The European Research Council and Informatics: Situation and Perspectives

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ERC President

European Commission
Horizon 2020
European Union funding
for Research & Innovation

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Overview

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- *A quick review of the European Research Council*
- *Informatics at ERC in FP7*
- *Challenges and Perspectives*
- *EU Regulation on Personal Data Protection*

A Quick Overview of ERC

What is the European Research Council?

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A **bottom-up, individual-based, pan-European competition** with **host institution** in **EU** or **Associated Countries**.

Strategy

- Support for **individual** scientists
- **International** peer-review
- **No predetermined subjects** (bottom-up)
- Support for **frontier research** in **all fields of science and humanities**
- Look for **high gain/high risk ambitious projects**

Legislation

- Scientific governance by an independent 22-member **Scientific Council**, which has **full authority** over **funding** and **evaluation**
- Support by the **ERC Executive Agency** (autonomous)
- Only criterion: **quality of research** aiming for **excellence**

ERC Structure

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The European Commission

- **Provides financing** through the EU framework programmes
- **Guarantees autonomy of the ERC**
- **Assures the integrity and accountability of the ERC**
- **Adopts annual Work Programmes** as established by the Scientific Council

The ERC Scientific Council

- **22 active researchers** proposed by an independent identification committee
- **Appointed by the Commission** (4 years, renewable once)
- **Establishes overall scientific strategy;** annual work programmes (incl. calls for proposals, evaluation criteria); peer review methodology; selection and accreditation of experts
- **Controls quality of operations and management**
- **Ensures communication with the scientific community**

The ERC Executive Agency

- **Executes annual Work Programme** as established by the Scientific Council
- **Implements calls for proposals** and provides information and support to applicants
- **Organises peer review evaluation**
- **Establishes and manages grant agreements**
- **Administers scientific and financial aspects** and follow-up of grant agreements
- **Carries out communications activities** and ensures information dissemination to ERC stakeholders

ERC Grant Schemes

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Starting Grants

starters
(2-7 years after PhD)
up to € 1.5 Mio
for 5 years

Consolidator Grants

consolidators
(7-12 years after PhD)
up to € 2 Mio
for 5 years

Advanced Grants

track-record of significant research achievements in the last 10 years
up to € 2.5 Mio
for 5 years

Proof-of-Concept

bridging gap between research - earliest stage of marketable innovation
up to €150,000 for ERC grant holders

ERC in Horizon 2020

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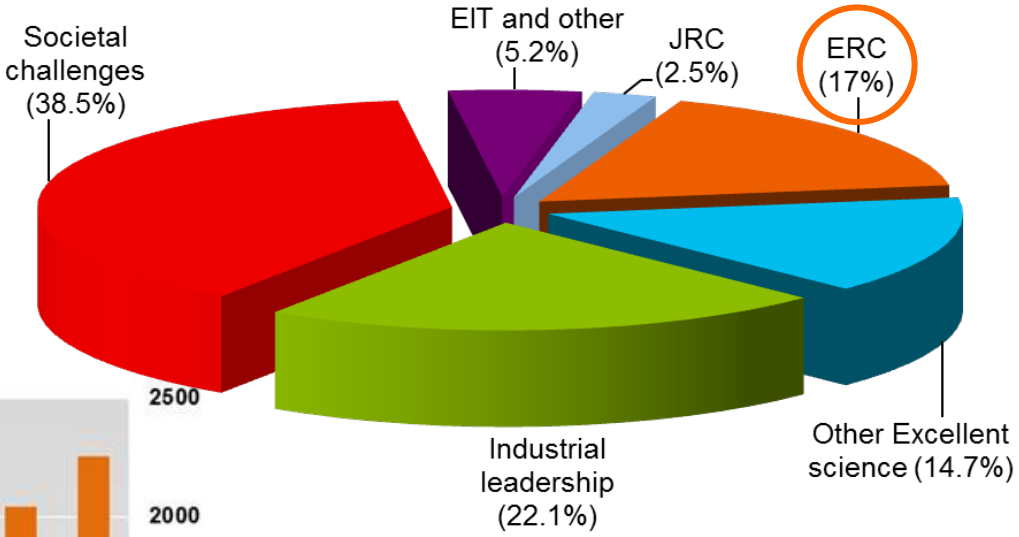

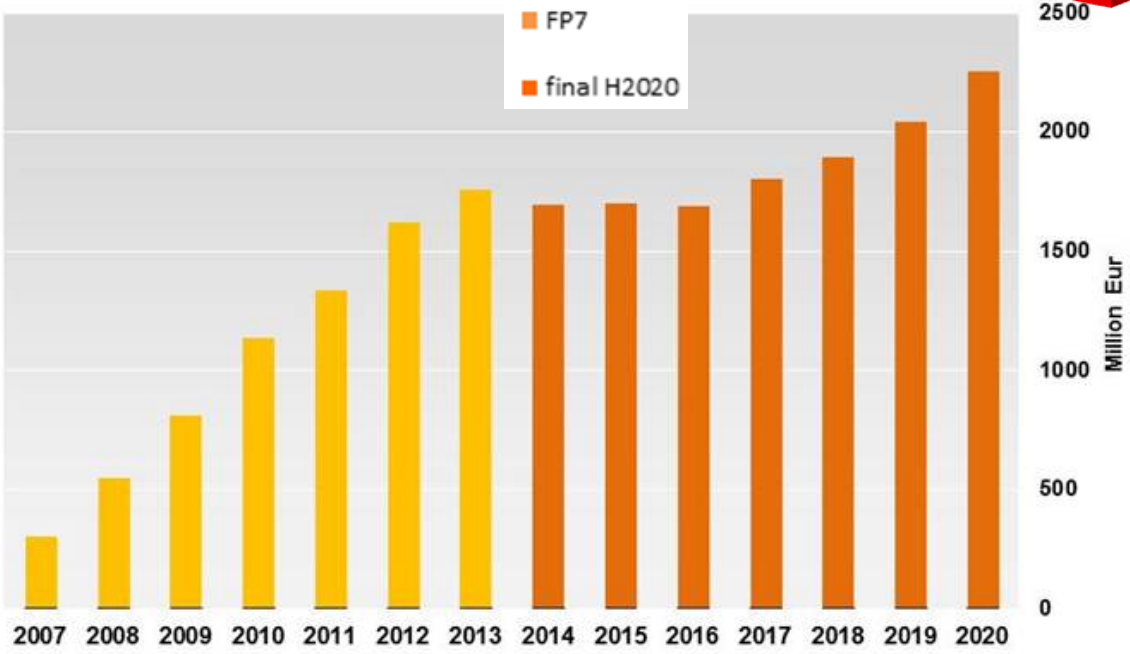

ERC Budget 2014-2020
€ 13 billion

Priority to Young Scientists

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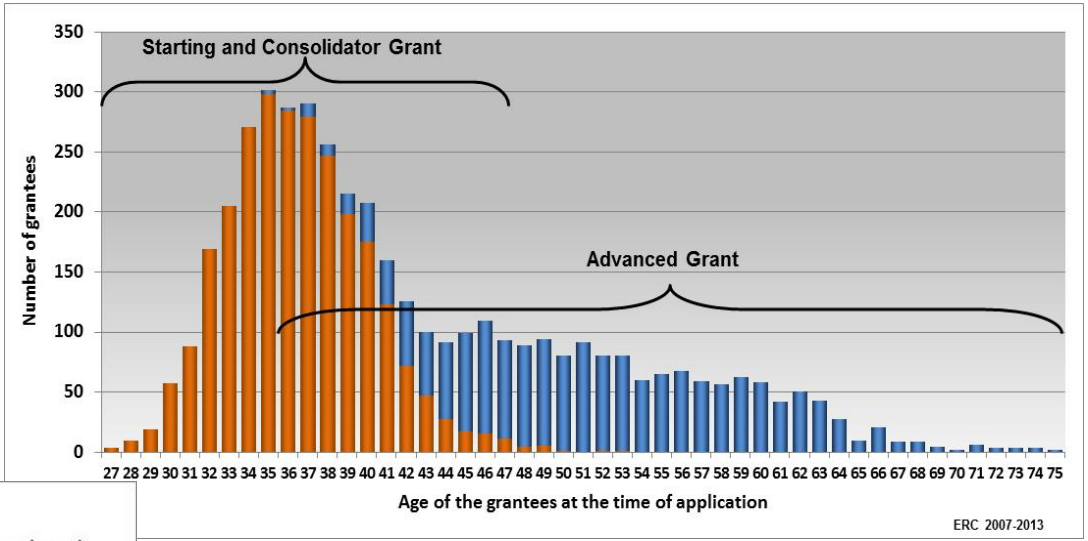
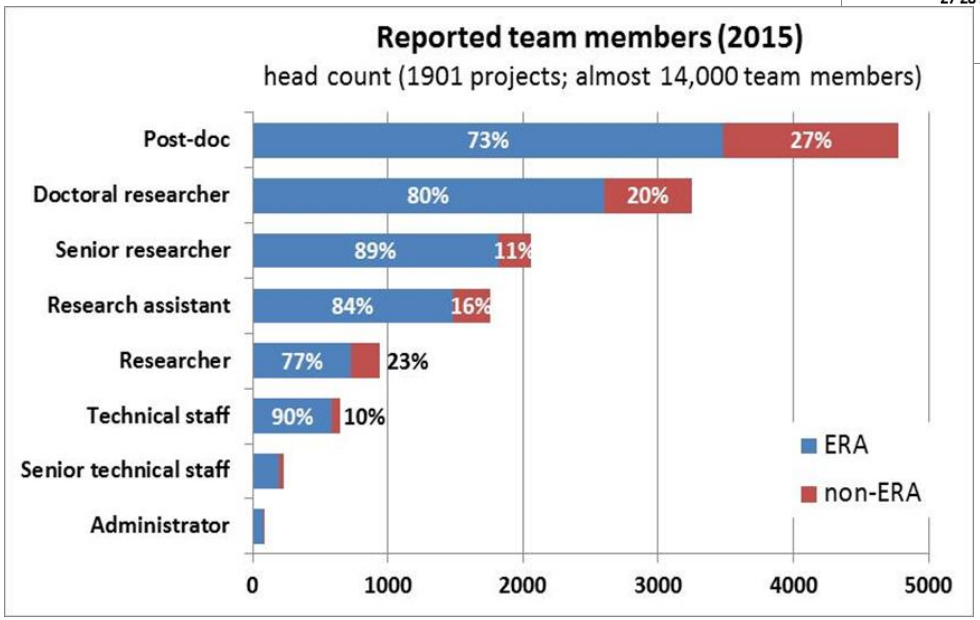
Two-thirds of ERC grants to early-stage Principal Investigators.





+ 22 000 PhD and post-doc researchers working in ERC teams.

Creative Freedom for Individual Grantees

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ERC offers independence, recognition & visibility

- to work on a research topic of **own choice**, with a team of **own choice**
- to gain true **financial autonomy** for 5 years
- to negotiate with the host institution the **best conditions** of work
- to attract **top team members** (EU and non-EU) **and collaborators**
- to move with the grant to any place in Europe if necessary (**portability of grants**)
- **to attract additional funding and gain recognition;** ERC is a quality label

After 8 Years of Existence… A Success Story

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- Highly recognised by the research community
- Over **4 300** top researchers funded during **FP7** (2007-2013), among which **218** in Informatics
- **65%** are at an early-career stage
- Other **937** researchers selected in the **2014** calls among which **52** in Informatics
- **66** nationalities represented
- **Highly competitive** (overall success rate tending to **10%**)
- Working in almost **600** different institutions in **32** countries
- **50%** of grantees in **50** institutions : *"Excellence attracts excellence"*
- **Benchmarking** effect: impact on national programmes and agencies;
- **Efficient and fast grant management**

Informatics at ERC in FP7

ERC Evaluation Panel Structure

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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

ERC Applications in Informatics in FP7

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PE6	Evaluated	Funded	Success Rate
StG	1534	132	8,60%
CoG	194	17	8,76%
AdG	525	69	13,14%
Total	**2253**	**218**	**9,68%**

Informatics at ERC in FP7: Grants

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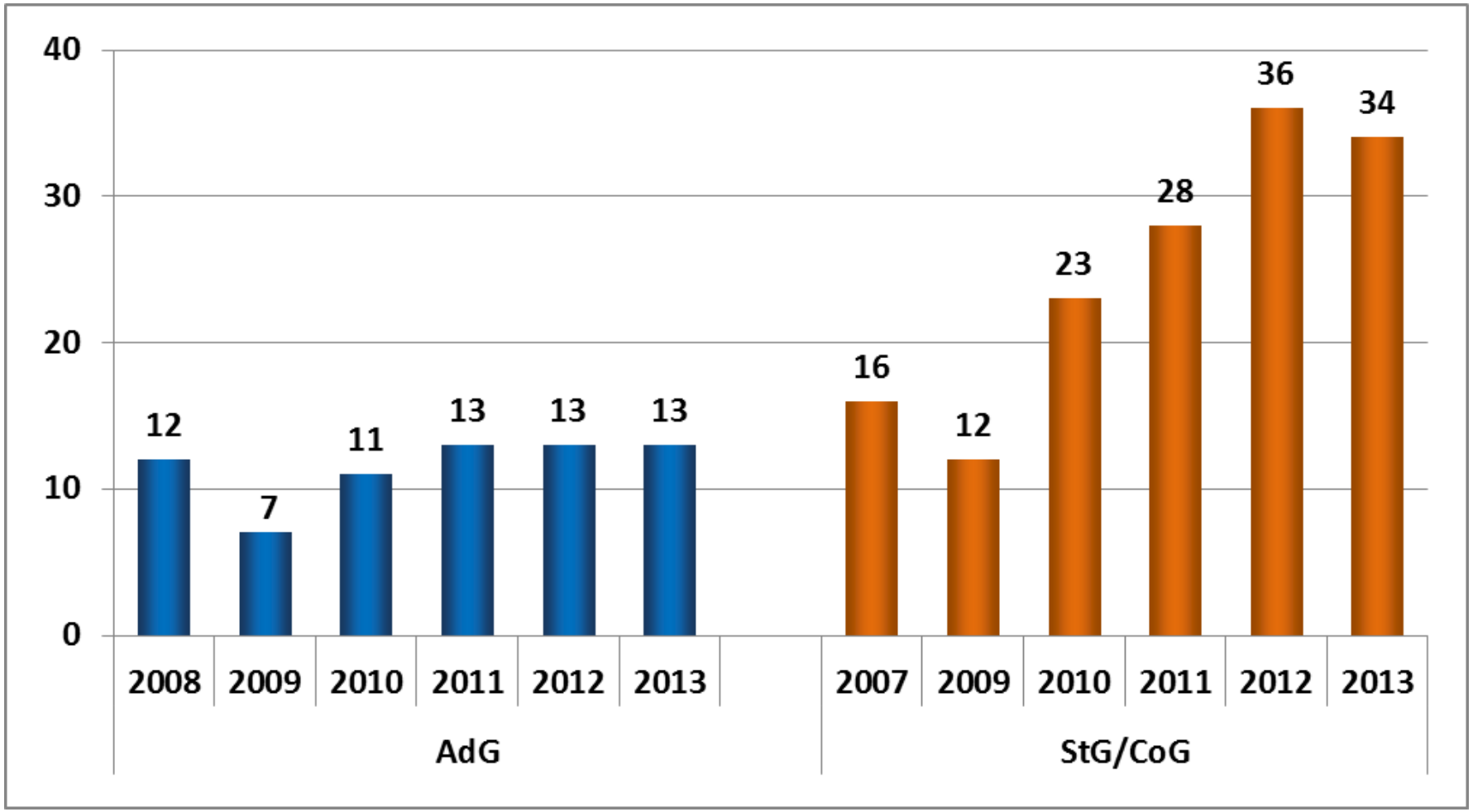
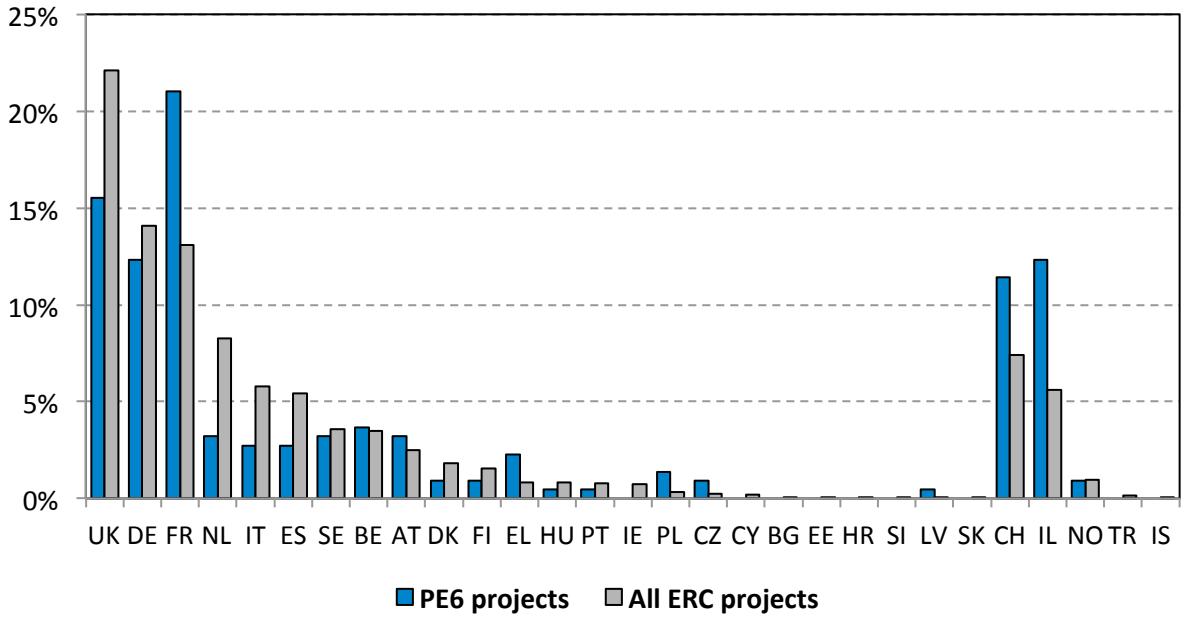


Informatics at ERC in FP7: Where



Host Institution	Country	Projects
French Institute for Research in Computer Science and Automation (INRIA)	FR	25
Swiss Federal Institute of Technology in Lausanne (EPFL)	CH	12
National Center for Scientific Research (CNRS)	FR	10
Technion Israel Institute of Technology	IL	9
University of Oxford	UK	9
Swiss Federal Institute of Technology Zurich (ETH Zurich)	CH	8
Bar-Ilan University	IL	5
Institute of Science and Technology Austria	AT	5
University of Edinburgh	UK	5
Imperial College	UK	4
Technische Universität München	DE	4
Tel Aviv University	IL	4
University of Bristol	UK	4
University of Cambridge	UK	4
Weizmann Institute	IL	4
Hebrew University of Jerusalem	IL	3
Leibniz Universität Hannover	DE	3
Royal Institute of Technology (KTH)	SE	3
Saarland University	DE	3
Technische Universität Darmstadt	DE	3
Université libre de Bruxelles (ULB)	BE	3
University College London	UK	3
University of Athens	EL	3
University of Leuven (KU Leuven)	BE	3
University of Warsaw	PL	3

Informatics at ERC in FP7: Areas

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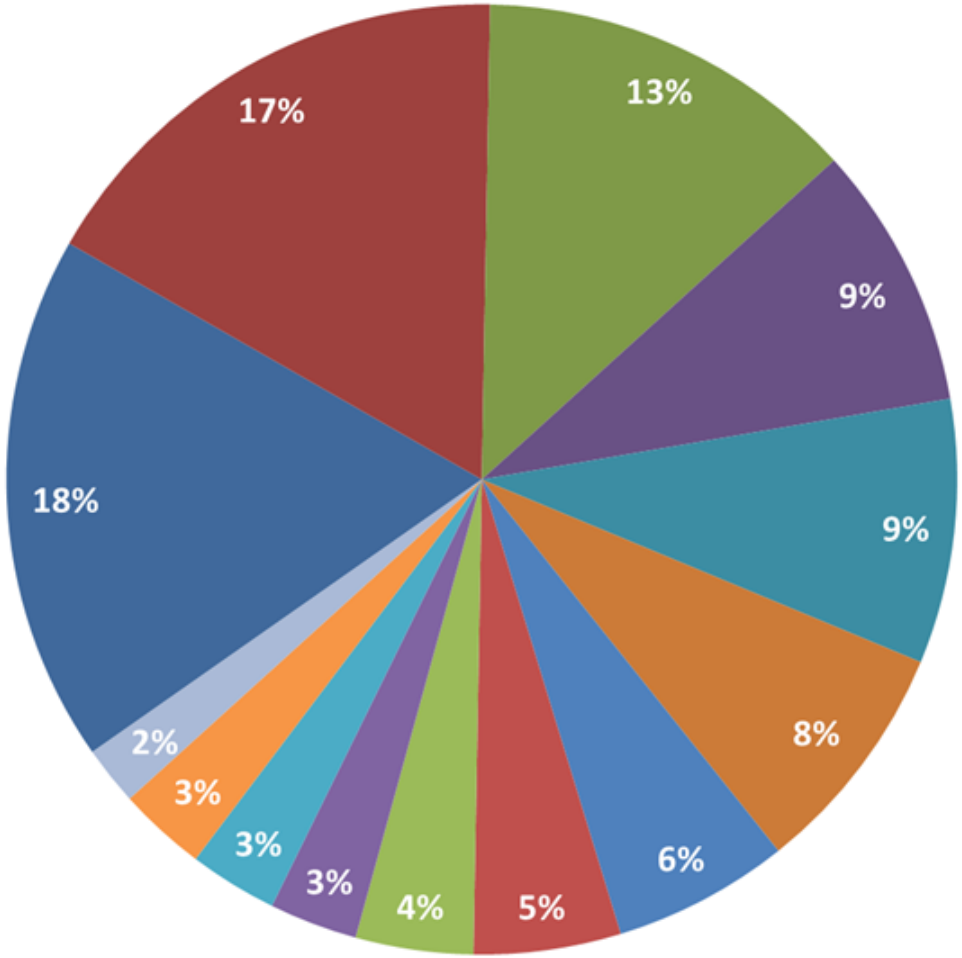

- Theoretical foundations (18%)
- Computational modelling (17%)
- Cryptology, security, privacy (13%)
- Algorithms (9%)
- Computer graphics and vision (9%)
- Software engineering (8%)
- Big data (6%)
- Computing systems (5%)
- Machine learning (4%)
- Artificial Intelligence (3%)
- Human computer interaction and interface (3%)
- Networking (3%)
- Web science (2%)

Informatics at ERC in FP7: Themes

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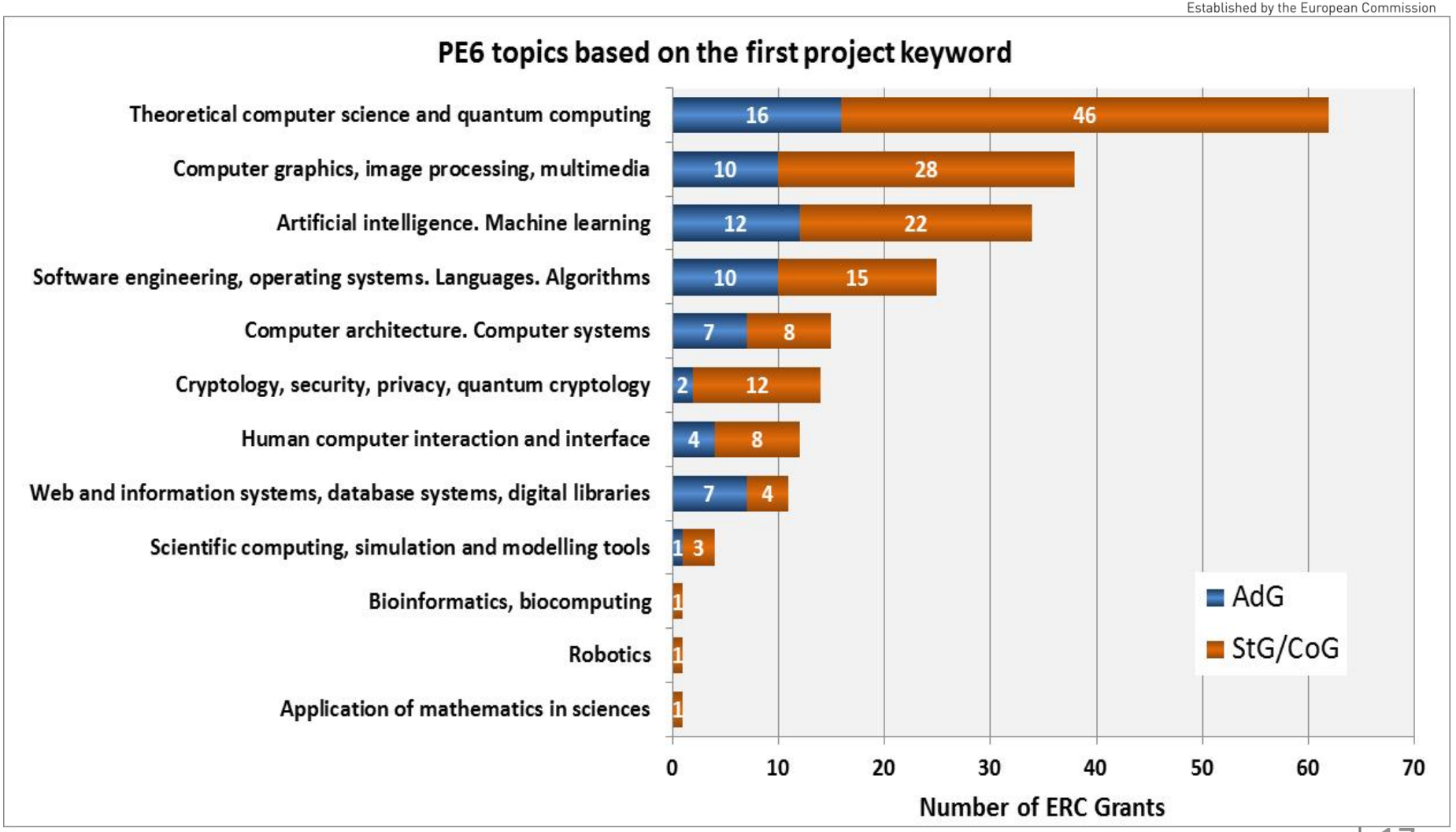

Informatics at ERC in FP7: Descriptors

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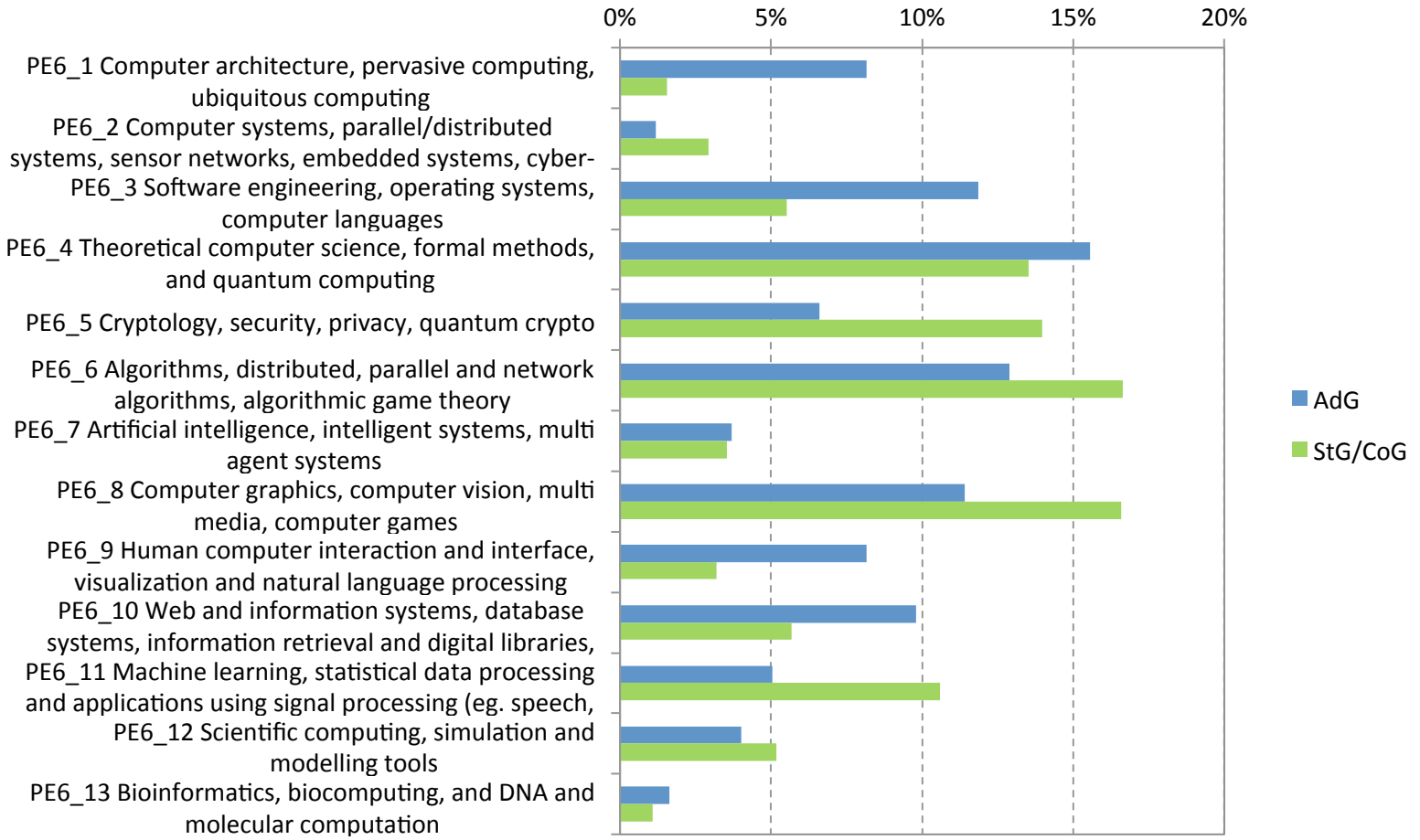

Informatics at ERC in FP7: Cross-panel

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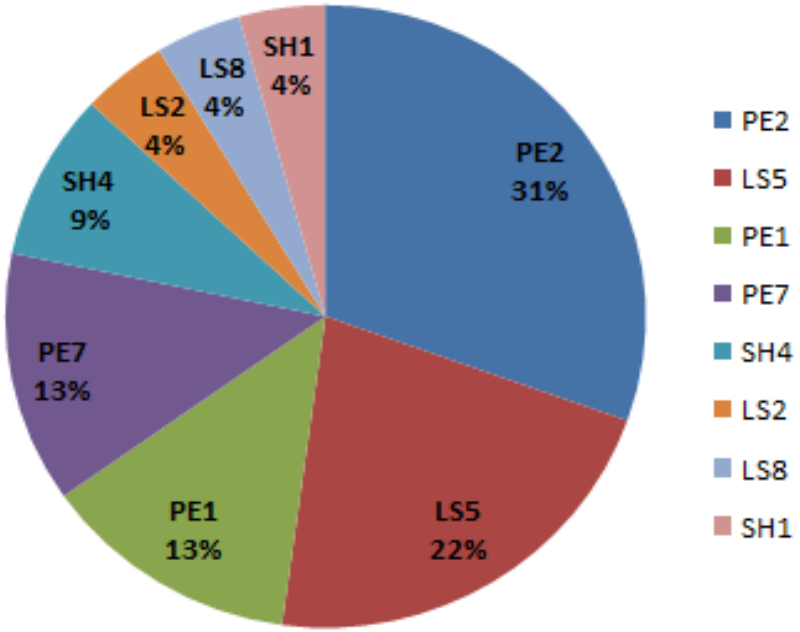

Secondary panels selected by projects funded by the PE6 panel

Panel	Title
PE2	Fundamental Constituents of Matter
LS5	Neurosciences and Neural Disorders
PE1	Mathematics
PE7	Systems and Communication Engineering
SH4	The Human Mind and Its Complexity
LS2	Genetics, Genomics, Bioinformatics and Systems Biology
LS8	Evolutionary, Population and Environmental Biology
SH1	Markets, Individuals and Institutions

Informatics at ERC: External Keywords

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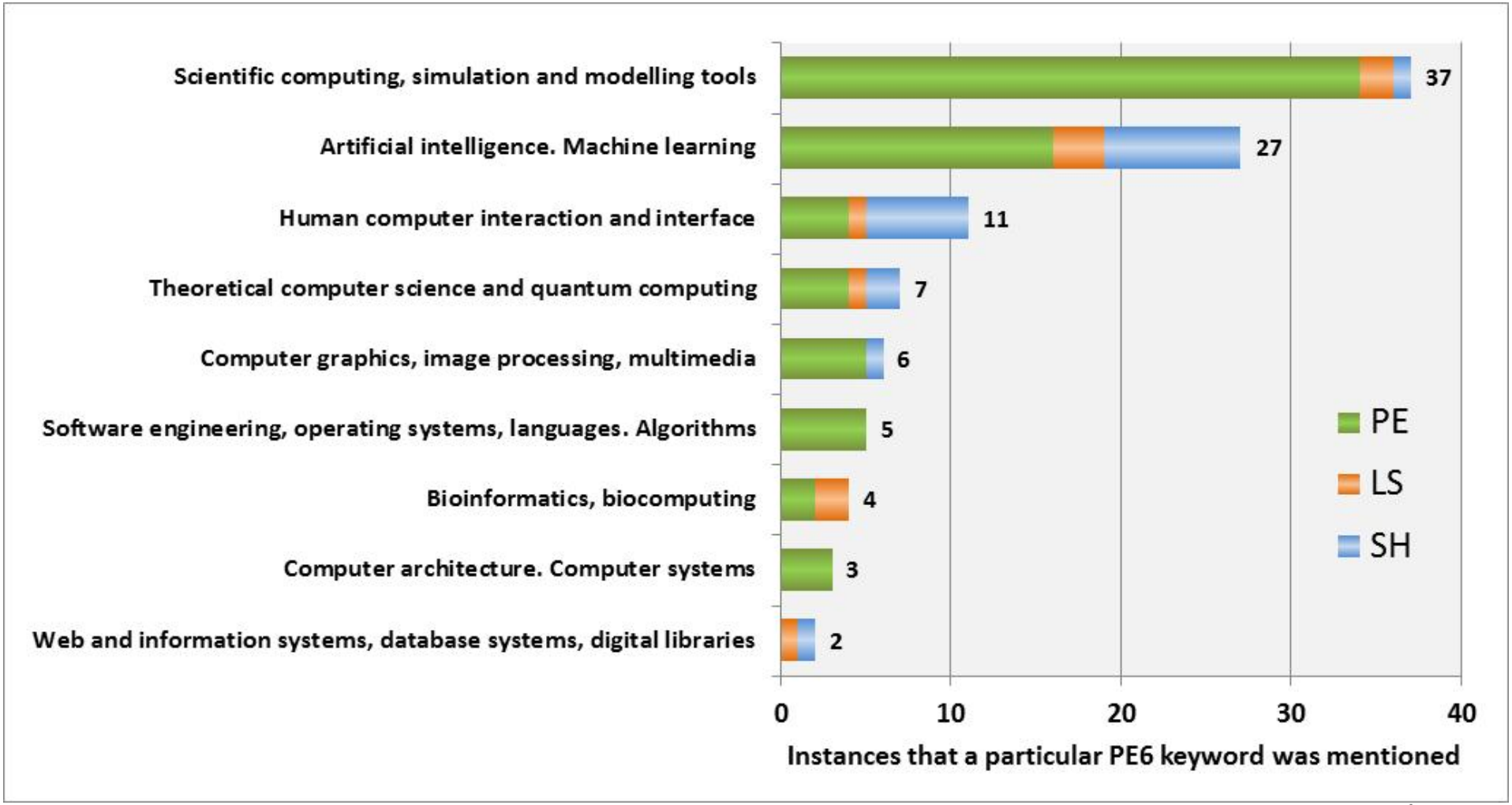

Challenges and Perspectives

Challenges

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- *How to deal more properly with interdisciplinarity?*
- *How to enhance the impact of academia on innovation?*
- *How to extend data management and sharing capacities, in particular in domains where these practices are not yet properly established?*
- *How can scientists ensure that the needs of research are better taken into consideration in the European debate on personal data protection?*

Dealing Better with Interdisciplinarity

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Key issues

- Whole evaluation process is founded on the capabilities/calibre of the evaluators/reviewers and their wide understanding of scientific developments.
- Criteria and guidelines matter for the evaluation process
- Multi- or interdisciplinarity is a means to promote scientific progress, not an end in itself.

Improvement considered by ERC

- Better guidelines, training for reviewers
- Consider inviting out-of-panel/remote experts to the panel meeting when interdisciplinary proposal reviews are discussed to give them an equal weight.
- Consider reintroducing dedicated interdisciplinary panel.
- Continue to collect statistics on the evaluation outcomes by type of research uni- vs. interdisciplinary or uni- vs. cross-panel proposals, but add data on the 'narrow' vs. 'wide' cross-panel reviews.
- Develop fruitful relations with Knowledge Innovation Center ICT (KIC Digital)
- Contemplate partnership with European Business Angels Network (EBAN)

Enhancing the Impact on Innovation

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ERC Proof of Concept

- to help ERC grant-holders to bridge the gap between their research and the earliest stage of a marketable innovation
- supporting grant-holders during the pre-demonstration
- up to 150,000 Euro per grant

	2011	2012	2013	TOTAL in FP7
Submitted	151	143	292	586
Evaluated*	139	120	279	538
Funded	51	60	67	178

* withdrawn and ineligible proposals not taken into account

Enhancing the Impact on Innovation: Example

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Tactile displays of the future to feel information

ERC project **DHaptics** explores the future possibilities of touchable technology that will allow us to fully interact with the information we are accessing. The team are developing displays we do not have to touch but that we could feel and experience, ranging from touchless, floating displays to sensory bubbles. The technology uses ultrasound to project sensations through the air and directly onto the user. to help ERC grant-holders to bridge the gap between their research and the earliest stage of a marketable innovation.

Ultrahaptics™

Set up to commercialise the research emerging from the ERC-funded project. By end of 2014, Ultrahaptics had secured a £600,000 seed round of investment. The tranched financing was led by **IP Group** plc and one of its managed funds.

Research Data Management and Sharing

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Some conclusions

Extensive data sharing and Open Data policies have a potentially transformative impact on scientific research. However, current big data collections are extremely partial and difficult to re-use by outsiders.

Effective data sharing requires:

- No one-size-fits-all solution, very different needs and practices in different disciplines;
- Shift in research ethos and institutional structures: appropriate acknowledgment and attribution of donation and curation efforts;
- Promoting data curation as integral part of research, since being involved in developing databases is key to effective data re-use;
- Investing in *long-term* data infrastructures *across the globe*, as well as venues to coordinate and continuously update common standards.

erc.europa.eu/media-and-events/events/erc-workshop-research-data-management-and-sharing

EU Regulation on Personal Data Protection

EU Regulation on Personal Data Protection

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General Data Protection Regulation – Key issues

- Directive 95/46/EC contains provisions for processing of personal data for scientific research, but MS shall implement their concrete application and legislate the possible limitations
- Divergences create a complex, fragmented and legally uncertain landscape of national laws, as well as high administrative costs
- Regulation would introduce a single set of rules on personal data protection = better harmonised EU legal framework
- 'One-stop-shop' for data controllers (industry, academia, etc) and data subjects to deal with single Data Protection Authority (DPA) and to foster cooperation amongst DPAs and with the European Data Protection Board

EU Regulation on Personal Data Protection

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General Data Protection Regulation – Milestones

- Commission proposal January 2012
- Parliament's first reading March 2014
- Council proceeded chapter by chapter via partial general approaches subject to conditions that 'nothing is agreed until everything is agreed'
- Overall agreement between Member States = "general approach" reached in June 2015
- Trilogue started in June 2015 - expected to be finalised during LU Presidency
- Entry into force 2 years after adoption

EU Regulation on Personal Data protection

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General Data Protection Regulation – Key Issues for Research

- Harmonised legal framework needed for cross-border research allowing processing of personal data without consent; status of Article 6.2 to be clarified
- Parliament's provision: only Member State law could provide for exemptions from consent for research of high public interest puts threshold too high
- Council's amendments introducing strong reliance on the Member States laws risk leading to a backward development in terms of harmonisation
- Value of COM delegated acts to be emphasised to further specify criteria and requirements relevant for research in a harmonised manner
- Allow consent to certain areas of scientific research (Council Rec 25aa)
- Exemptions to be provided to the rights of the data subject in cases where the provision of such rights proves impossible or involve disproportionate efforts

Open and Upcoming 2016 ERC Calls

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Calendar of upcoming calls*

Calls	Call Opens	Deadline(s)	Budgets million EUR (estimated grants)
Starting Grant (ERC-2016-StG)	29 Jul 2015	17 Nov 2015	485 (335)
Consolidator Grant (ERC-2016-CoG)	15 Oct 2015	2 Feb 2016	605 (335)
Advanced Grant (ERC-2016-AdG)	24 May 2016	1 Sep 2016	540 (235)
Proof of Concept Grant (ERC-2015-PoC)	22 Oct 2015	16 Feb 2016 26 May 2016 4 Oct 2016	20 (130)

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