SRA INTERNATIONAL
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European Research Council Gone Global: What They Mean With Excellence?

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Learning objectives

By the end of this session, participants will be able to:

1. Identify the main features of European Research Council grants, incl. requirements, application process, evaluation process and criteria

2. Describe and adopt best practices for supporting candidates, including interpreting the requirements of excellence based on new key bibliometric analysis carried out on previous grantees

Background: ERC Frontier Research Grants

1.5-2.5 million EUR grants, for 5 years

- For the Principal Investigator and his/her team
- For research in any topic

Annual calls, in 3 career stages

- Starting (2-7 years after PhD)
- Consolidator (7-12 years)
- Advanced

Excellence as sole criterion

- Excellence of project plan
- Excellence of investigator [(promising) track record]

Miia Lindström.
ERC CoG 2015 grant
2 million EUR

Why does Clostridium botulinum kill? In search for botulinum neurotoxin regulators

European Commission funding
Horizon 2020 Structure

I
Excellent Science

1. European Research Council (ERC)
2. Future and Emerging Technologies (FET)
   a) Open
   b) Proactive
   c) Flagships
3. Marie Skłodowska-Curie (MSCA) – actions: training and career development
4. Research infrastructures

II
Industrial Leadership

1. Leadership in enabling and industrial technologies
   1.1. ICT
   1.2. nanotechnologies
   1.3. advanced materials
   1.4. biotechnology
   1.5. manufacturing and processes
   1.6. space
2. Access to risk finance: loans & equity
3. Innovation in SMEs

III
Societal Challenges

1. Health, demographic change and wellbeing
2. Food security, sustainable agriculture, marine and maritime research & bioeconomy
3. Secure, clean and efficient energy
4. Smart, green and integrated transport
5. Climate action, resource efficiency and raw materials
6. Inclusive, innovative and reflective societies
7. Secure societies

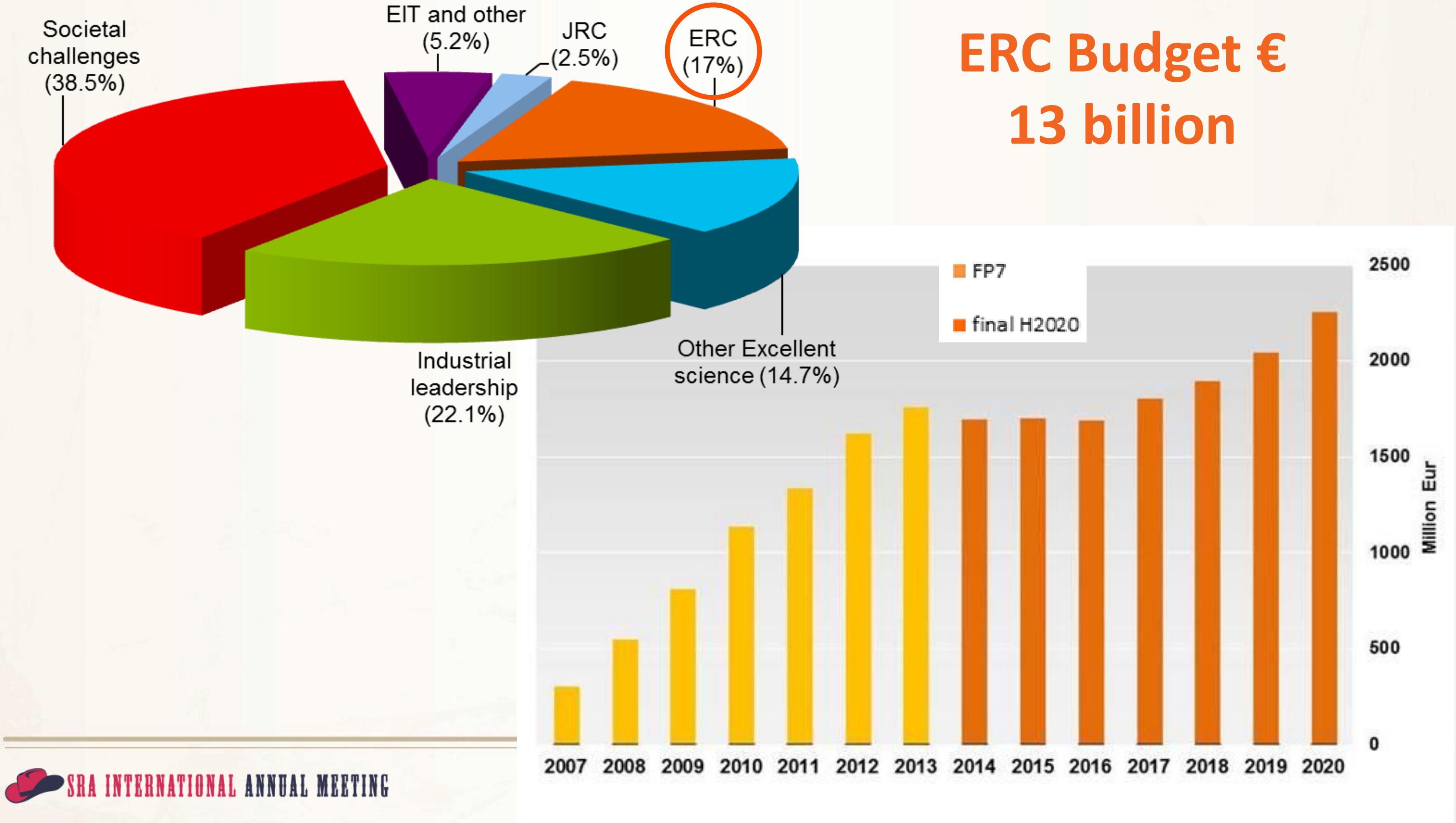
Science with and for Society, Spreading Excellence and Widening Participation

Joint Research Centre (JRC); (other than nuclear)

EIT, European Institute of Technology

H2020 is the biggest ever EU Research & Innovation programme, with~ €80 billion available over 2014-2020

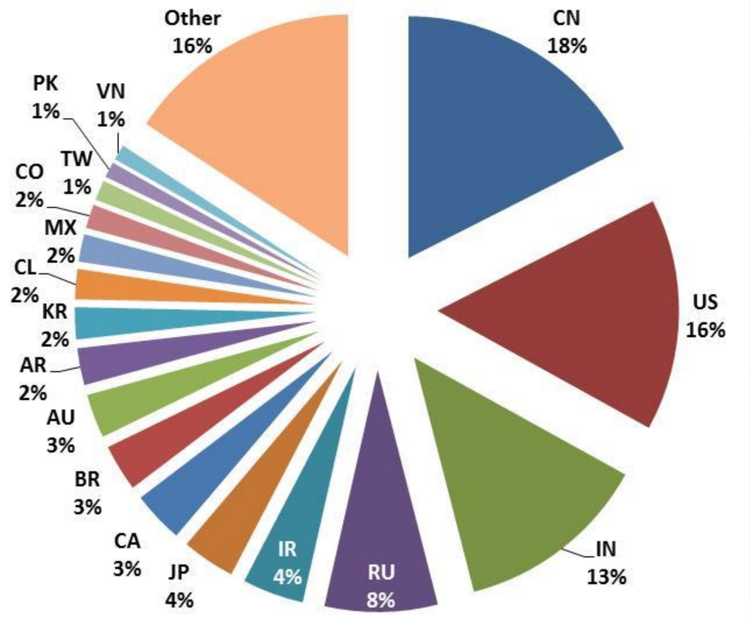
ERC H2020 Budget



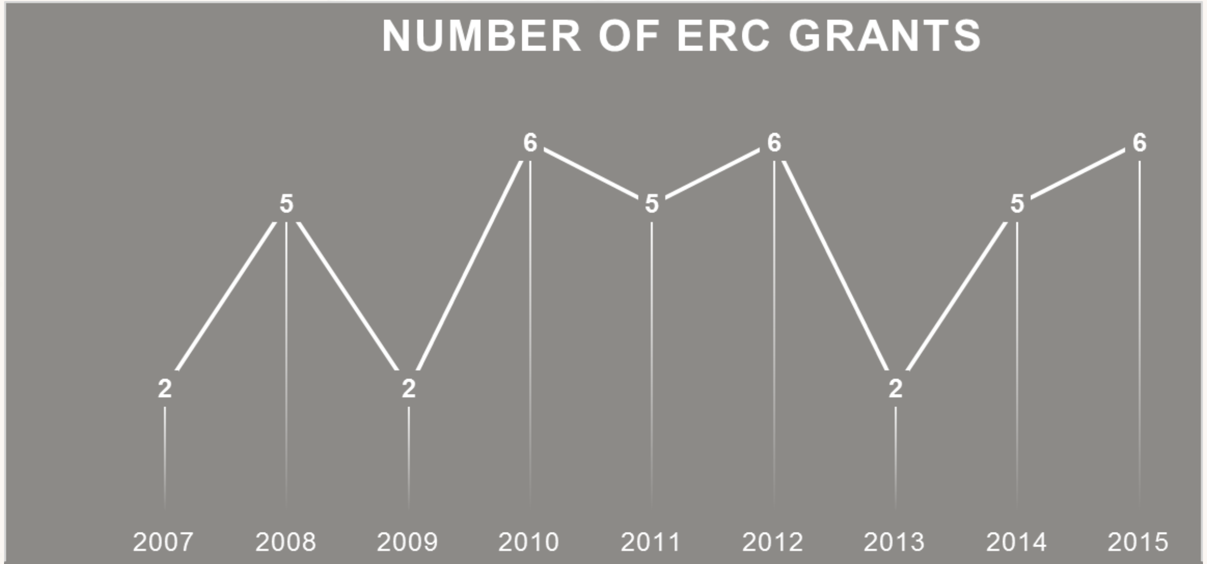
ERC Budget €
13 billion

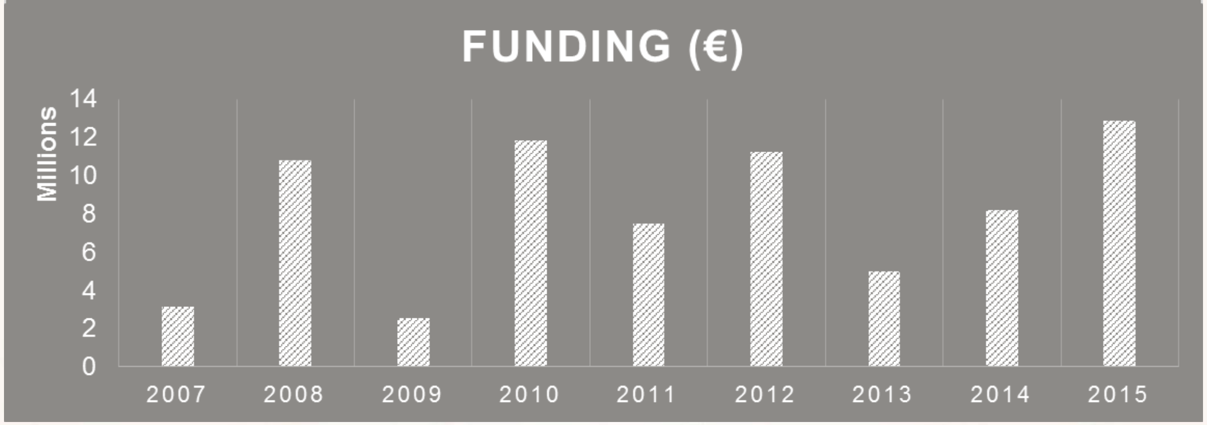
ERC: attracting talent to Europe

- Over 5,500 grantees from 66 nationalities
  - 400 non-European grantees, incl. **US** (185), Canada (46), Russia (36), Australia (31), India (28) and Japan (19)
- Over 40,000 team members (researchers) employed
  - + 7,500 non-European team members, most from China, US, India, and Russia
  - Grantees to spend minimum of 50% of working time in EU or associated country host institution



ERC @ the University of Helsinki





Application structure

A – online forms –

- PI, proposal info, abstract
- Contact Address of the Host Institution representative: (e.g. myself)
- Budget-table
- Ethical issues table
- Eligibility

B1 – a pdf file submitted via PPSS

- Cover page with summary (1 p.)
- **Extended synopsis (5 p.)**
- CV (2 p.)
- Funding ID no limit (disclosure of all ongoing and currently applied funding)
- Early Achievement Track-Record (2 p.)

B2 – a pdf file submitted via PPSS (15 p.)

- **Scientific proposal (15 p.)** (State-of-the-art, Objectives, Methodology, Risk assessment & management, Resources)

Annexes – pdf files submitted via PPSS

- PhD certificate, Host Institution Commitment Letter, Additional Ethical Documents

EVALUATION CRITERIA:
Research Project

Ground-breaking nature and potential impact of the research project:

- To what extent does the proposed research address important challenges?
- To what extent are the objectives **ambitious** and **beyond the state of the art** (e.g. novel concepts and approaches or development across disciplines)?
- How much is the proposed research high risk/high gain?

Scientific Approach:

- To what extent is the outlined scientific approach feasible?
- To what extent is the proposed research methodology appropriate to achieve the goals of the project?
- To what extent does the proposal involve the development of novel methodology?
- To what extent are the proposed timescales and resources necessary and properly justified?

EVALUATION CRITERIA:
Principal Investigator

For each of the four statements below, reviewers are asked to choose one of the following: Fully agree / Somewhat agree / Somewhat disagree / Strongly disagree

Intellectual capacity

- The PI has demonstrated the ability to propose and conduct ground-breaking research & his/her achievements have typically gone beyond the state-of-the-art.

Creativity

- The PI provides abundant evidence of creative independent thinking.
- The ERC Grant would contribute significantly to the establishment or where necessary, the further consolidation of the PI's independence and career.

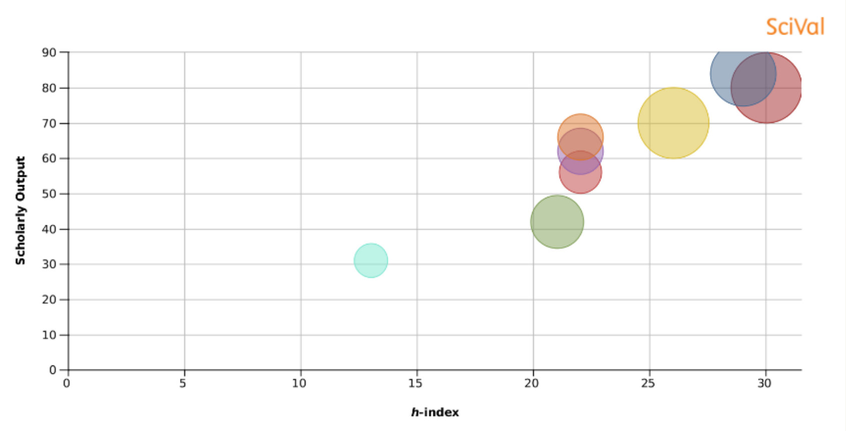
Commitment

- The PI is strongly committed to the project and demonstrates the willingness to devote a significant amount of time to the project (min 50% of the total working time on it and min 50% in an EU Member State or Associated Country) (based on full Scientific Proposal).

So What They Mean With Investigator's Excellence?

"… good, but not outstanding record… citation rate is quite modest … not surprisingly, as most observations did not go beyond the state of the art"

- Data:
- from all 488 Starting & Consolidator grantees from Life Science panels over the years 2014-15
- Metrics:
- number of publications (articles + reviews)
- H-index (Hi=10 => 10 papers each of which is cited in other papers ≥ 10 times)
- number of Science/Nature/Cell papers
- Number of citations, other
- Source:
- Scopus/SciVal (Elsevier)
- retrieved March-April 2016



ERC evaluation panel structure

Life Sciences

- LS1 Molecular and Structural Biology and Biochemistry
- LS2 Genetics, Genomics, Bioinformatics and Systems Biology
- LS3 Cellular and Developmental Biology
- LS4 Physiology, Pathophysiology and Endocrinology
- LS5 Neurosciences and Neural Disorders
- LS6 Immunity and Infection
- LS7 Diagnostic Tools, Therapies and Public Health
- LS8 Evolutionary, Population and Environmental Biology
- LS9 Applied Life Sciences and Non-Medical Biotechnology

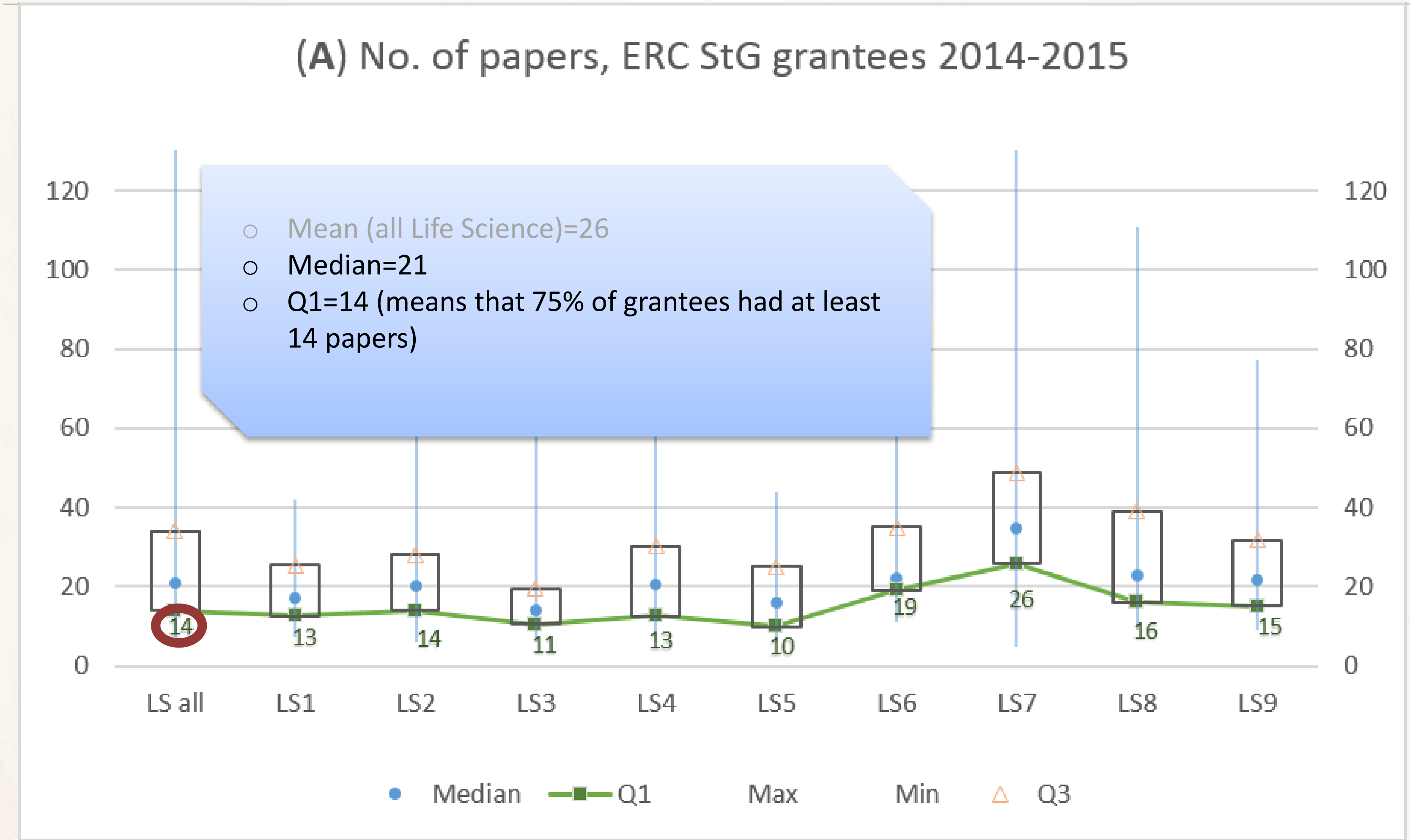
Physical Sciences & Engineering

- PE1 Mathematics
- PE2 Fundamental Constituents of Matter
- PE3 Condensed Matter Physics
- PE4 Physical and Analytical Chemical Sciences
- PE5 Synthetic Chemistry and Materials
- PE6 Computer Science and Informatics
- PE7 Systems and Communication Engineering
- PE8 Products and Process Engineering
- PE9 Universe Sciences
- PE10 Earth System Science

Social Sciences and Humanities

- SH1 Individuals, Markets and Organisations
- SH2 Institutions, Values, Environment and Space
- SH3 The Social World, Diversity, Population
- SH4 The Human Mind and Its Complexity
- SH5 Cultures and Cultural Production
- SH6 The Study of the Human Past

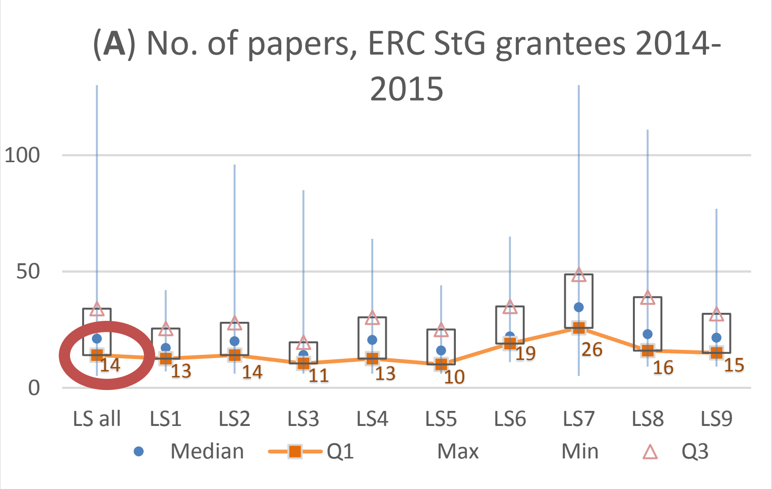
Results of the bibliometric analysis

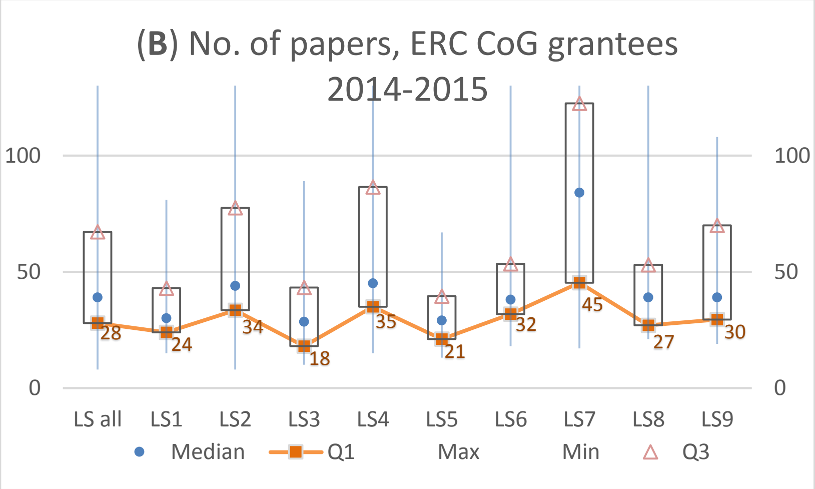


- Mean (all Life Science)=26
- Median=21
- Q1=14 (means that 75% of grantees had at least 14 papers)

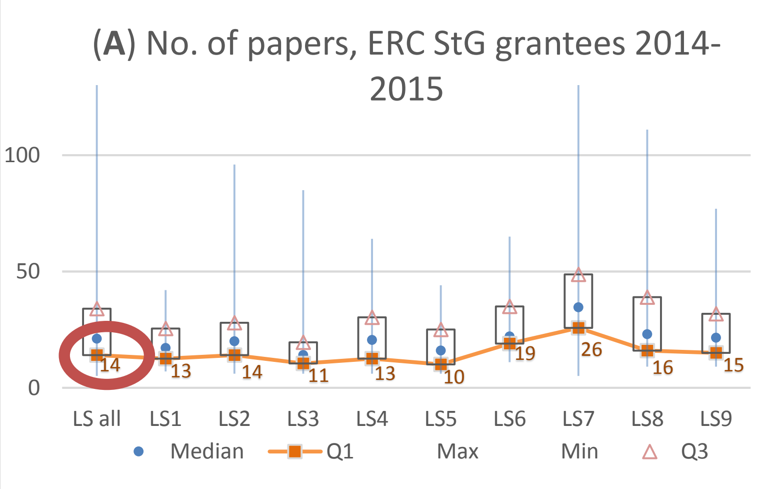
▪LS7 Diagnostic Tools, Therapies and Public Health

Results of bibliometrics (cont.)

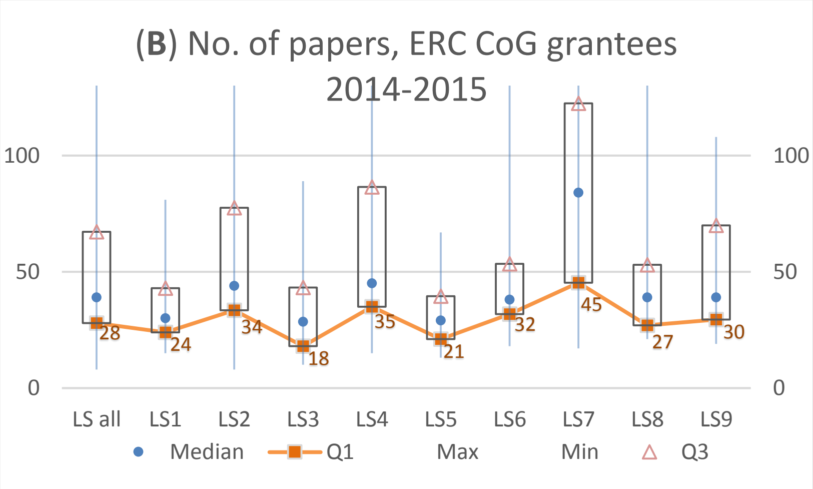

(**A**) No. of papers, ERC StG grantees 2014-2015


(**B**) No. of papers, ERC CoG grantees 2014-2015

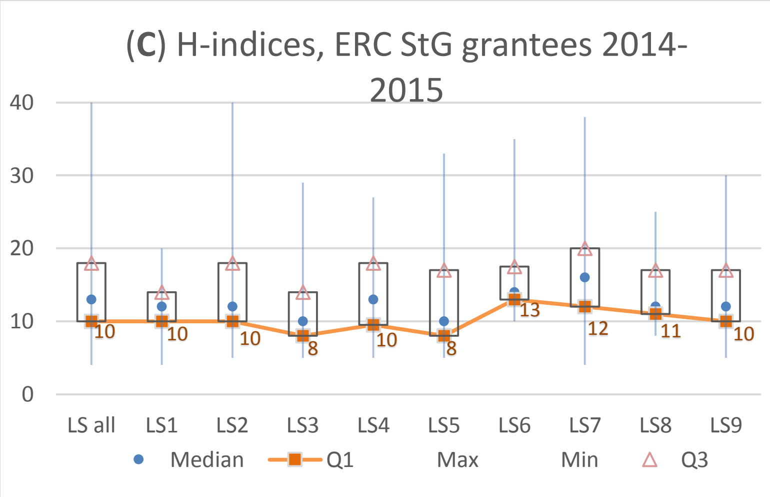
Results of bibliometrics (cont.)



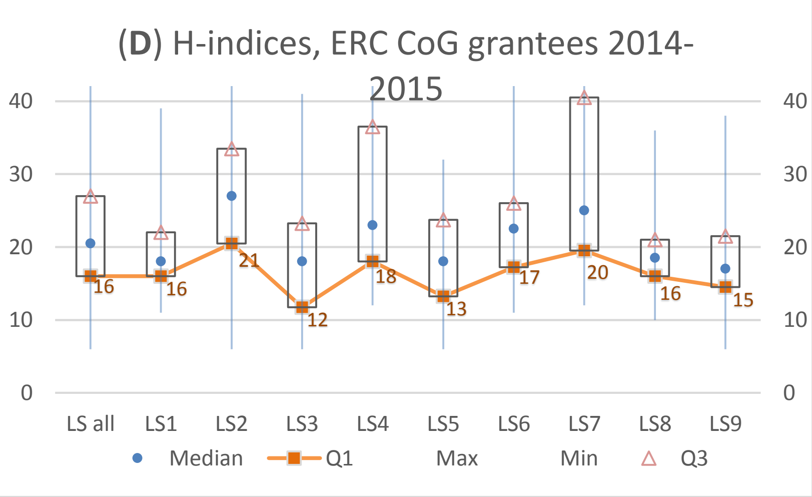
(**A**) No. of papers, ERC StG grantees 2014-2015



(**B**) No. of papers, ERC CoG grantees 2014-2015

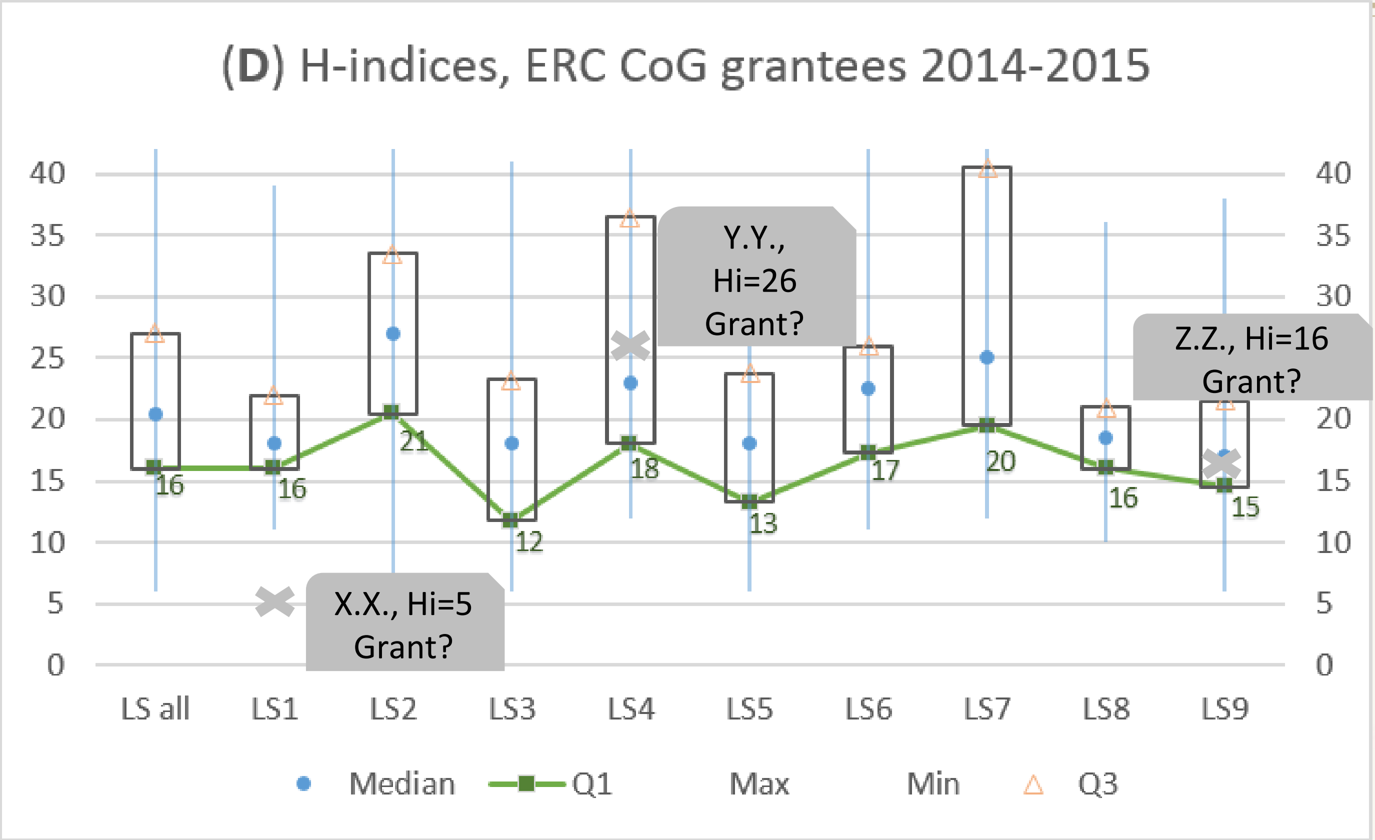


(**C**) H-indices, ERC StG grantees 2014-2015



(**D**) H-indices, ERC CoG grantees 2014-2015

Results of bibliometrics (cont.)



(**D**) H-indices, ERC CoG grantees 2014-2015

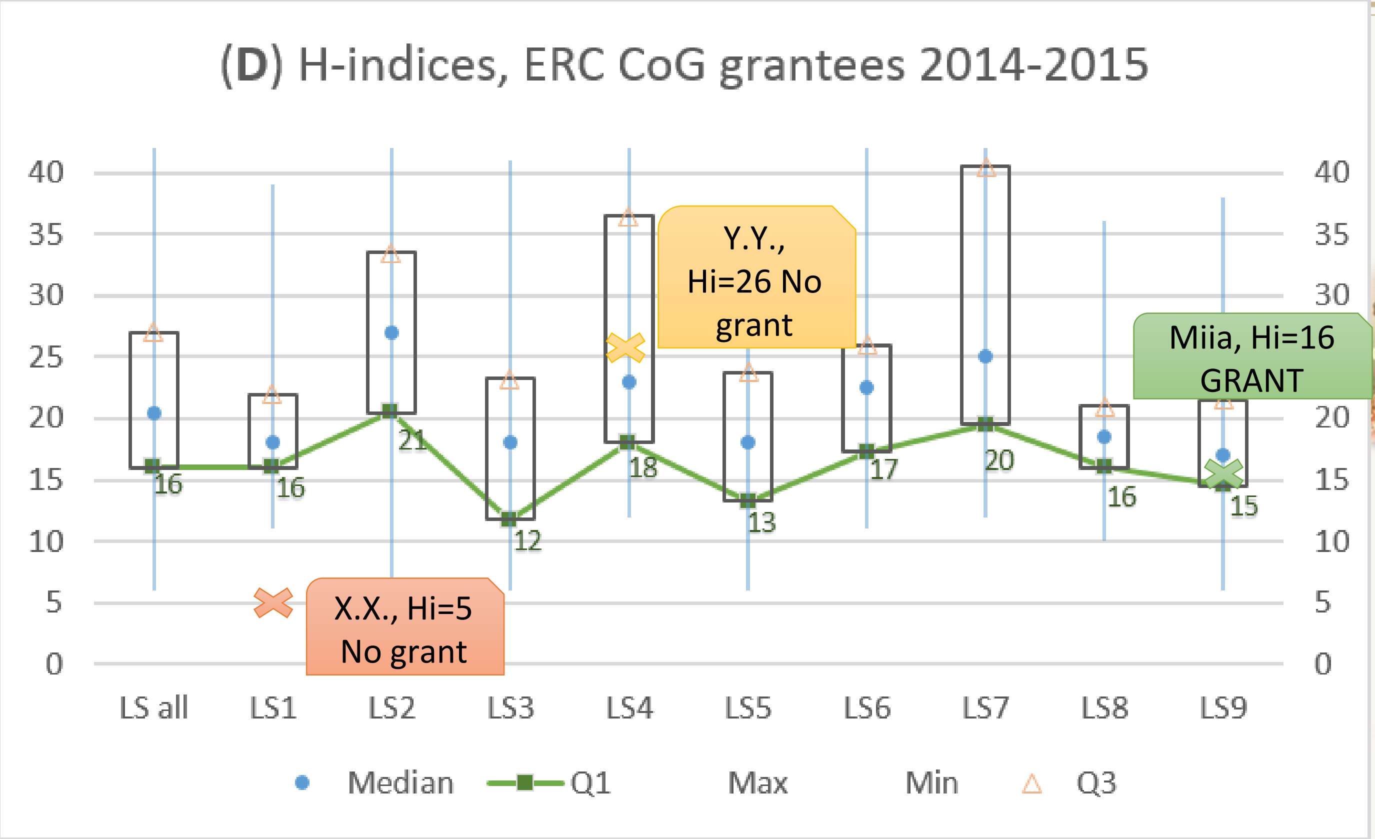
Y.Y., Hi=26 Grant?

Z.Z., Hi=16 Grant?

X.X., Hi=5 Grant?

For discussion: in the face of limited resources, would you give the same level of support to all 3 applicants? Who would you support the most and the least?

Results of bibliometrics (cont.)



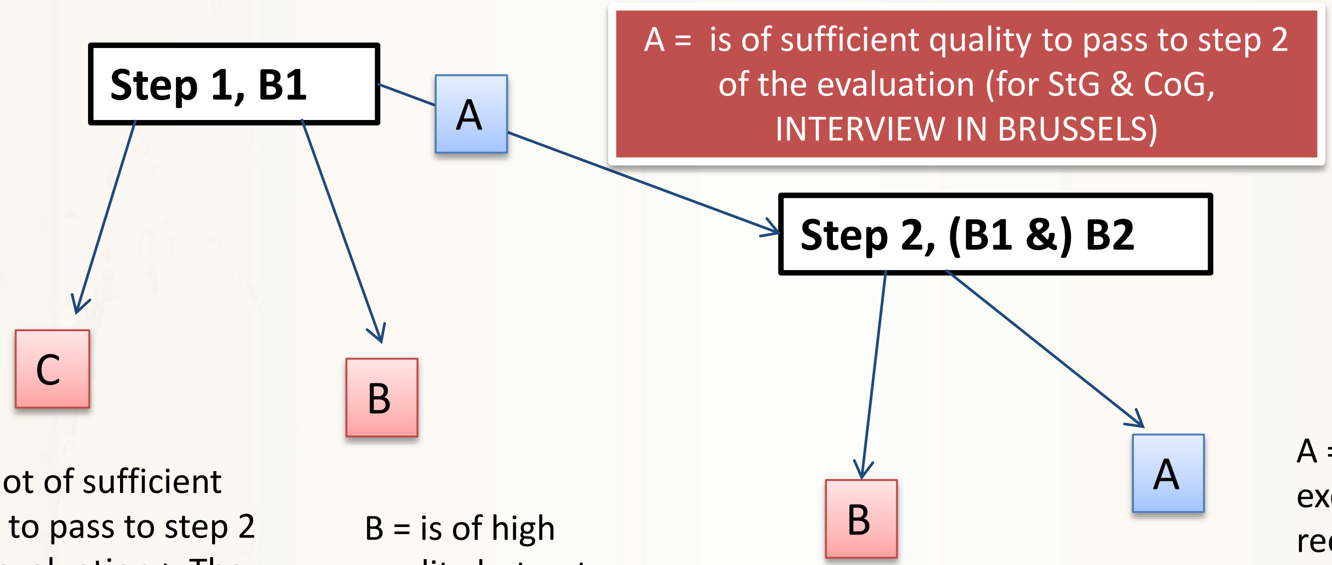
(D) H-indices, ERC CoG grantees 2014-2015

Y.Y., Hi=26 No grant

Miia, Hi=16 GRANT

X.X., Hi=5 No grant

EVALUATION
Panel score and ranking



Step 1, B1

A

A = is of sufficient quality to pass to step 2 of the evaluation (for StG & CoG, INTERVIEW IN BRUSSELS)

Step 2, (B1 &) B2

C

B

B

A

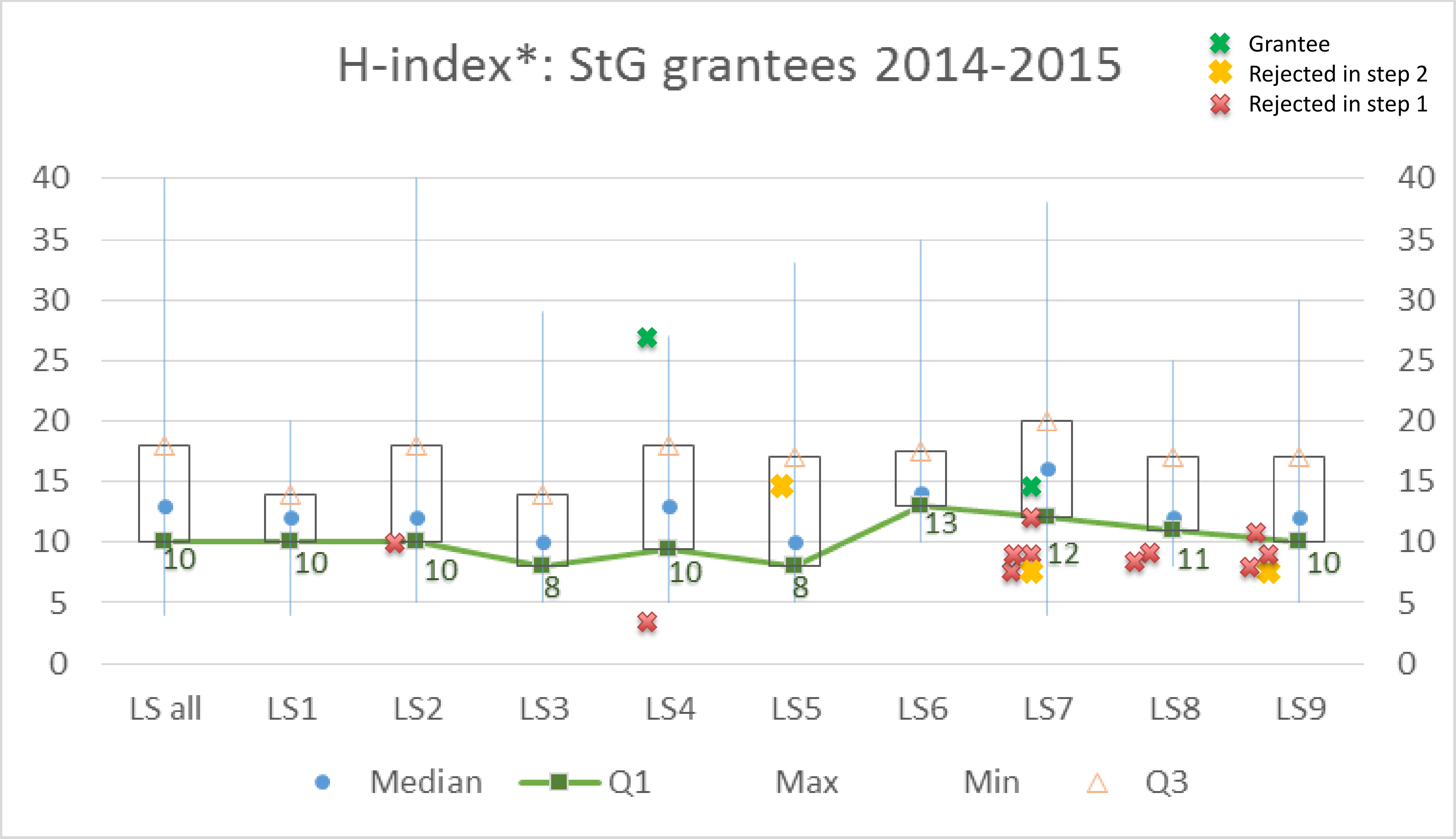
C = is not of sufficient quality to pass to step 2 of the evaluation > The applicant may not submit for next 2 ERC StG/CoG/AdG calls

B = is of high quality but not sufficient to pass to step 2 of the evaluation > The applicant may not submit for next ERC StG/CoG/AdG

B = Meets some but not all elements of the ERC's excellence criterion and will not be funded

A = Fully meets the ERC's excellence criterion and is recommended for funding if sufficient funds are available

Results of bibliometrics (cont.)



Limitations of the analysis

- Data-related:
- retrieved in 3-4.2016. As Scopus doesn't backtrack number of citations, H-indices may be slightly inflated
- possible Scopus inaccuracies
- Approach-related:
- only examining grantees (+ non-representative subsample of UH applicants)
- capturing only what may be just one important aspect of track-record excellence (not able to factor in e.g. prizes)
    - whole excellence-of-the-project-plan criterion not considered
- Metrics-related:
- can bibliometrics adequately reflect academic (young) excellence?
    - e.g. authorship issue

Analysis: some key messages

Bibliometrics as a piece of objective, concrete orientation ahead of applying in competitive research programmes

- E.g. 75% of Starting grantees had 14+ papers, 470+ citations, 10+ H-index.
- Demystifying myths (e.g. *"cannot make it without a Science/Nature paper"*)
    - 80% of LS1 StG grantees had one, versus just 18% in LS7
- To use with caution (e.g. multidiscipl.), and triangulate with expert opinion and other inputs

Grants aimed at attracting young excellence (i.e. ERC's StG & CoG) as optimal test case (moreover in Life Sciences)

Growing field, highly relevant for research managers

- Bibliometrics already widely use in academic recruitment
- Increasing use of research intelligence
- Increasing importance of "third party funding acquisition" variable

For discussion: are you aware of similar analyses conducted for other funders, within or outside your institutions? What would be the strengths and weaknesses of such (bibliometric-type) approaches?

- LS1 Molecular and Structural Biology and Biochemistry
- LS7 Diagnostic Tools, Therapies and Public Health

Best practices on ERC support: UH’s ERC workshops

- Campus workshops for high profile young researchers
- Group work, small group work, mentors, advisor
- Starting ideally 6 months before the deadline
- Consisting of seven different meetings (“modules”)
- Viikki campus pilot 2014:
  - Selection based on recommendation of Head of Units
  - Former ERC panel chair and AdG grantee Prof. Ilkka Hanski commented the one page proposals
  - 9 candidates in the beginning > 5 applications left > 2 applicants to the second round > 1 ERC StG

UH’s ERC Workshops (cont.)

- Highly competitive application process – “competition-driven excellence”
- Support & structure & motivation for the application writing process
- How to write the application & how to interpret the requirements
- Peer support (cf. the panel structure)
- Improve the application writing skills of our top young researchers (ERC application as “the model application”)
- Hidden whys:
  - anti-procrastination
  - spreading knowledge about ERC and its requirements especially to heads of unit

UH’s ERC Workshops (cont.)

1. Intro: ERC application
2. General training (currently outsourced to consultants)
3. Research proposal idea & comments also from a senior scientist
4. Budgeting + CV + Early achievement track record
5. Small group meeting on B2 – the long research plan (15p.)
6. Small group meeting on B1 – the short research plan (5p.)
7. How to write the abstract

+ individual meeting 3-4 weeks before the deadline

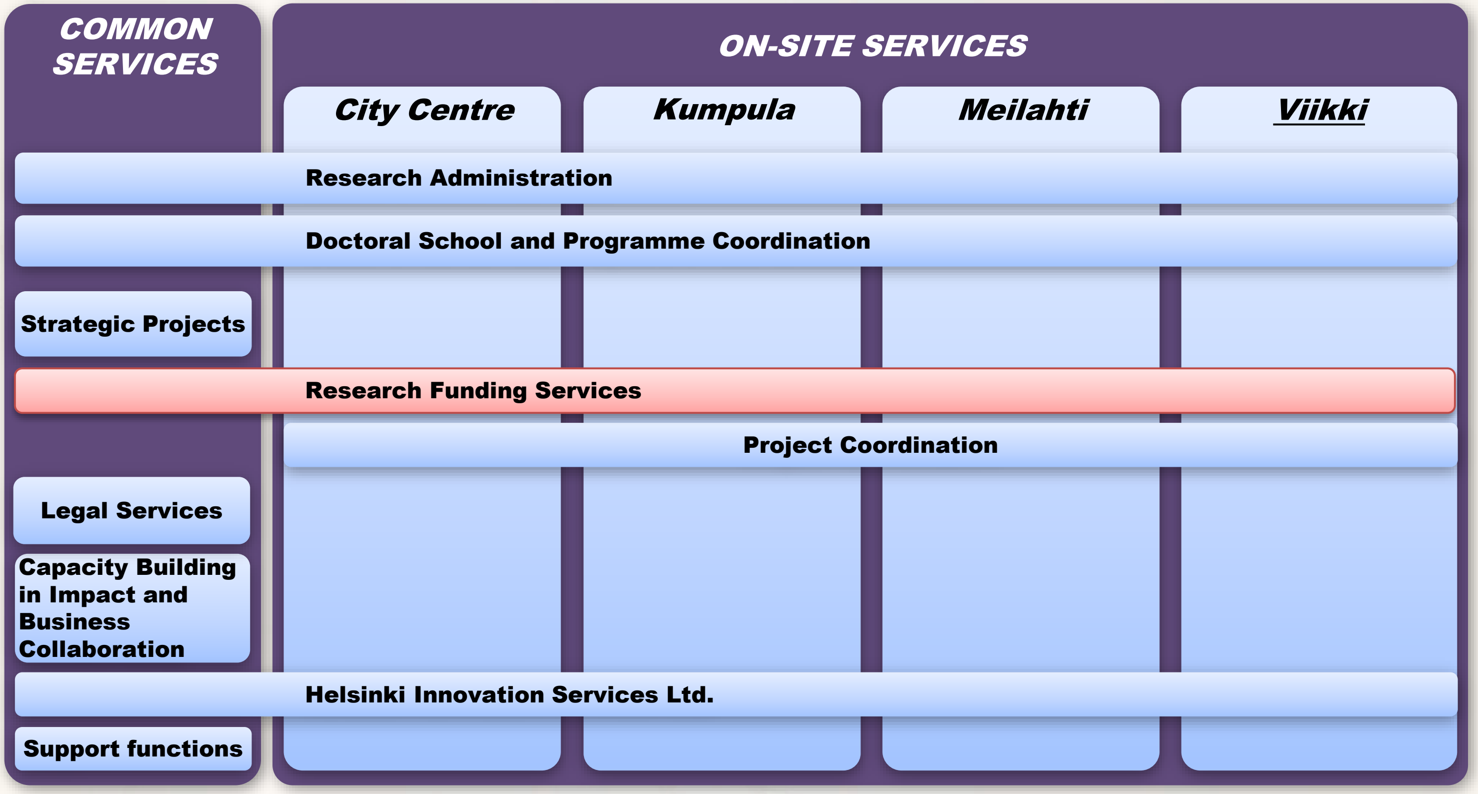
+ Additional interview trainings: UH and Academy of Finland

UH’s ERC Workshops (cont.)

EXPERIENCES / BENEFITS

- Group dynamics support the writing process
- Intermediate deadlines
- Improves application writing skills generally as well
- Positive feedback:
  - ”I feel that this ERC workshop really worked well in my case […] I also first time understood how much it helps that many people are reading the application and that it really gets better by re-writing it again and again”

UH Research Services



COMMON SERVICES

ON-SITE SERVICES

City Centre

Kumpula

Meilahti

Viikki

Research Administration

Doctoral School and Programme Coordination

Strategic Projects

Research Funding Services

Project Coordination

Legal Services

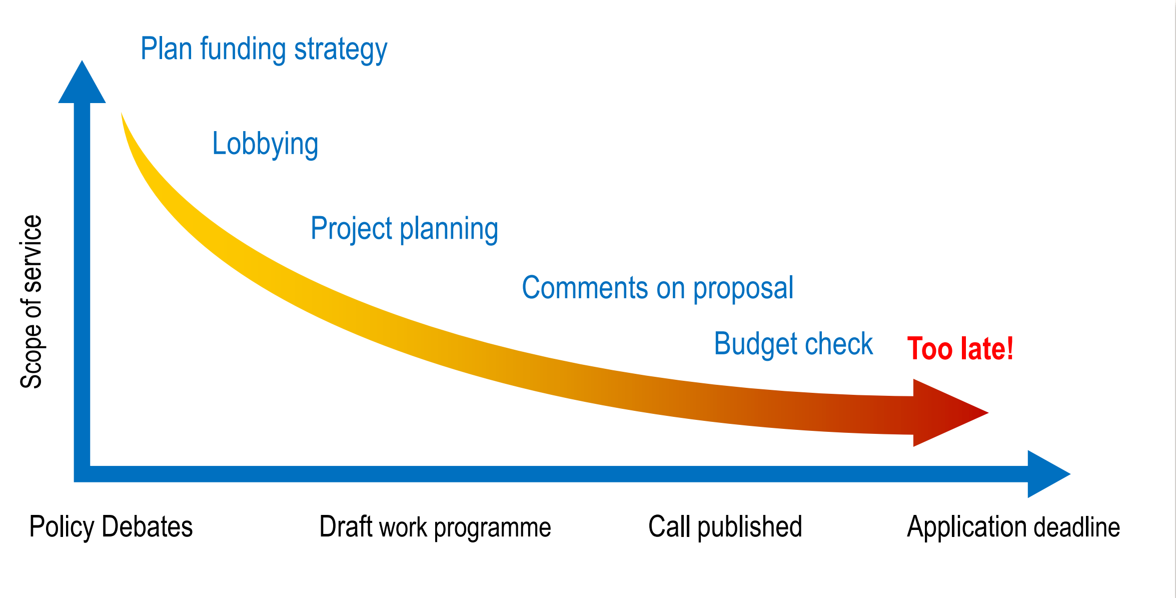
Capacity Building in Impact and Business Collaboration

Helsinki Innovation Services Ltd.

Support functions

UH Research Services

- Plan and contact us **early.** We can not guarantee service with less than **2 weeks** notice.
- Services depend on time left before the deadline:


Plan funding strategy
Lobbying
Project planning
Comments on proposal
Budget check
Too late!
Scope of service
Policy Debates
Draft work programme
Call published
Application deadline

THANK YOU!

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