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Some Reflections on European Collaboration in Research

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University of Southampton

- Member of the Russell Group of research-intensive UK universities
- Ranked in top ten in the Russell Group for research quality
- Annual turnover approaching £450m
- More than 22,000 students and 5,000 staff
- 73rd in QS world rankings 2012
- Strong culture of enterprise, innovation and partnership working

Examples of Partners

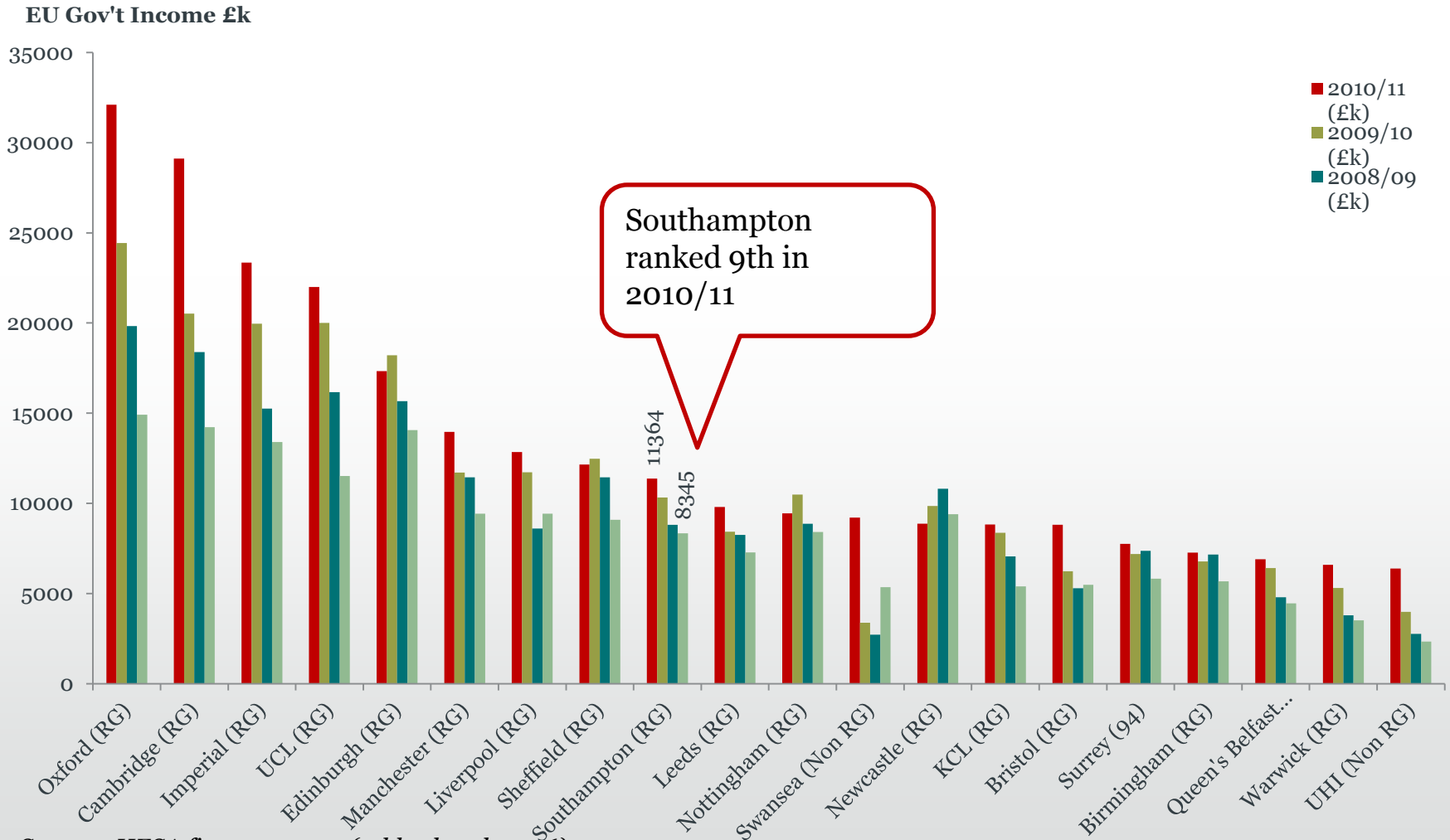
Partnership with Lloyd's Register: A New Maritime Institute

- £116M (€135M) agreement
- New building complex on University campus
- A joint institute combining staff from Lloyd's Register and the University of Southampton.
- Approximately 400 staff from Lloyd's Register and 400 staff from the University
- Not just for the University and Lloyd's Register – a centre and focus for the regional and global maritime industry

FP7 at Southampton

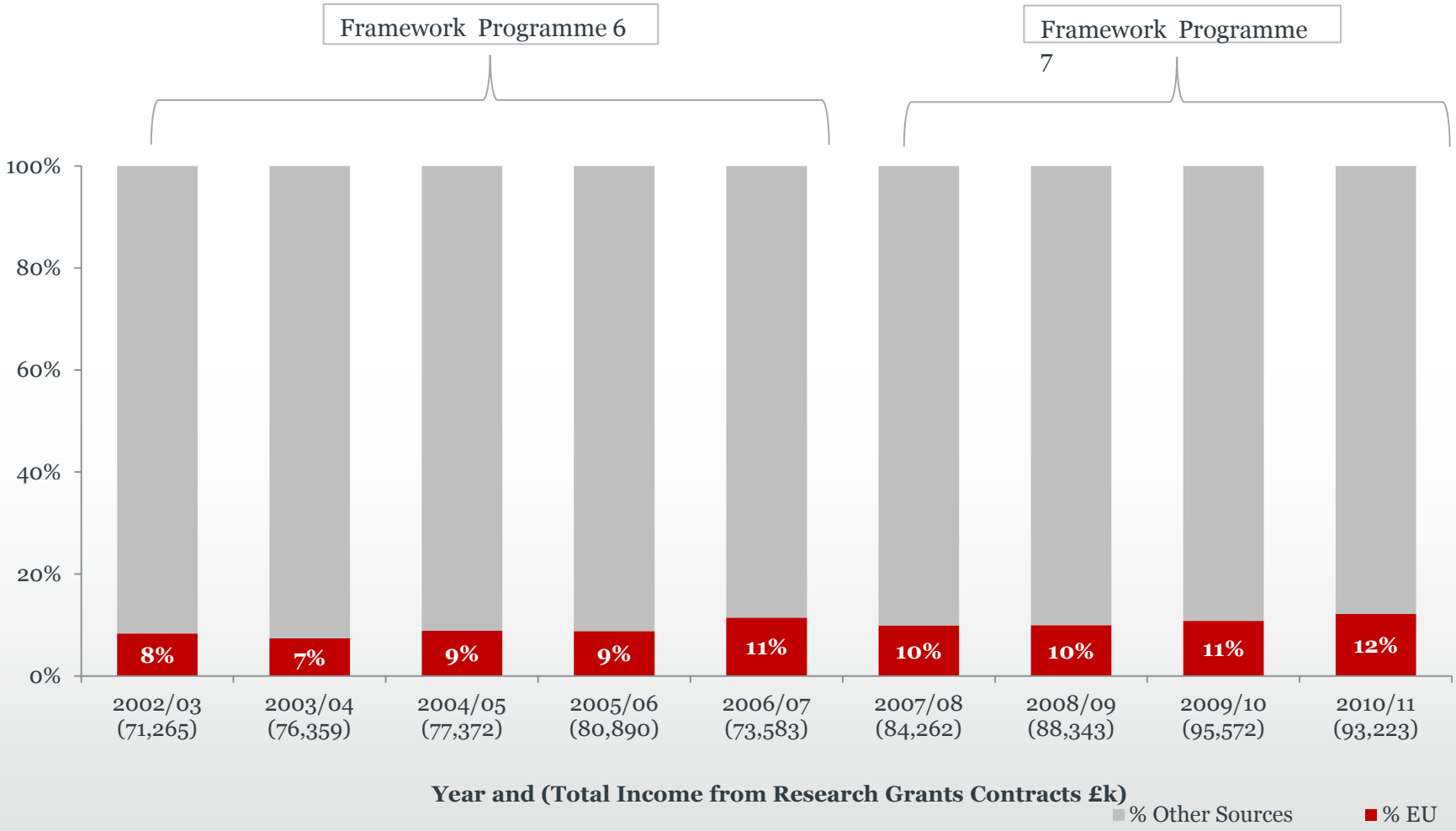
- Ranked 17th of all HEIs for number of FP7 participations (Fourth FP7 Monitoring Report)
- Ranked 9th HEI within UK for research income from EU government (HESE 2010-2011).
- Growing PI recognition of the opportunities and benefits of FP7 funding. Increasing year on year engagement of PIs across broader range of disciplines
- 244 projects (active/negotiation) across 4 pillars, plus JTIs, incl. 13 ERC Projects.

Income from EU Government (£k) - Top 20 HEIs in the UK (2010-11) 2007-08 to 2010-11:



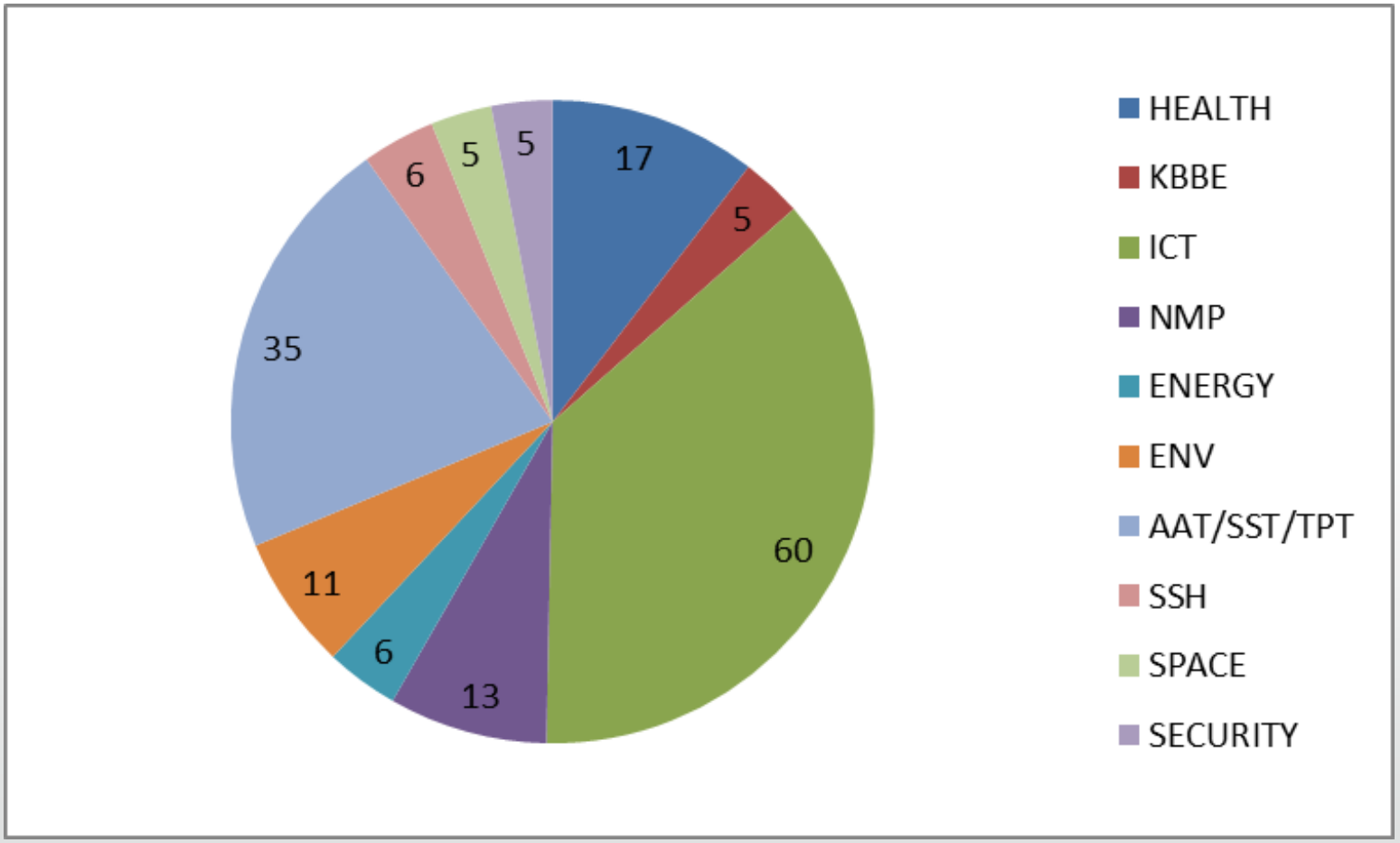
Source: HESA finance return (table 5b, column 6)

Income from EU Government bodies (%) 2002-03 to 2010-11:



Source: HESA finance return (table 5b, column 6)

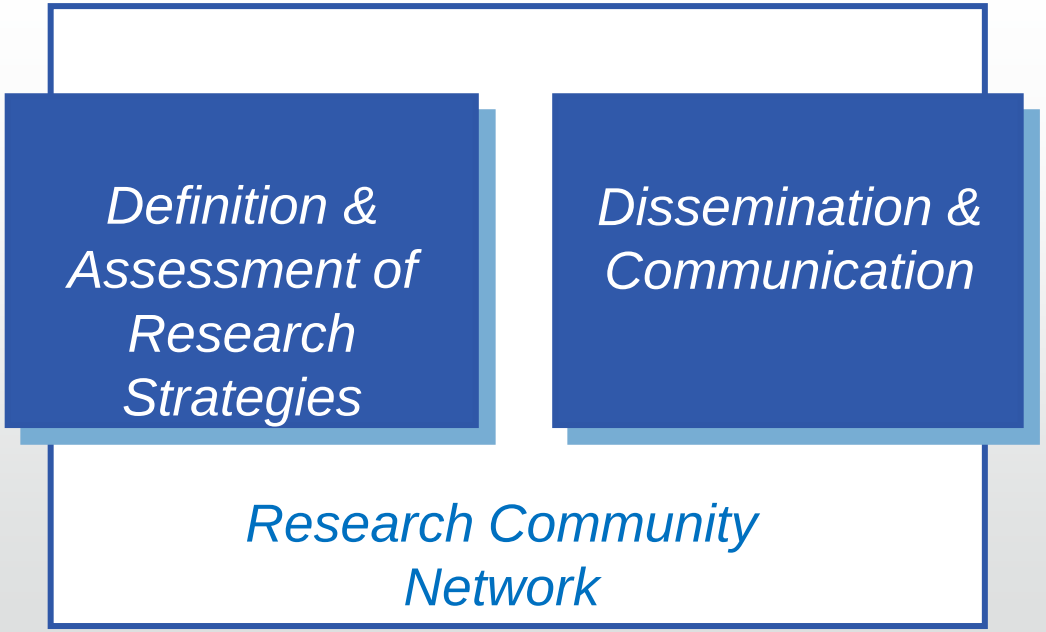
FP7 Cooperation – number of projects



Aviation Noise Research Network

Network active since 1998 through X-Noise, X²-Noise and X³-Noise Coordination Action projects supported by EU funding.

Extended work-programme now in place for 2011 - 2014 period (X-Noise EV)



X-Noise Network 1998-2014

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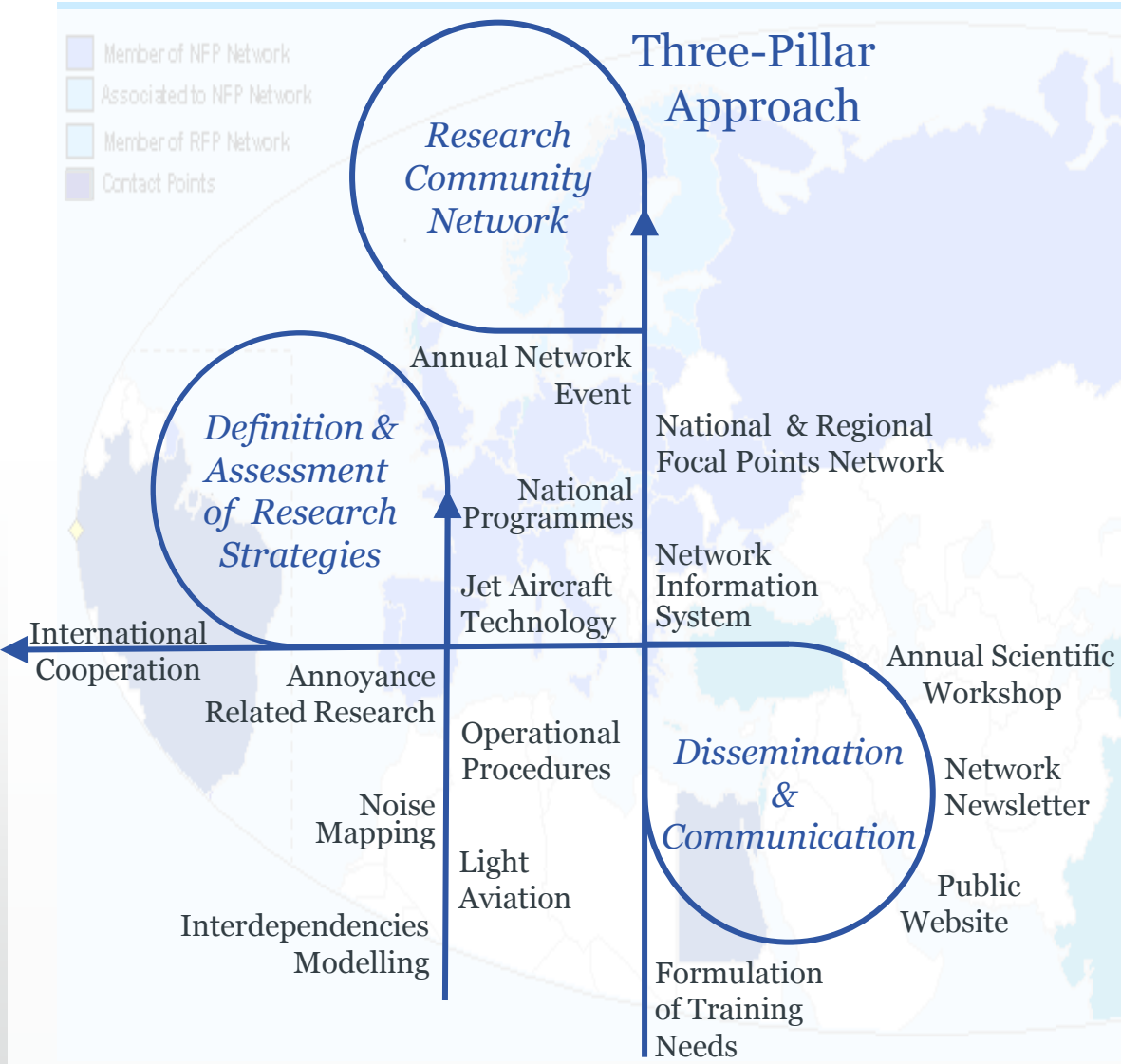

- Expert Committees (Technology, Impacts, Scientific)
- Network of National and Regional Focal Points (FPs)
- Brainstorming/ Stakeholder Seminars (by invitation)
- Open Annual Scientific Workshops (co-organized with CEAS)
- Annual Full Network Meeting (with Committee members and FPs)
- Local/regional events (organized by FPs)
- Internal calls for new ideas

Silence(R): power-plant noise reduction technologies

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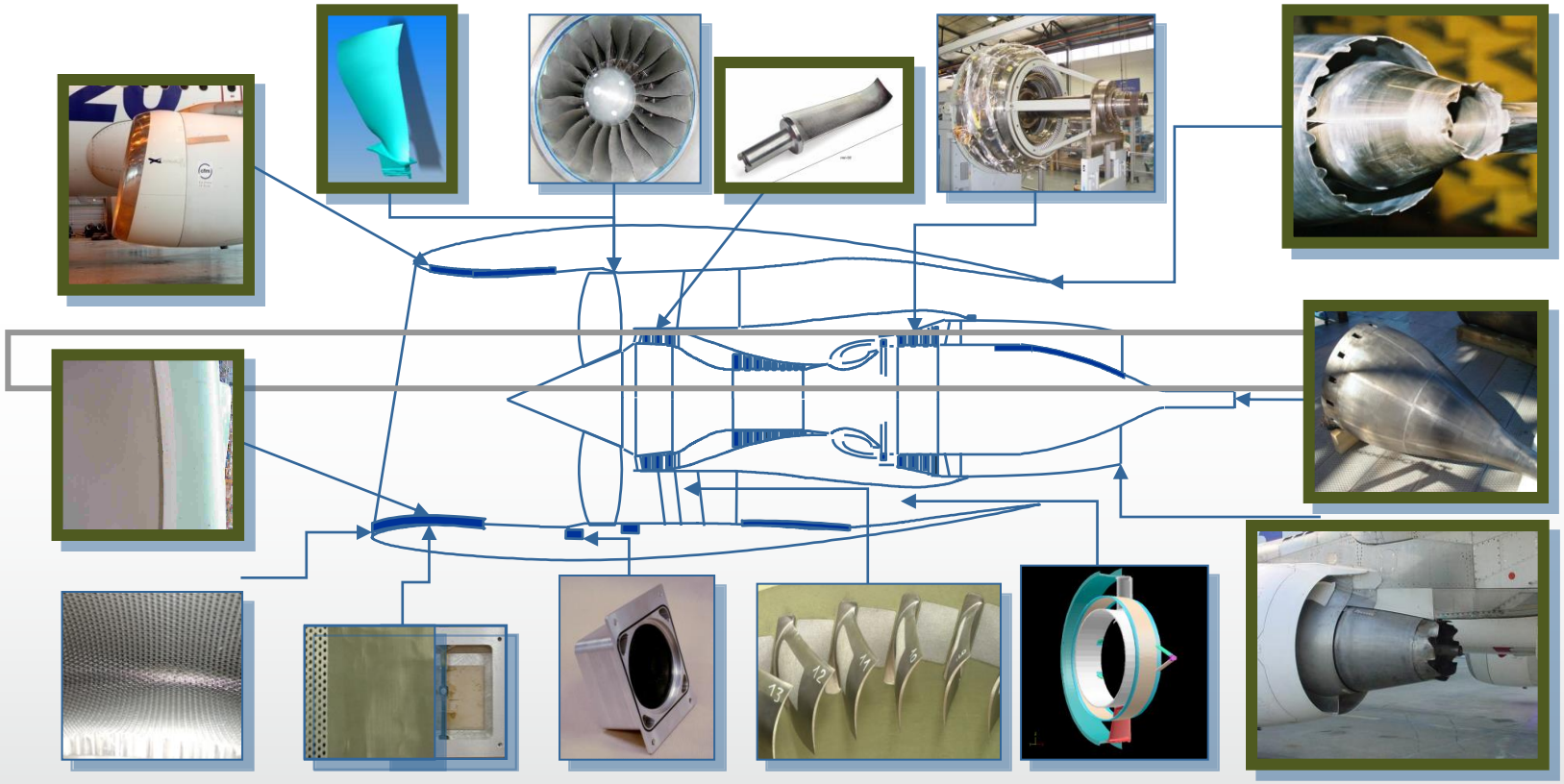

Silence(R): airframe noise reduction technologies

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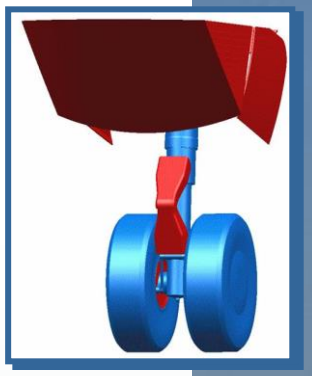

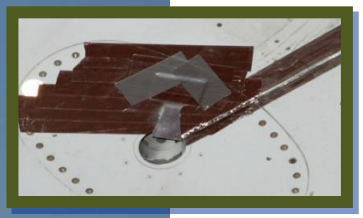

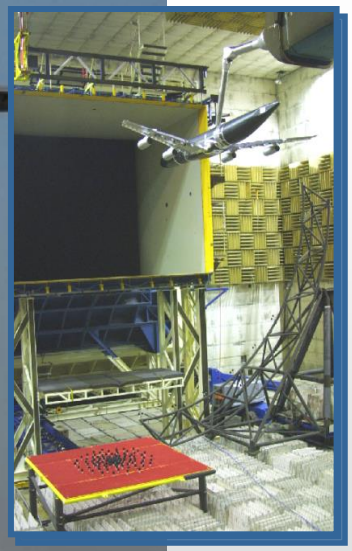

LANDING GEAR:

- Add-on Treatment
- Low Noise Design

HIGH LIFT DEVICES:

- Add-on Treatment
- Low Noise Design

FP7 SST - FOUL-X-SPEL project

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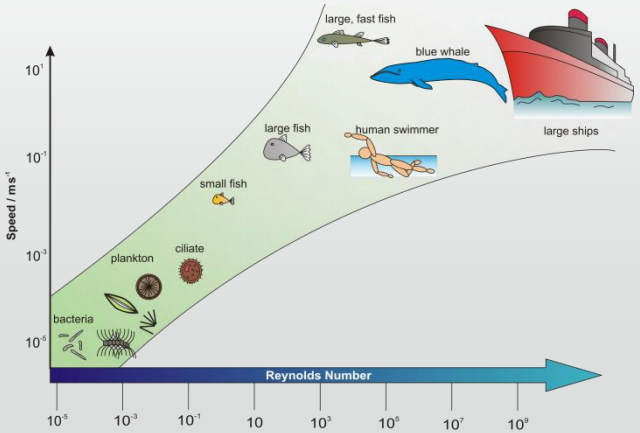
Environmentally Friendly Antifouling Technology to Optimise the Energy Efficiency of Ships (10 partners, December 2011 – November 2014)

Marine biofouling is the accumulation of biological material on underwater surfaces, which has plagued both commercial and naval fleets:

- The research concerns the modification of hull coatings, by covalently fixing bioactive molecules providing a non-leaching biocide activity, thus promoting long-term surface protection.

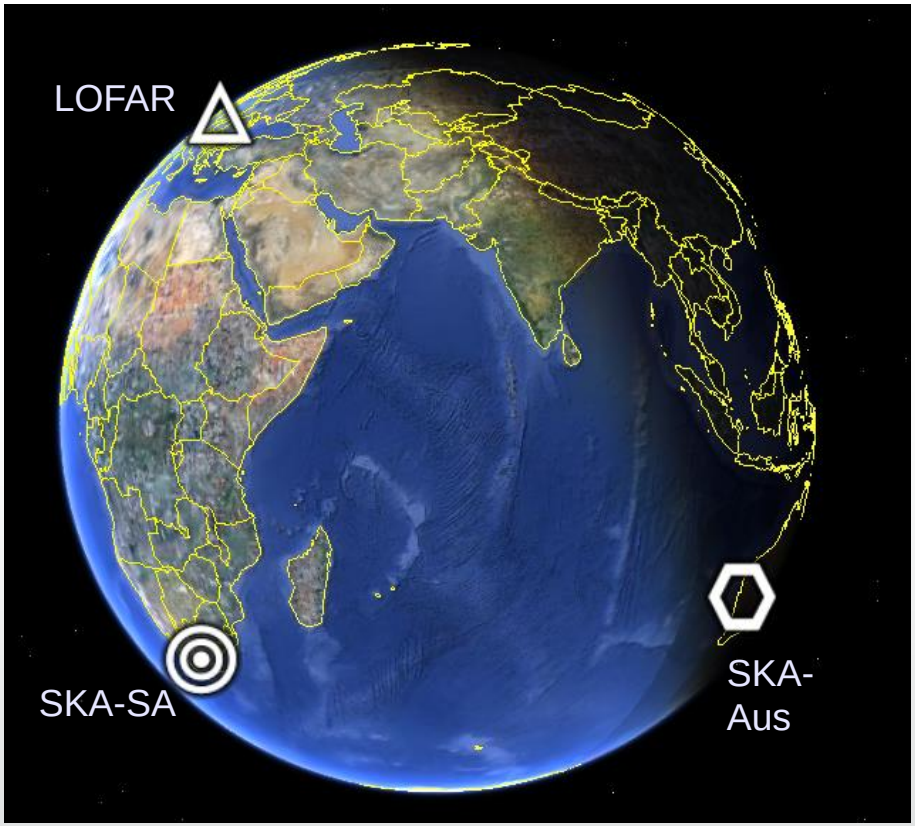
- The new surface coating technology will minimize the surface roughness and improve ship hydrodynamic performance.



4 PI SKY:

Extreme astrophysics with revolutionary radio telescopes

- 3 M Euro ERC grant (Prof Rob Fender, Astronomy)
- Goal is to bring together a new generation of radio telescopes across the globe into an automated network for the detection of transient and explosive astrophysical events



PHASORS

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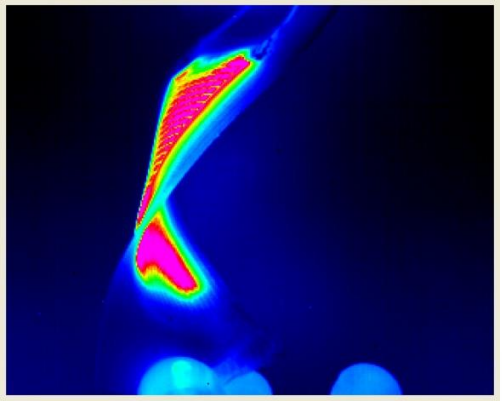
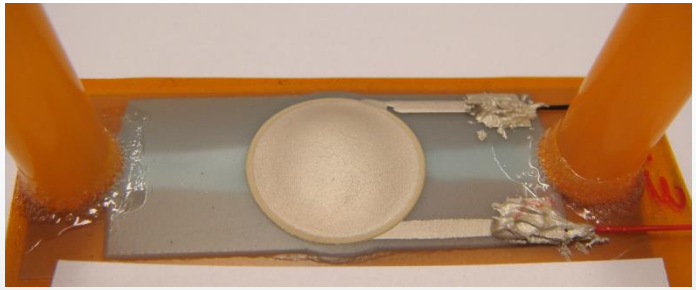
- The PHASORS project targeted the development and applications of fibre based phase sensitive amplifier (PSA) technology in 40Gbit/s broadband core networks
- Demonstration of enhanced optical data transmission systems using PSA technology – higher capacities, extended reach, longer amplifier spans etc.
- Extremely successful project: achieving all project objectives (and more), and described by the EU as the model project.

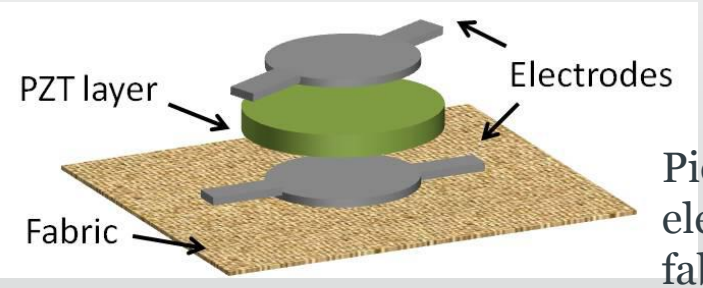
MICROFLEX
Microtechnology in Smart Fabrics

IR image of a printed textile heater





Flexible printed micropump on Kapton



Piezoelectric element on fabric

- EU FP 7 funded Large Scale IP coordinated by Southampton
- 4 Year project, 7.7 M€ Budget 13 Partners, 9 countries.
- Objective: develop printed microsystems on fabrics to realise e-textiles.
- New functional inks developed (e.g. piezoelectric, electroluminescent).
- Developed a process for realising 3D structures e.g. micropump.
- Some inks commercially available through Smart Fabric Inks Ltd. (Southampton spin off).

Horizon 2020 proposals (€m)

Priority 1. Excellent science	
European Research Council Frontier research by the best individual teams	13 268
Future and Emerging Technologies Collaborative research to open new fields of innovation	3 100
Marie Curie actions Opportunities for training and career development	5 572
Research infrastructures (including e-infrastructure) Ensuring access to world-class facilities	2 478
Priority 2. Industrial leadership	
Leadership in enabling and industrial technologies (ICT, nanotechnologies, materials, biotechnology, manufacturing, space)	13 781
Access to risk finance Leveraging private finance and venture capital for research and innovation	3 538
Innovation in SMEs Fostering all forms of innovation in all types of SMEs	619 complemented by 6 829

Horizon 2020 proposals (€m)

Priority 3. Societal challenges	
Health, demographic change and wellbeing	8 033
Food security, sustainable agriculture, marine and maritime research & the bioeconomy	4 152
Secure, clean and efficient energy*	5 782
Smart, green and integrated transport	6 802
Climate action, resource efficiency and raw materials	3 160
Inclusive, innovative and secure societies	3 819
Role of the EIT and JRC in Horizon 2020	
European Institute Technology (EIT) Combining research, innovation & training in knowledge and Innovation Communities	1 360+ 1 440*
Joint Research Centre (JRC)** Providing a robust, evidence base for EU policies	1 962

Engagement in H2020

- Welcome continuation of ERC and expansion of FET, need focus on excellence.
- Strong expertise in each of the societal challenges
  - Implementation of more open topics
- Strong expertise in 'Key Enabling Technologies' areas in particular ICT, Nanotechnologies, Biotechnology and Space
  - Implementation and accessibility??
- Synergy with structural funds?

H2020 concerns

- Long term financial sustainability
  - FP7 Southampton used 'simplified indirect' – closer to meeting our full economic cost (FEC) than FP6, but still a shortfall
  - H2020 – even at 100% reimbursement rate and inclusion of VAT, the 100+20% model will recover less of our costs
- Exclusion – loss of access to excellence
  - H2020 finance model likely to prevent us from participation in projects at <100% reimbursement.

Conclusions

- The University of Southampton is an enthusiastic participant in EU research programmes and will continue to be so.
- We welcome the prospect of Horizon 2020, but have some concerns regarding the financial models proposed.