TALLINN UNIVERSITY OF TECHNOLOGY

Lessons from the ERA Chair competition

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Need in society

- **Chemistry** of the XXI century has yielding new generations of products with enhanced properties leading to new applications in many industrial sectors and increasing eco-efficiency, what brings up new challenges related to **sustainable development** of society.
- It can be achieved only by means of green chemistry – **benign design in chemistry** with minimal waste instead of remediation.
- In addition to new technologies green chemistry involves protection of environment, eco-efficiency and social responsibility.

Department of Chemistry (TUTIC)

Faculty of Science
Tallinn University of Technology

The leading center of teaching and chemical research

Areas of its competence:

Analytical Chemistry,

Organic and Computational Chemistry,

Bioorganic Chemistry,

Biotechnology,

Molecular Technology,

research programs include molecular materials and organic catalysis, as well as bio-active molecules and separation science.

Key roles at the Tallinn University of Technology and several collaborative Research Centres of Excellence.

From scratch to grant

- Support from University 24.01.2013
- Proposal submitted 30.05.2013
- Core grant agreement 06.02.2014

Subject: **FP7 Call for Proposals**
Grant Agreement No.: 621364
Acronym: TUTIC-Green

Tallinna Tehnikaülikool
Kuupäev 10.04.2014
Viit 3-16/265

Dear Sir,

Please find enclosed the above grant agreement duly signed on behalf of the European Commission. The grant agreement entered into force on that day. In accordance with the terms of the grant agreement, the official commencement date of the project is **the effective starting date notified by the coordinator/beneficiary which must be within 3 months from the date the grant agreement enters into force**.

Key words

- Green Chemistry, Biomass treatment, Synthesis and catalysis methods, Biomass processing- and biotechnology methods, Benign analytical methods, Lab on Chip, Green separation methods,

What we had

There are in TUTIC green chemistry related elements of synthesis and catalysis; biotechnologies of biomass processing and benign analytical methods:

- catalysis (including asymmetric and organocatalysis) in organic synthesis;
- synthesis of nanomaterials for catalysis and new analytical methods, good collaboration with nano-toxicological research;
- biotechnology and biocatalysis for biomass treatment;
- benign methods in analytical chemistry and development of new materials for that;
- mathematical and statistical methods (chemometrics and structure property correlations).

Successful EU projects:

Coordinator of NMP3-CT-2004-510373(Sustain Chem – 2004-2006)
Partner in MRTN-CT-2004-504005 (SuperGreenChem – 2004-2008)
Coordinator of CSA-SA_FP7-REGPOT-2008-1 (IC-UP2 – 2009-2011)

Advisors

1. Prof Martin Schröder (University of Nottingham);
2. Prof James Clark (University of York);

- 3. Dr Janet Scott (University of Bath);
- 4. Prof. Wolfgang Linert (Vienna University of Technology);
- 5. Prof. Miguel de la Guardia (University of Valencia;
- 6. Prof. Erkki Truve (Vice Rector of Tallinn University of Technology);
- 7. Mr. Allar Meibaum (President of Federation of Estonian Chemical Industries) ;
- 8. Mr. Pirko Konsa (Estonian Development Fund)

What we expected

- **New Chair will make structural changes** in the Department of Chemistry with some new positions – one professorship and two assistantships have to be formed, one assistant professorship could be moved from existing chairs.

- The aim of the Chair is **to reorganize the teaching** of chemistry and improve the research quality with introduction of principles of sustainability, basics of green technology and green chemistry.

- **Concentrate green chemistry topics**, with preferable research topics on the development of new methods of synthesis and catalysis, biotechnologies of biomass processing, benign analytical methods, but are not limited to, in under one strategic lead

ERACHAIRS-2013-1

Grant agreement for: Coordination and support action

TUTIC-Green

" Excellent Tallinn University of Technology Research Chair in Green Chemistry and Technology "

Grant agreement no: 621364

List of projects to be funded under ERA Chairs FP7 Pilot Call

Country	Institution	Area of research
Belgium	**Université de Mons**	Energy efficiency in cities
Croatia	**University of Zagreb -Faculty of Veterinary Medicine**	Molecular veterinary medicine
Czech Republic	**Masarykova univerzita**	Life sciences
Estonia	**Tallinna Tehnikaulikool**	Chemistry and biomass treatment
Poland	**Instytut Genetyki Roślin Polskiej Akademii Nauk**	Plant biology
Portugal	**MITI – Madeira Interactive Technologies Institute Associacao**	Human computer interactions
Republic of Serbia	**Institut Za Nuklearne Nauke Vinca**	Nanotechnology
Slovakia	**Zilinska Univerzita v Ziline**	Transport systems and communication technologies
Slovenia	**Institut Jozef Stefan**	Food analysis through radioactive isotopes
Spain	**Universidad de las Palmas de Gran Canaria**	Aquaculture
The United Kingdom	**Falmouth University**	Digital games design

What we must

- The TUTIC-Green project will result in enhanced research capacity and research excellence;
- increased participation of TUTIC in Horizon 2020 and other research programmes;
- compliance of TUTIC activities with ERA priorities, including open recruitment, gender balance, peer review, and doctoral training;
- stronger interaction with Estonian authorities designing and implementing research and innovation strategies for smart specialisation;
- effective contribution to regional economic and social development through excellent research.

ERA Chair on Green Chemistry

- an independent chair in TUTIC

The same rights and responsibilities as other chairs according to the regulations of TUT;

The same access to the R&D support structures and other resources of TUT in preparing funding proposals, IPR issues, communicating with industry and stakeholders, etc.

The ERA Chair team (at least 6 experienced researchers) will be made up through public and international recruitment; the application is open for the researchers currently working for existing chairs according to their research interests and competences.

Inclusion of already employed researchers will enable the ERA Chair to build on the already existing research capacity.

ERA Chair holder

Organizing research and development studies of the ERA Chair of Green Chemistry;

- Responsible of Chair institutional research projects;
- Initiation and preparation of international projects;
- Analysis and dissemination of results of research and studies;
- Development of research contacts locally and internationally;
- Developing contacts with industry and leading development projects;
- Supervision of master and doctoral study students and reading special courses in degree studies.

ERA Chair activities

- Establishing the ERA Chair position and formulating respective research teams;
- Developing a strategy and a cooperation frameworks;
- Establish the necessary research management principles for ERA Chair and trainings for research staff;
- Increase the visibility of TUTIC scientific excellence and setting-up of long-lasting strategic partnerships;
- Active participation and leading of international cooperation projects;
- Carrying out the Estonian smart specialization strategy;

Work packages

1 - ***Project management:*** the co-ordination of the project in both administrative and technical terms

2 - ***Recruitment and structural set-up:*** recruit the ERA Chair holder with his/her team as well as establish and introduce ERA Chair working principles;

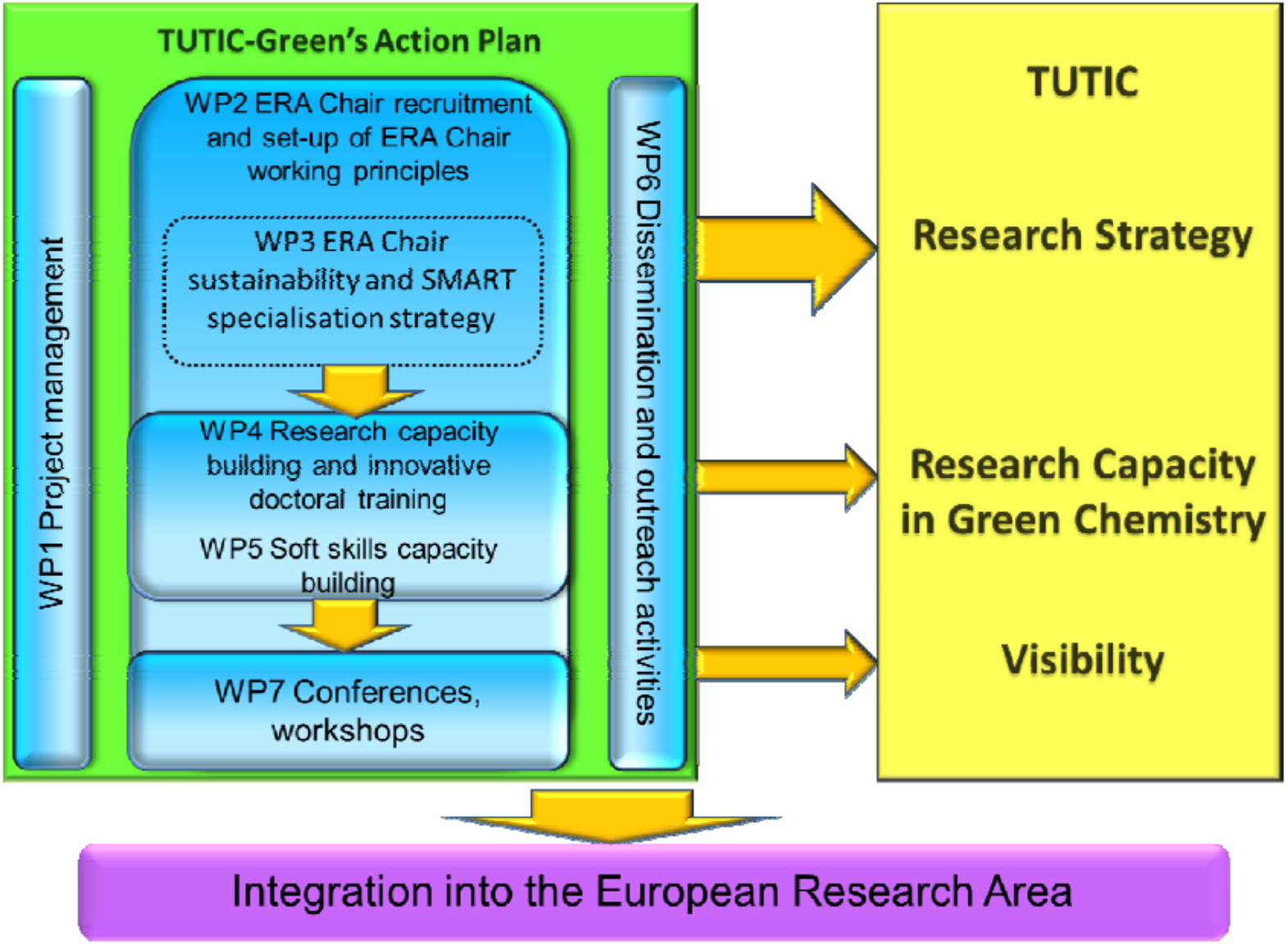
3 - ***Sustainability and SMART specialization strategy:*** define research and innovation strategy for smart specialization to ensure synergies with national and European priorities;

4 - ***Research capacity building:*** increase research capacity of staff through joint research projects and innovative doctoral trainings as well as upgrade research equipment in main research areas;

5 - ***Soft skills capacity building:*** to deliver tailored transferable soft skills fundamental training to enhance the TUTIC's capacity and competitiveness;

6 - ***Dissemination and outreach activities:*** to promote novel sustainable green chemistry methods; to ensure increased visibility of TUTIC's excellence.

Pert chart


TUTIC-Green's Action Plan
WP1 Project management
WP2 ERA Chair recruitment and set-up of ERA Chair working principles
WP3 ERA Chair sustainability and SMART specialisation strategy
WP4 Research capacity building and innovative doctoral training
WP5 Soft skills capacity building
WP7 Conferences, workshops
WP6 Dissemination and outreach activities
TUTIC
Research Strategy
Research Capacity in Green Chemistry
Visibility
Integration into the European Research Area

Work plan

- **First stage**: recruitment of ERA Chair holder which also represents the first milestone. The contract between TUT and ERA Chair holder is expected to be signed by end of year 2014;
- **Second stage**: Recruitment of ERA Chair team consisting of at least 6 experienced researchers by April, 2015;
- **Third stage** can be considered as the rest of the project from year 2 to year 5 - tasks of the work packages 3 – 5 will start.

  - 6 work packages
  - Total Person months 344.30

Start was set on 1st of May 2014

- **KICK-OFF MEETING**
- „Excellent Tallinn University of Technology Research Chair in Green Chemistry and Technology“
  - ***30.05.2014,***
  - Tallinn University of Technology, Institute of Chemistry, Akadeemia 15

- **CALL of APPLICATIONS for ERA CHAIR POSITION (*1.08.2014*)**
  - Chemistry World; http://jobs.rsc.org/job/6448/professor-of-green-chemistry/
  - Academic Positions; http://academicpositions.eu/ad/tallinn-university-of-technology/2014/professor-green-chemistry/34569/

- **ELECTION of PROFESSOR**
  - by Council of TTU (***18.11. 2014***): Nicholas Gathergood (Ireland)