generation of researchers to be used for Academy projects and Postdoctoral projects

Key Project funding by the AoF (1/2)

Objective of the call

To increase the societal impact of research by targeting the funding at research promotion and utilisation



Key Project funding by the AoF (2/2)

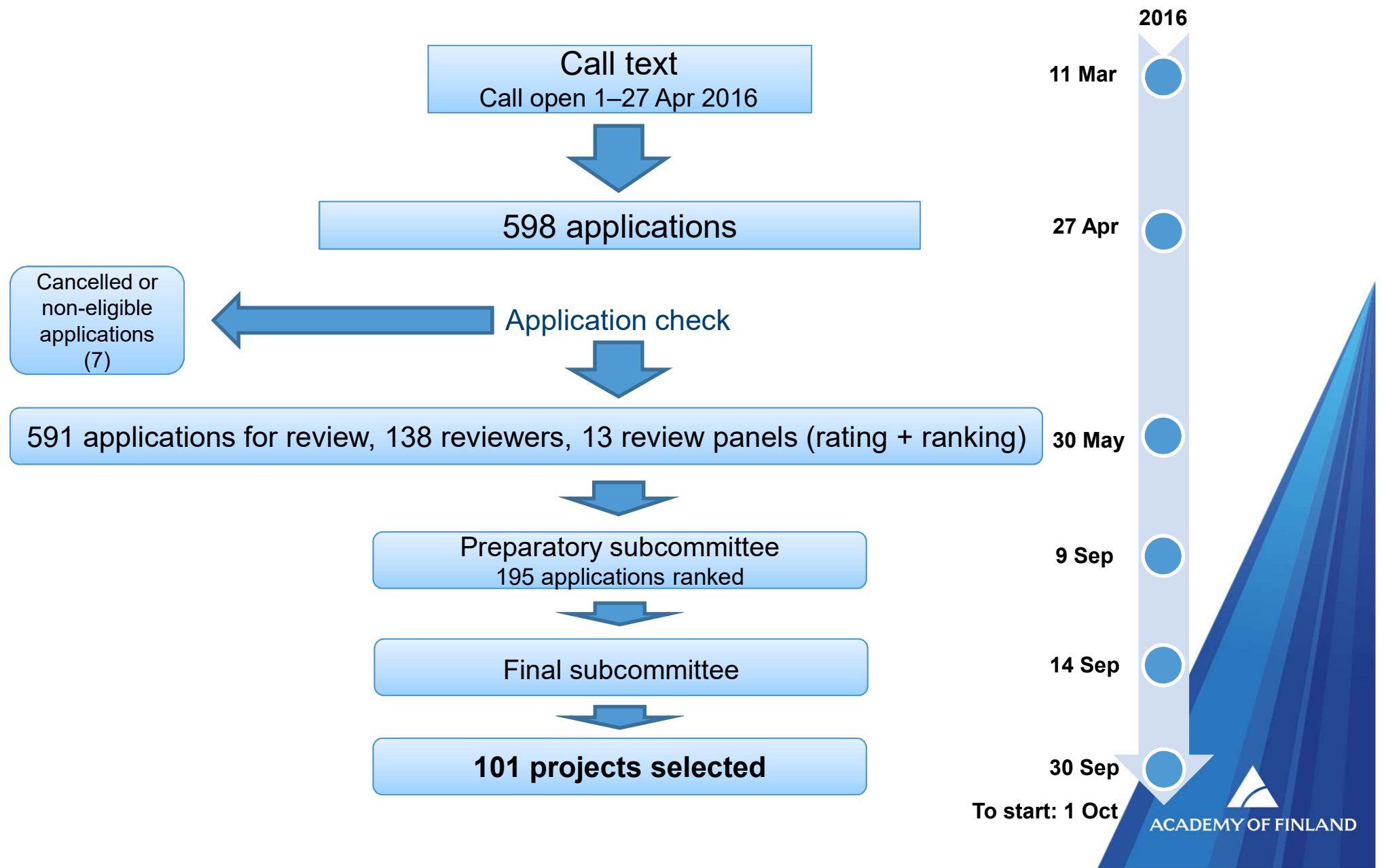
Eligibility

- no more than 14 years since PhD completion, peer-reviewed research funding from the Academy of Finland or a foreign/international funder

Funding

- max. €300,000 with funding period 1 Oct 2016–30 Sep 2018
- challenging budget allocation: 2 M€ (2016), 8 M€ (2017), 20 M€ (2018)
- 100% funding, according to full cost model
- PI/staff salary, pilot projects, experimentation, analyses, testing, etc.
- not for economic activity

Key Project call 2016, review and decision-making



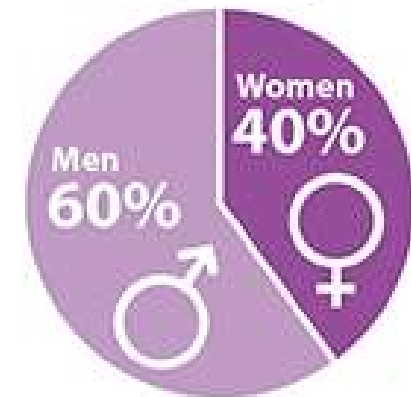
Academy grants key project funding to 101 projects

**30 million euros, i.e.
around**

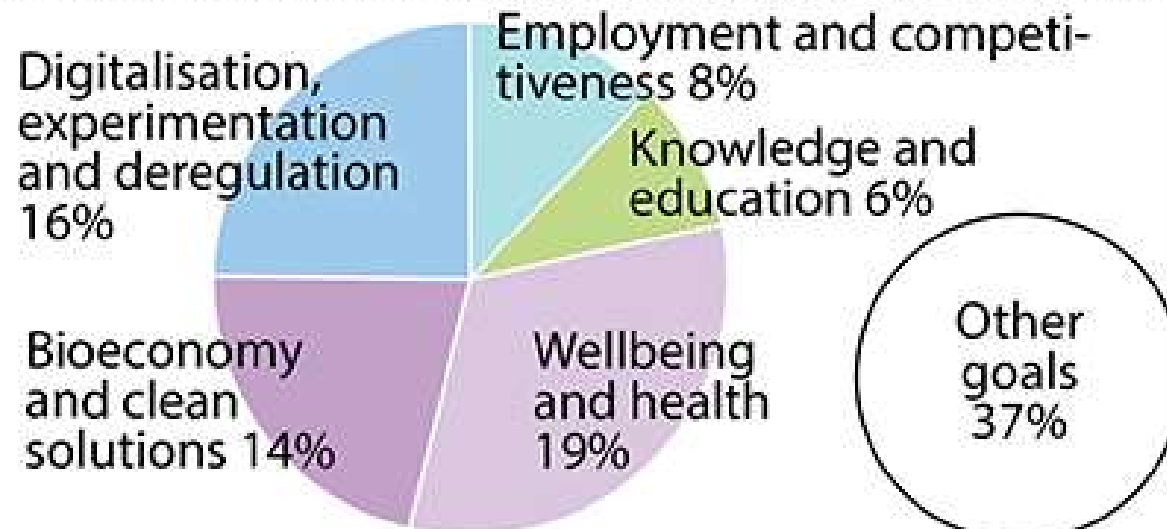
**300,000
euros per project**

598 applications
13 review panels
138 Finnish and foreign
experts reviewed the
applications
101 funded projects
(17%)

Funding recipients:

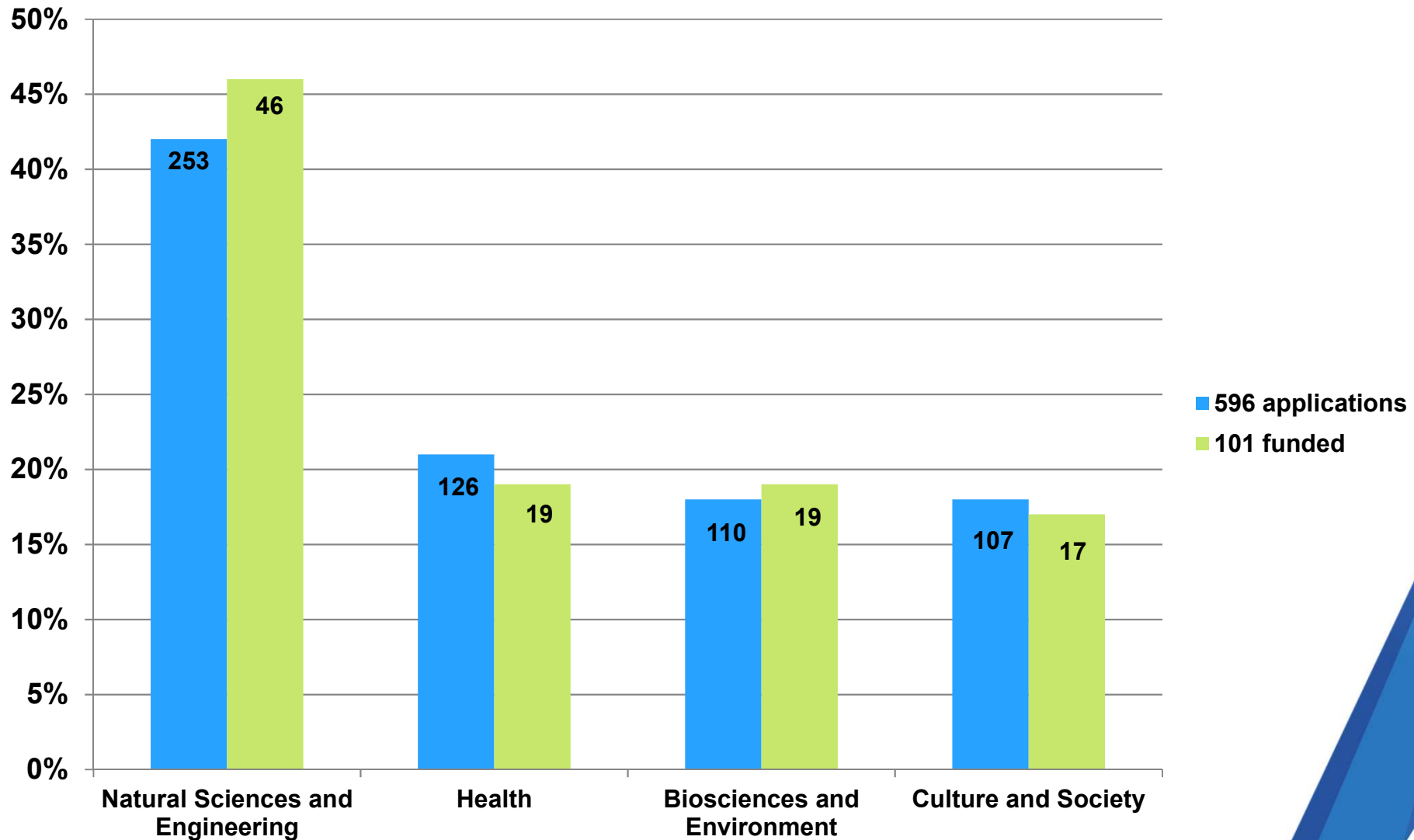


The funding matches the goals of the Government Programme

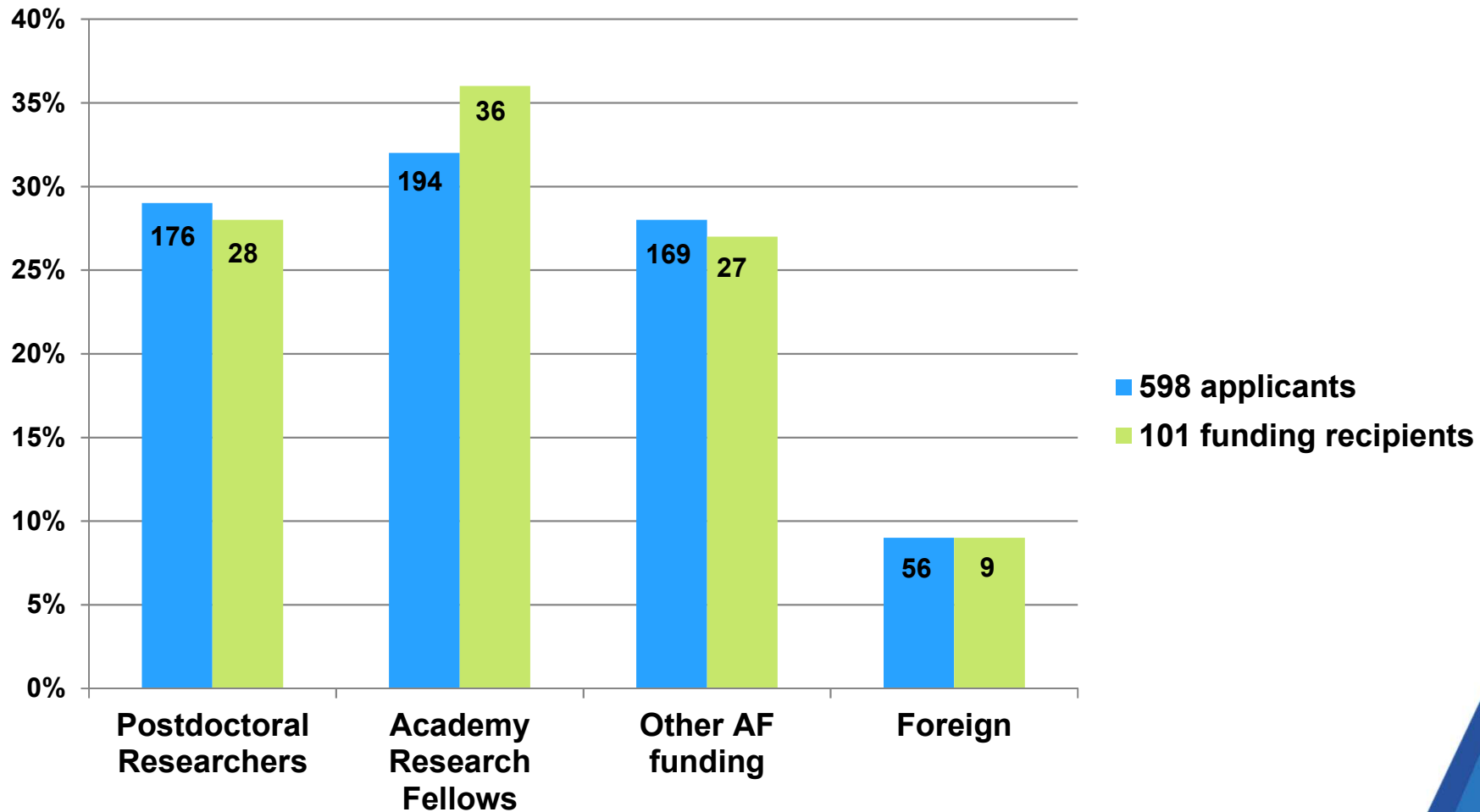


**Focus on
early-career
researchers**

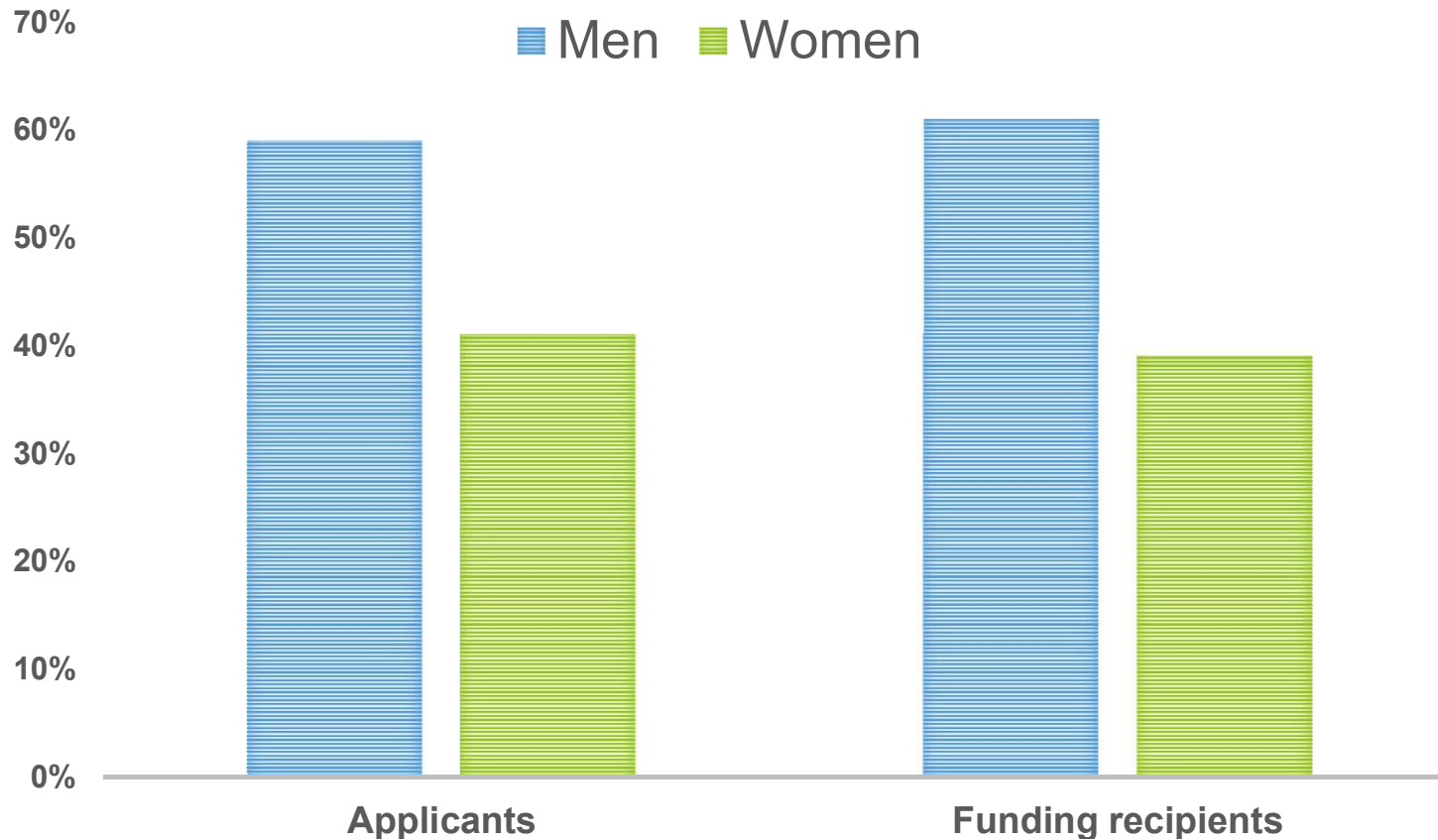
Key Project applications and projects funded by the research councils' themes



Background funding of Key Project applicants and funding recipients



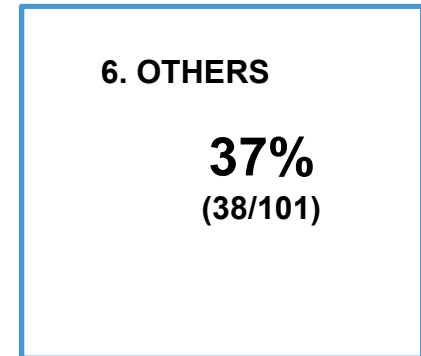
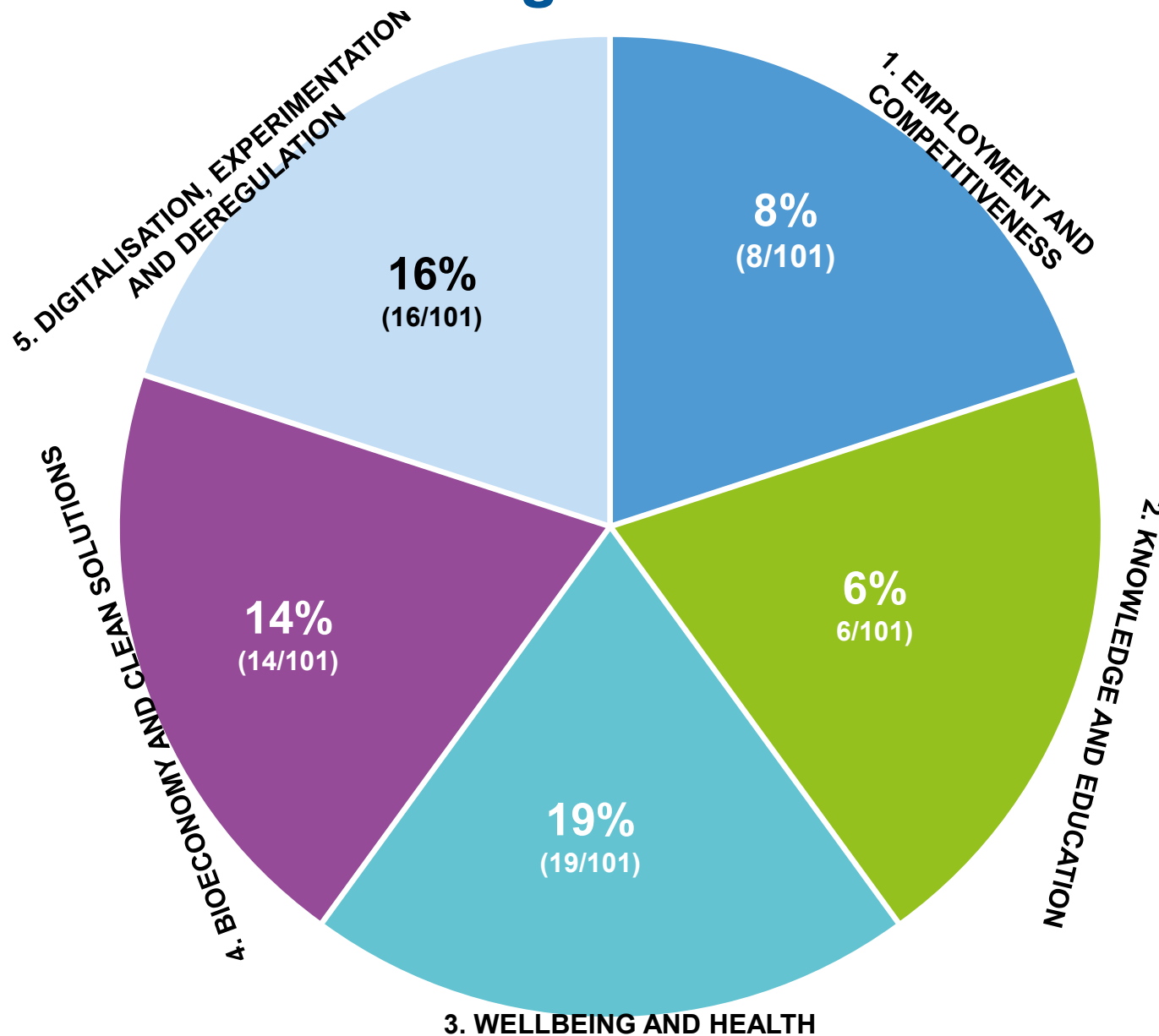
Gender balance among Key Project PIs



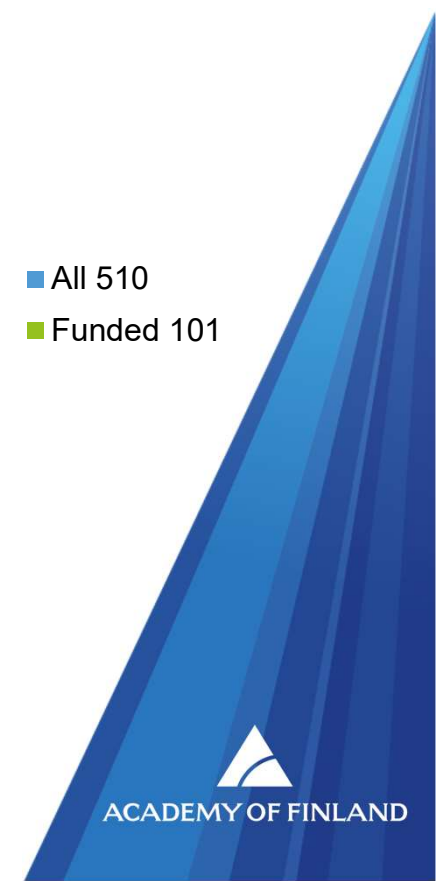
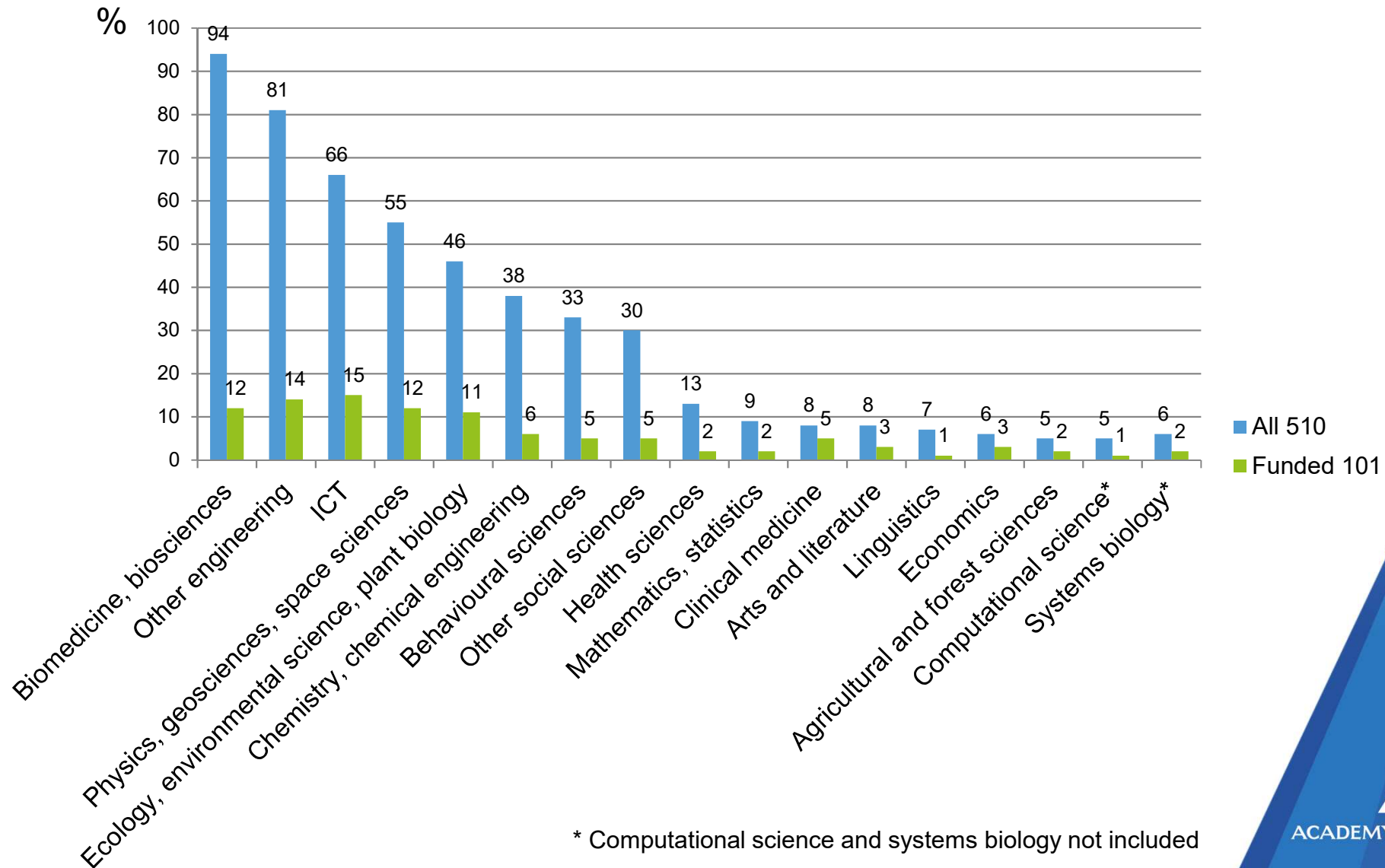
✓ Average academic age of applicants and funding recipients: 9 years after PhD

✓ Average age of applicants 41 years, average age of funding recipients 40 years

Funded Key Project topics vs objectives of the Government Programme



Key Project applicants and funding recipients, by scientific discipline (customized)



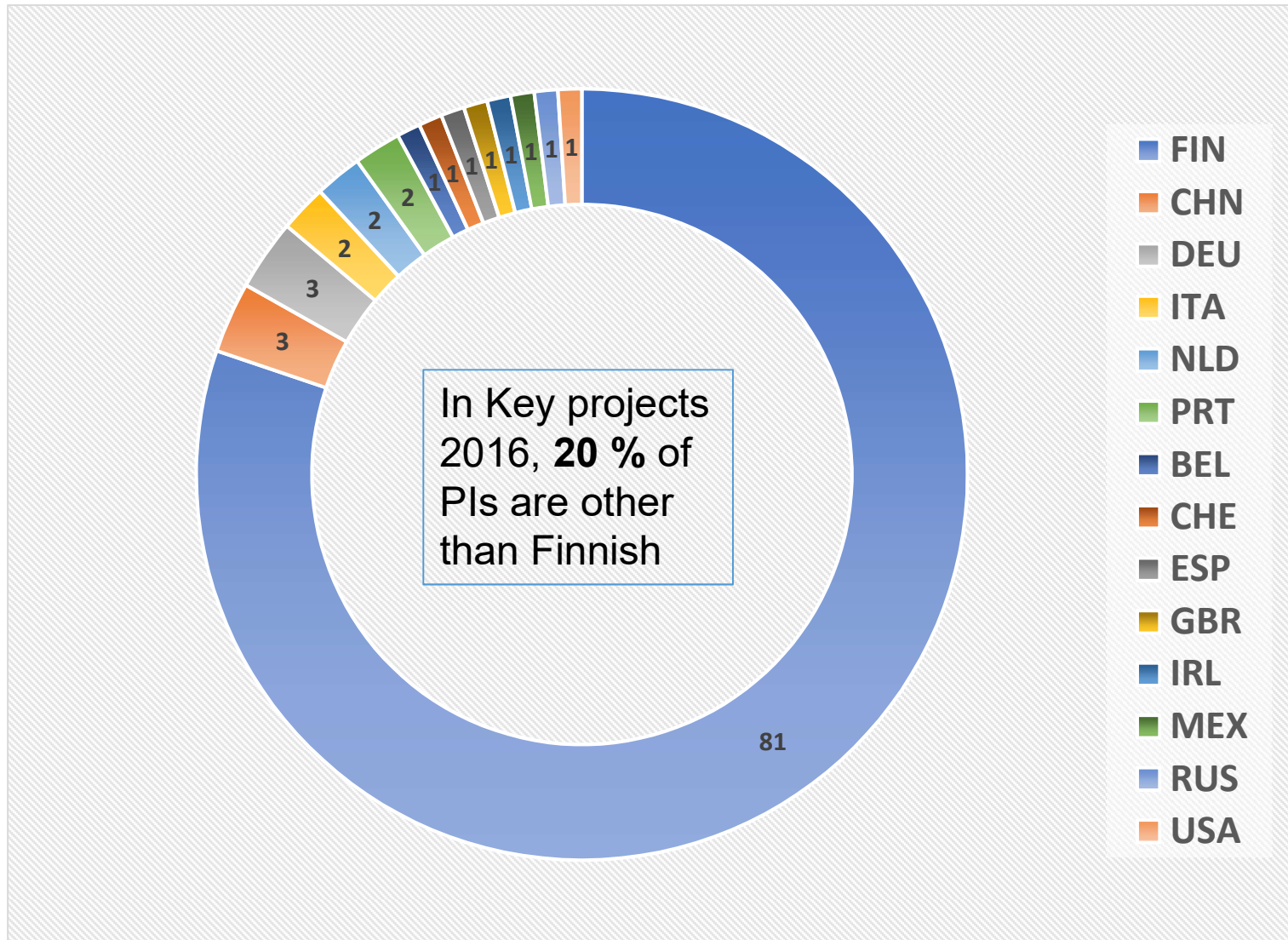
Key project funding by the Academy of Finland



Facts & Figures

Key Projects' Mid-Term (12 months) Reports

PIs of the 101 Key Projects represent 14 nationality



Other than Finnish in 2016 calls:

- Projects **13 %**
- Res Fellows **25 %**
- Postdoctorals **27 %**



Key Project Titles

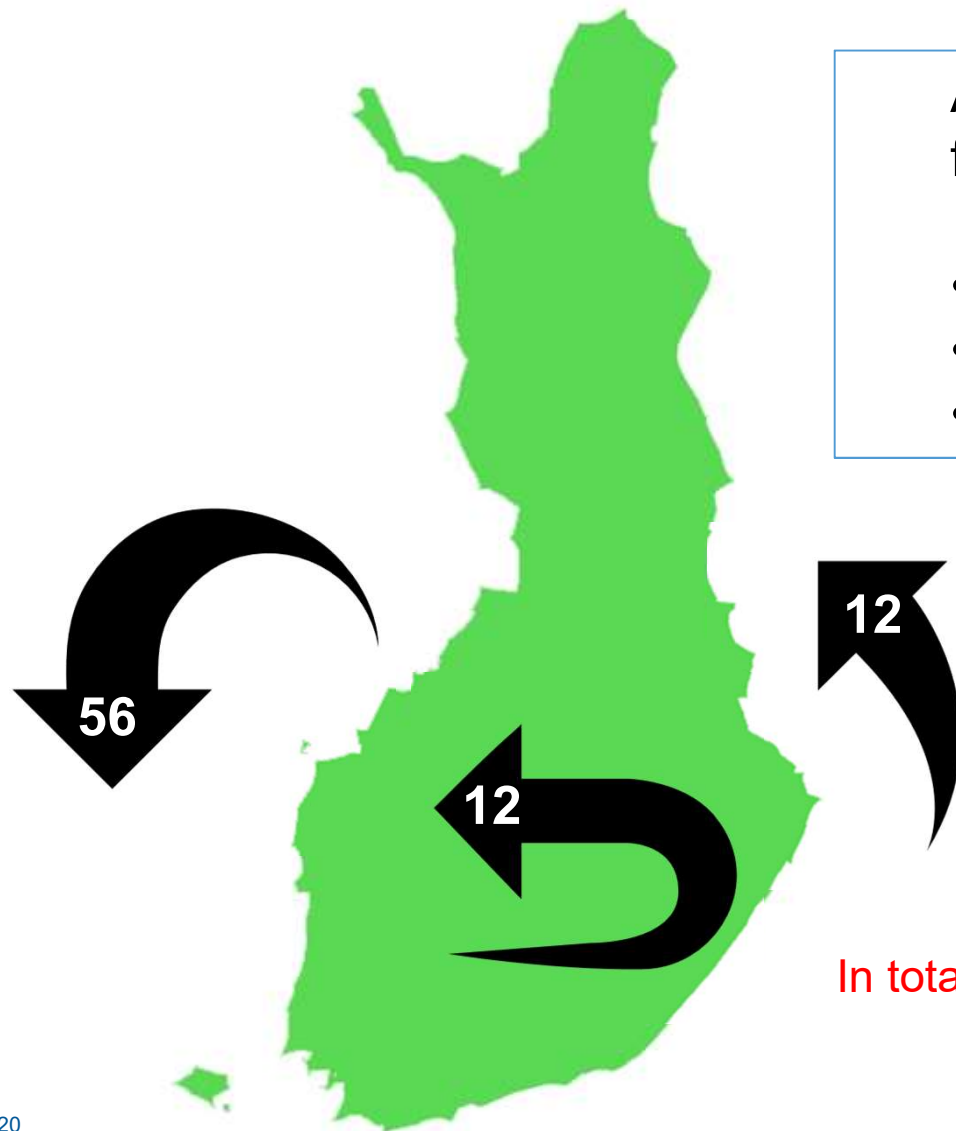


Key project funding by the Academy of Finland



Mobility during 12 months

One of the aims of the Key Projects is to aid mobility



Average duration of mobility during the first 12 months:

- From Finland: 1,3 months / project
- To Finland: 0,7 months / project
- Inside Finland: <1 months / project

In total, 80 mobility periods was reported

Key project funding by the Academy of Finland



Collaboration

Research collaboration of Key Projects during the first 12 months

Own research group	Other research group in the same university/ research organisation	Other domestic research organization	Domestic private employer	Domestic public employer	Domestic non-profit organisation	Foreign research organization / university	Foreign non-research organisation
15	74	196	26	29	6	157	15

Research collaborators in total	Out of which NEW research collaborators
424	219

Out of the 424 research collaborations reported,

- collaboration most often appear with national or foreign research organization
- 52 % are new research collaborations
- around 7 % exists with domestic private/public employee

Collaboration beyond Academia of Key Projects during the first 12 months

Academic actors beyond the scientific community	Professional stakeholders or experts	Educational actors beyond the scientific community	Industry and commerce	Public administrative actors	Civil society actors	Ordinary citizens or the general public	Media and actors
31	30	12	30	12	58	12	58

Collaborators Beyond Academia in total
243

- Out of the 243 collaborations beyond academia reported,
- 24 % exists with either civil society or media actors
 - 12 % exists with industry and commerce

Key project funding by the Academy of Finland



Implementation: Publications & other activities

In 12 months, 260 publications were reported – 40 % with Open Access and 87 % with international peer review practises

Publication type	2016		2017		2018		TOTAL	
	ALL	OA	ALL	OA	ALL	OA	ALL publications	OA publications
A1. Original scientific article	19	6	115	50	2	0	136	56
A2. Review	1	0	7	1	1	0	9	1
A3. Contribution to book/other compilations	0	0	8	1	0	0	8	1
A4. Article in conference publication	7	1	53	15	2	2	62	18
B1. Writing in scientific journal	0	0	3	2	0	0	3	2
B2. Contribution to book/other compilations	0	0	1	0	0	0	1	0
B3. Article in conference proceedings	0	0	8	4	0	0	8	4
C2. Edited book, compilation, conference proceeding or s	1	0	1	1	0	0	2	1
D1. Article in professional journal	2	0	2	1	0	0	4	1
D2. Article in professional hand or guide book or in a prof	0	0	2	1	0	0	2	1
D3. Article in professional conference proceedings	1	0	3	1	0	0	4	1
D4. Published development or research report	0	0	1	1	0	0	1	1
D5. Text book or professional handbook or guidebook or	0	0	1	1	0	0	1	1
E1. Popular article, newspaper article	3	3	8	4	0	0	11	7
E2. Popular monograph	0	0	1	0	0	0	1	0
F1. Published independent artistic work	0	0	2	2	0	0	2	2
G2. Master's thesis, diploma work, upper higher vocational	1	1	2	1	0	0	3	2
G5. Doctoral Thesis, articles	1	0	1	1	0	0	2	1
Total	36	11	219	87	5	2	260	100

Other activities of the funded Key Projects

- A lot of other activities were reported in form of:
 - workshops,
 - conferences,
 - news,
 - use of social media.



Key project funding by the Academy of Finland



Implementation: Use of Infrastructures

Implementation of Research – Use of Infrastructures

Infrastructures are essential both in research and in the utilization of research results

- Key projects have made use of a large variety of infrastructures
- Most intensive use of Infrastructures on Roadmaps (ESFRI or FIRI) was reported

11

Infrastructures on Road-maps (ESFRI or FIRI) or with Finland's member-ships

5

Other infrastructures – outside Finland

18

Other infrastructures – in Finland

Implementation of Research – Use of Infrastructures

Infrastructures on Roadmaps (ESFRI or FIRI) or with Finland's memberships

- Biocenter Finland (14)*
- CSC RI (14)
- OtaNano (9)
- FGCI (4)
- ELIXIR (3)
- EATRIS
- EMBL – membership
- Finna
- FINMARI
- PRACE
- Rami

Other infrastructures – outside Finland

- BIFoR FACE experiment, University of Birmingham, UK
- Cambridge Graphene Center, UK
- Institute of Language, Literature and History of Karelian Research Center, Petrozavodsk, RU
- ISIMIP data, <https://www.isimip.org>, AT, GE, global
- Museum of the University of Tromsø, NO

Other infrastructures – in Finland

- Elmer development (part of PRACE and FGCI)
- Finnish Literature Society
- Finnish National Museum, Helsinki
- Folklore archive of the University of Tampere
- National Board of Antiquities
- Regional Archive of Oulu
- Regional Museum of Lapland
- Saami Culture Archive of the University of Oulu
- Siida - The national museum of the Sámi
- The Finnish Museum of Photography
- The National Archive of Finland – Saami Archive
- Aalto university: Aalto Neuroimaging (ANI), Hydraulic hall of the department of mechanical engineering
- Finnish Meteorological Institute (FMI): supercomputing infrastructure and Open Data interface
- Helsinki Institute of Life Science (HiLife), University of Helsinki: BioMag Laboratory as part of the Cognitive Brain Laboratory (Co-Bra); FIMM Technology Centre
- ILMARI Research unit of aerosol physics, chemistry and toxicology, University of Eastern Finland – under EUROCHAMP 2020 consortium
- Lappeenranta University of Technology: LUT Energy and LUT Voima Facilities
- Tampere University of Technology: TSCS Merope Cluster
- University of Helsinki: Animal Center, Center for Genomic Epidemiology, ETLA, Patric, RAST, Ridom Spa Server
- LUKE research farm and VTT research infrastructure

*) number refers to use by several projects

Key project funding by the Academy of Finland



Impact beyond scientific community

Impacts of the 101 Key Projects at their Mid-Term

By definition impacts

- often appears through indirect chains of events and after a longer time
- manifest themselves beyond the scientific community

Examples of types of impact in Key Projects

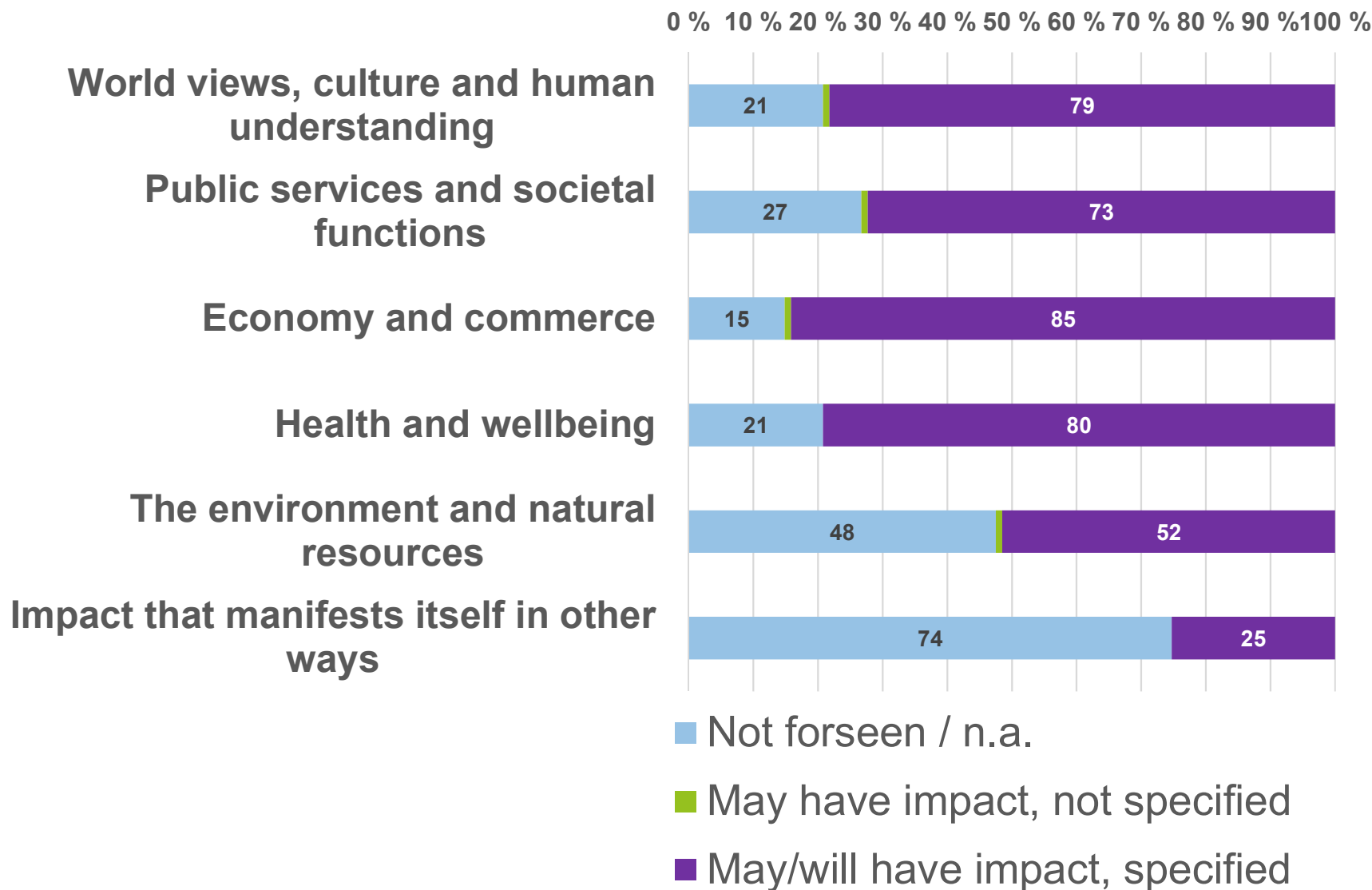
- New tools, methods for laboratories, environments, etc
- Tests, concepts for application in diagnosis or planning locally or via internet
- Roadmaps, policy briefs, recommendation for societal use largely
- Bridge to larger international collaboration



Impact out there everywhere!



Impact of the 101 Key Projects reported by Mid-Term



Key Projects at their Mid-Term – Examples of Impact 1

Knowledge and education

Web-based research service for deploying mathematics learning apps and game-based assessment in global scale

RC Natural Sciences
and Engineering

Kristian Kiili, Tampere University of Technology

- Based on Academy Research Fellow (2015-2020) and TULOS programme projects (2014-2017)
- Product: a Web-based service to conduct crowd-sourced mathematics game studies on a global scale
- So far:
 - An empirically validated math learning game (Semideus School) has been made publicly available for schools world wide
 - In addition to Finnish research collaboration, two studies have been conducted in German collaboration
- Co-operation outside Academia: Educational actors and companies (game services)
- Use of Facebook, Twitter and websites in marketing game competitions and distributing results to wider audience

Key Projects at their Mid-Term – Examples of Impact 2

Bioeconomy and clean solutions

RC Biosciences and
Environment

Porcar-Castell Albert: Cost-effective methods for tracking large scale vegetation physiology: Participatory phase and pilot experiments

Albert Porcar-Castell, University of Helsinki

- Based on Academy Research Fellow project (2015-2020)
- Product: Two optical remote sensing methods to follow plant health status
- Original selection of the case studies for testing with 15 different stakeholders
- Infrastructures used: 1) LUKE research farm in Finland and 2) BIFoR FACE experiment, University of Birmingham, UK
- Immediate impact for the environment and natural resources, future impact in economy and commerce: Reducing costs of managing vegetation, drone-related industrial sector, hyperspectral (imaging) sensor industry, consulting companies

Key Projects at their Mid-Term – Examples of Impact 3

Digitalisation, experimentation and deregulation

Communication with metabolomics – development of novel computational tools for data-analysis and visualization

Kati Hanhineva, UEF, School of Medicine

RC Biosciences and Environment

- Based on Academy Research Fellow project (2014-2019)
- Product: A comprehensive solution of metabolomics analytics for service laboratories
- Collaboration: 1) RIKEN, Japan and 2) Aalto University, KEPACO research group, and for visualization design with 3) a Helsinki-based company Koponen & Hilden
- Piloting of the analytics has been started with two industrial collaborators within the field of **food and nutrition sciences** (Senson Oy and DuPont)
- To raise awareness, a metabolomics video has been published together with Science Stories” (<http://www.sciencestories.net/>)
- Semifinalist in the Helsinki Challenge competition 2017 – increase of visibility in the social media
- A parallel Tekes-funded TUTL-project has resulted in a spin-off company (<https://afekta.com>)

Key Projects at their Mid-Term – Examples of Impact 4

Digitalisation, experimentation and deregulation

Speech perception in noise in children with cochlear implants and hearing aids: The new Children's test of word recognition in noise and realistic sound environments

RC Culture and
Society

Taina Välimaa, University of Oulu, Faculty of Humanities, Research Unit of Logopedics and Child Language Research Center

- Based on Academy Research Fellow project (2011–2016)
- Product: Children's test of word recognition in noise (complies with EN ISO8253-3, 2012)
- Clinical medicine, medical technology, linguistics, phonetics, signal processing, machine human interactions, programming
- Co-operation outside Academia: university hospitals, Finnish Audiological Society
- Twitter: @valimaa_taina, www.oulucrc.fi

Key Projects at their Mid-Term – examples of Impact 5

Employment and competitiveness

Developing tools for combatting tax evasion

RC Culture and
Society

Kaisa Kotakorpi, University of Turku

- Based on Academy Project (2014-2018)
- Product: New practices to enhance the efficiency of the Finnish tax system
- Strong co-operation outside Academia: intensified meetings with Tax Administration, in collaboration with VATT
- New international research collaboration established:
 - workshop together with researchers from the University of Warwick to enhance research and data, with participants from the UK and Finnish tax authorities.
 - Collaboration and visits also with researchers in FI, DK, NO and USA
- Media actions with Yle

Key Projects at their Mid-Term – Examples of Impact 6

Wellbeing and health

The MUISTIKKO model for preventing dementia and disability

Miia Kivipelto, National Institute for Health and Welfare

RC Health

- Based on: Academy Project FINGER (2014-2018)
- Product: Muistikko – A low-cost e-Health solution for dementia prevention-related decision-making developed together with VTT and Combinostics, testing with 250 FINGER participants
- Collaboration beyond academia: South Ostrobothnia Health care district, City of Seinäjoki, Memory Association
- With key stakeholders identification of facilitators and barriers of implementing dementia prevention activities and development of practical tools for implementation
- Collaboration with WHO to create international dementia prevention guidelines
- TV and radio interviews and social media: Yle Pohjanmaa 9.5.2017, 14.10.2017, Super 1.12.2017, YouTube video

<https://www.youtube.com/watch?v=pBsHS6mF--s>

Key Projects at their Mid-Term – Examples of Impact 7

Other objectives

A concept for studying the toxicological effects of emission aerosols, nanomaterials and occupational dusts in online exposure system

RC Health

Pasi Jalava, UEF, Dept. of Environmental and Biosciences

- Based on: Academy Research Fellow (2015-2020)
- Product: Thermophoretic cell exposure system for environmental toxicology – a new research & measurement concept with globally valid applications
- Larger national (UEF, TUT) and global research collaboration, visits/testing in GE, CH, CL and SE
- Co-operation beyond academia: alternative concept for animal testing (with FINCAM) and for atmospheric research (with EUROCHAMP)
- Patent pending, media: tietysti.fi interview

Key Projects at their Mid-Term – Examples of Impact 8

RC Natural Sciences
and Engineering

Other objectives

[Roadmap and key figures of merit for a thermoelectric hot-electron bolometer based on superconductor/ferromagnet hybrid structures](#)

Tero Heikkilä, JYU, Department of Physics and Nanoscience Center

- Based on: ERC Starting Grant 2012
- Product: A new concept for ultrasensitive measurements of electromagnetic radiation – a roadmap for design to various end users
- Collaboration: with SP, IT, FR in research; others European Space agency, ESA
- Impact: A bridge to a larger consortium EU funding for technology development (FET Open 2017) <https://www.jyu.fi/ajankohtaista/arkisto/2018/04/tiedote-2018-04-13-14-10-39-017978>
- Patent pending

Monitoring, Reporting and Follow-up of the Key Projects

- Funding period through the Academy of Finland: **1.10.2016 – 30.9.2018**
- Communications: The Academy is bringing up cases from a rich variety of utilisation projects via e.g. interviews, news, blogs and the devoted [web page](#)
- **Joint Event** for the funded projects **17.10.2017**
- **Midterm reporting by 31.12.2017**
 - Reports via Academy's electronic system
- **Final Event** for the funded projects planned to be **18.9.2018**
- **The final report dead line by 30.10.2018** (tbc)
 - Reports will be analysed by the Academy and communicated via the Ministry of Education and Culture in a relevant form to the Government
- The Academy plans to send **a questionnaire 5 years after** the end of the funding period (2023).
 - Assessment of effects and various forms of impacts
 - To identify possible bottle necks on paths to utilisation: for example, in dissemination or implementation → possibility for targetted assisting actions in the future