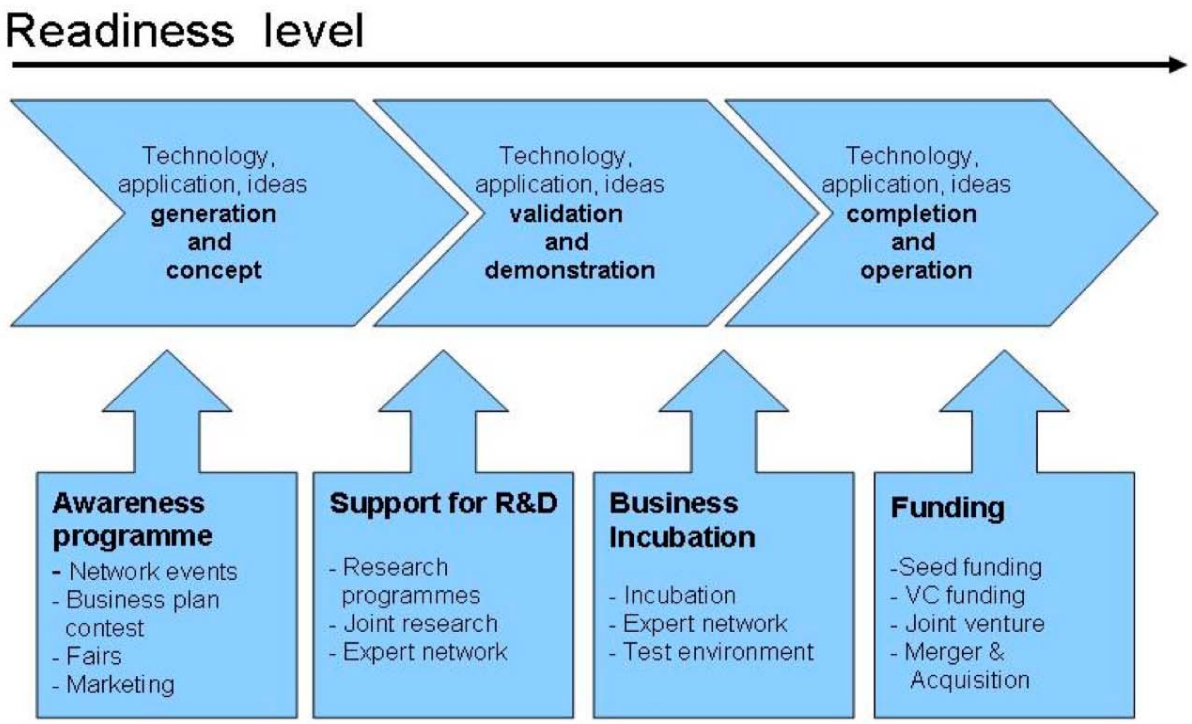
Activities of the Technology Transfer Programme Office

Stimulating Entrepreneurial Innovation

Callum Norrie, ESA TTPO

ESA Technology Innovation Days
17/18th February 2010

TTPO Lines of Business vs Innovation Chain



- The innovation chain covers all the stages to bring an idea from the conceptual stage to the commercial stage.

TTPO Lines of Business

Transfer of Technology, Services and Applications

ESA Technology Transfer

Open Call for Transfer Demonstrators

Technology Transfer Network (TTN)

Broker network managed by MST Aerospace GmbH

- Germany (MST)
- France (Nodal)
- Italy (D'Appolonia)
- Spain (INASMET Tecnalia)
- UK (STFC)

National Technology Transfer Initiatives (NTTI)

- The Netherlands
- Belgium
- Finland
- United Kingdom
- Denmark
- Ireland
- Sweden
- Norway
- Portugal

Support

ESA Business Incubation Centres

- ESTEC (NL)
- ESOC (D)
- ESRIN (I)
- Oberpfaffenhofen (D)

European Space Incubators Network (ESINET)

ESA Investment Forum

Stella Growth Fund

Equity investment privileged partners

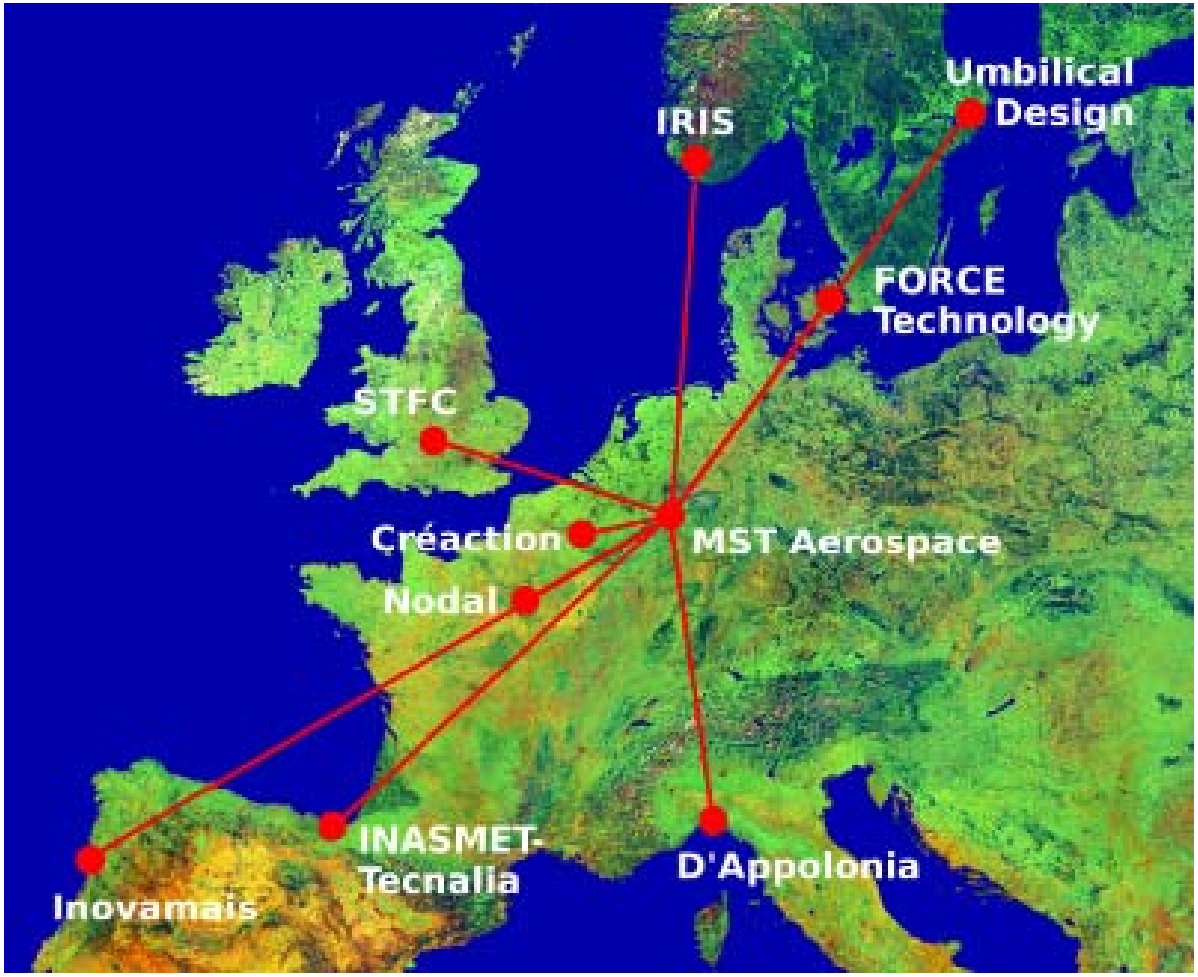
EUROPE INNOVA
Innovation and Financing

Open Call GSTP
Prototype Development

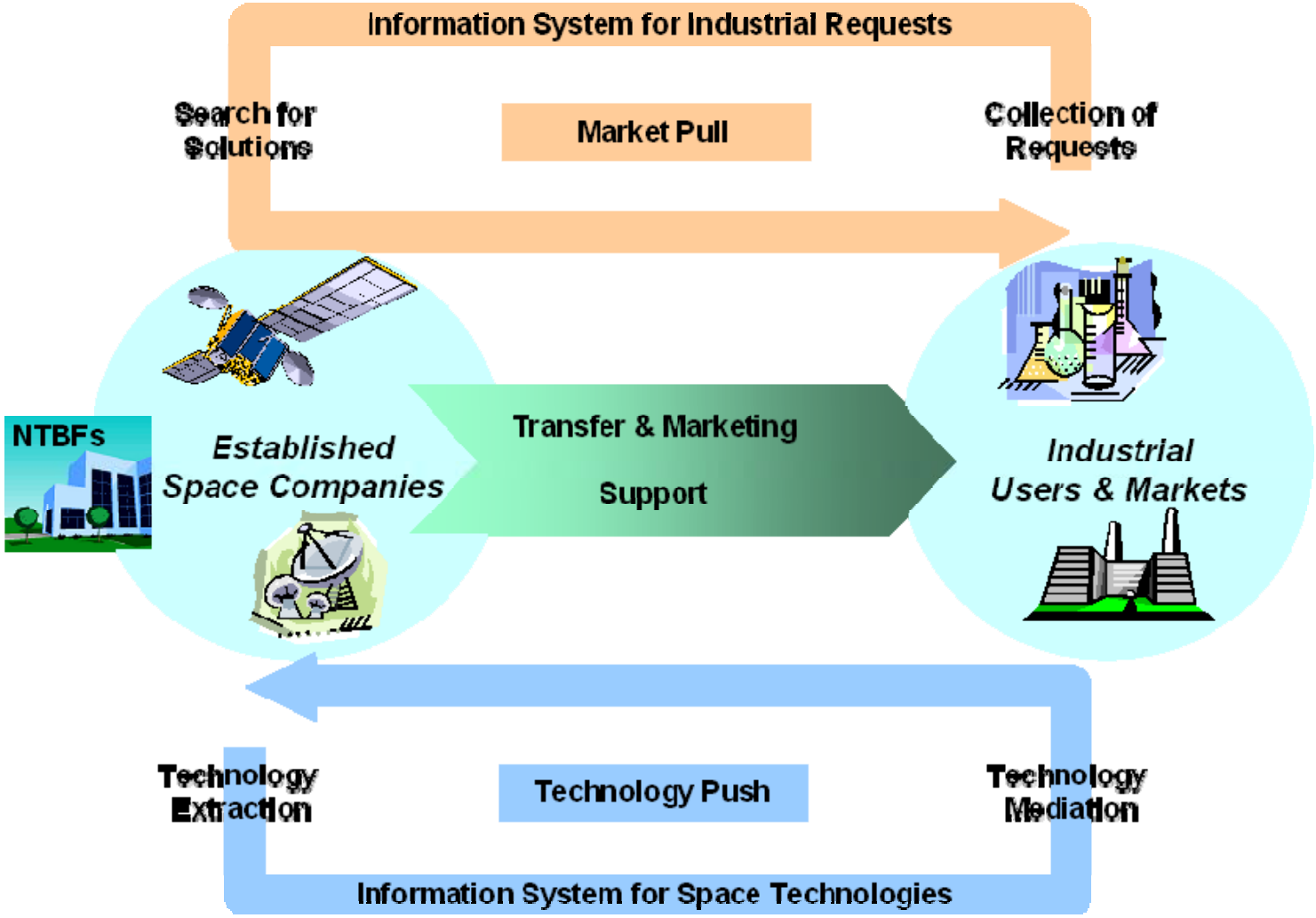
ESA Bidders: Large industry, SMEs & Universities (>13000)
Enterprise Europe Network EEN (+250)
National Space Agencies
European Satellite Navigation Competition (ESNC)

EVCA, EBAN

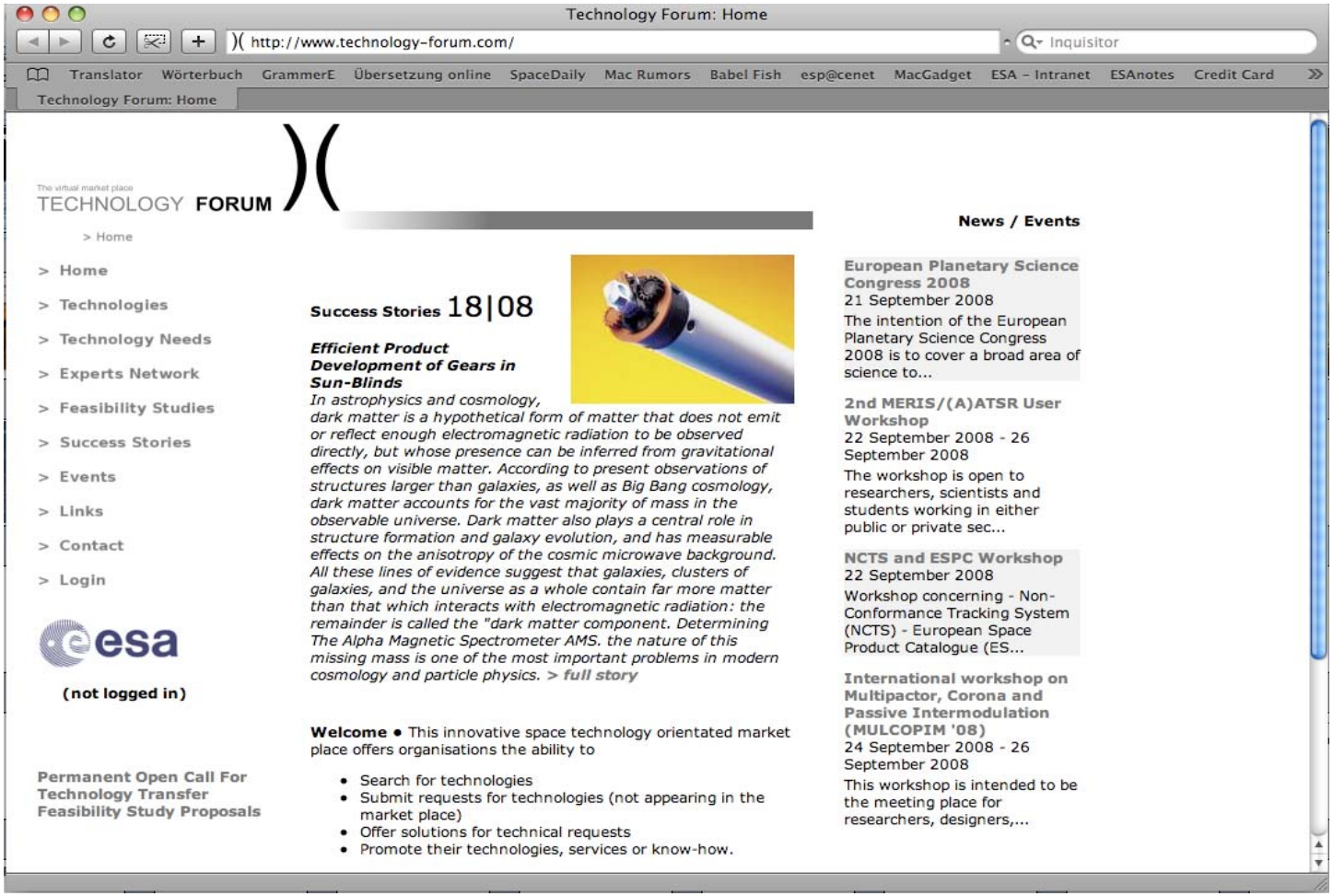
Technology Broker Network



Transfer Methodology



Technology Forum website



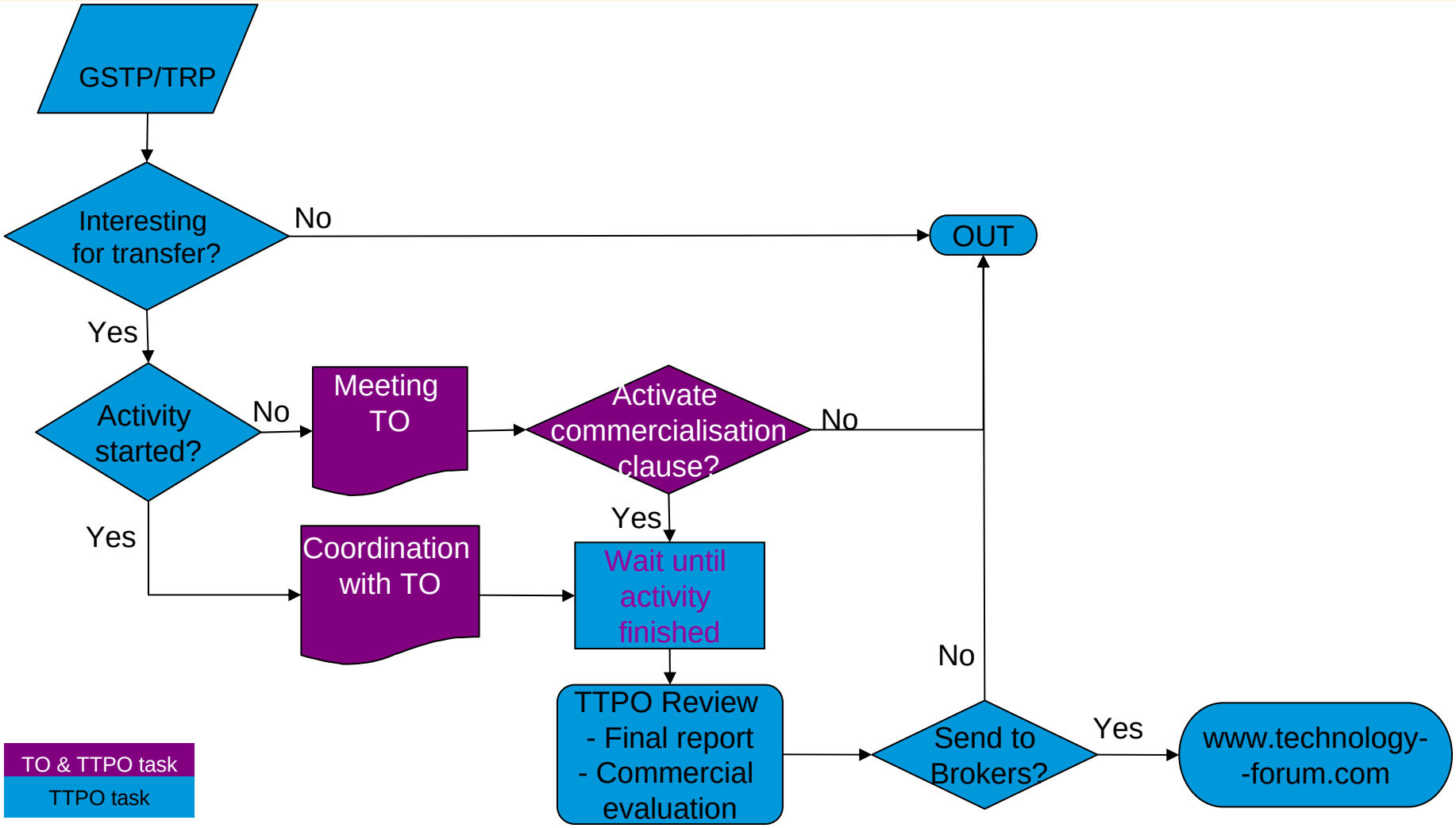
www.technology-forum.com

Presenting Technology Transfer

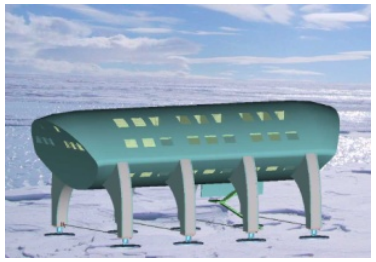
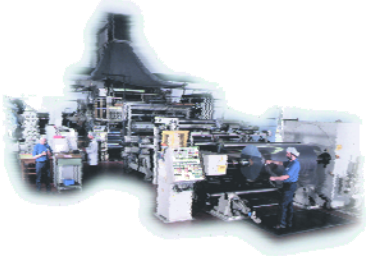
Transfer Demonstrator Projects

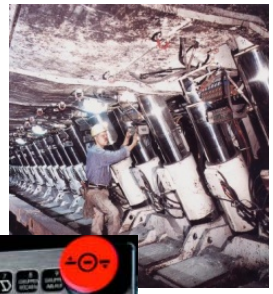
1. **Inasmet-Tecnalia, Spain** – Multifunctional structure technology
2. **Imperial College London, UK** – Technology developed for high performance space science magnetometers
3. **FormTech GmbH, Germany** – Technology originally developed for hydrazine storage vessels for Ariane V
4. **Omnidea Lda, Portugal** – Technology developed under ESA contract for high pressure gas vessels **Stam s.r.l.**
5. **Genova, Italy** – Innovative gearbox technology developed in part for a soil measurement instrument
6. **Max-Planck-Institut für extraterrestrische Physik, Germany** – Plasma generation technology developed fort he International Space Station
7. **IMMG S.A., Greece** – Multifunctional cellular sandwich panel technology validated under ESA contract
8. **SciSys Ltd, UK** – Software developed for automatic mission decision making
9. **CSEM, Switzerand.** Technology originally developed for the ESA Long Term Survey System.
10. **COSINE Science & Computing BV, The Netherlands** – Technology originally developed for the Astrolab mission

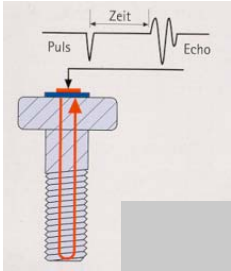
Technology Screening Process

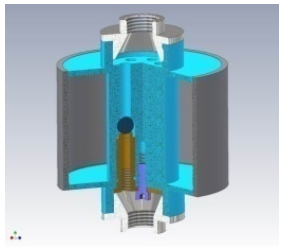


Technology Transfer Successes







ESA Business Incubation Centres

Noordwijk, Netherlands

Darmstadt Germany

Frascati, Italy

Oberpfaffenhofen, Germany

Some companies from ESA Business Incubators

DutchOzone
Ozone Space Technology

miramap

activespace technologies

EATOPS

innerP

thru VISION

Star2Earth

DISAPS

City Navigators™
way to go!

SPORT-TRACK.com

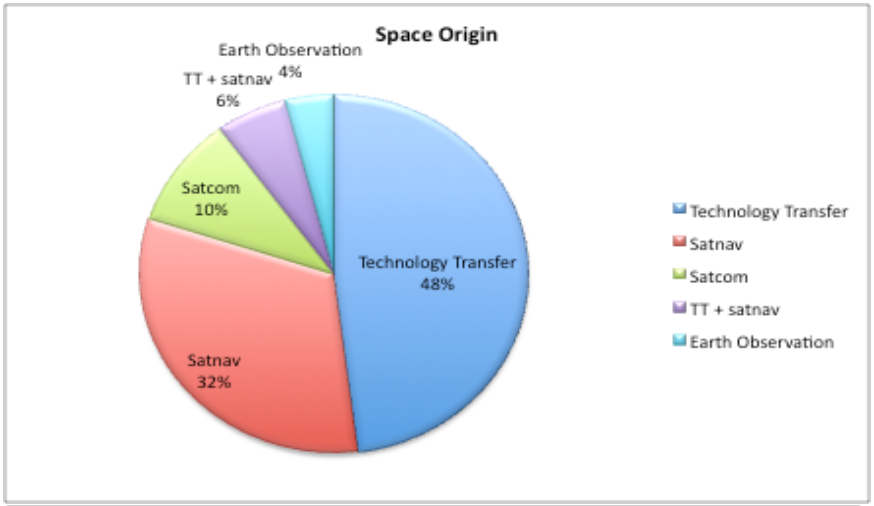
Real-time RACING GAME™

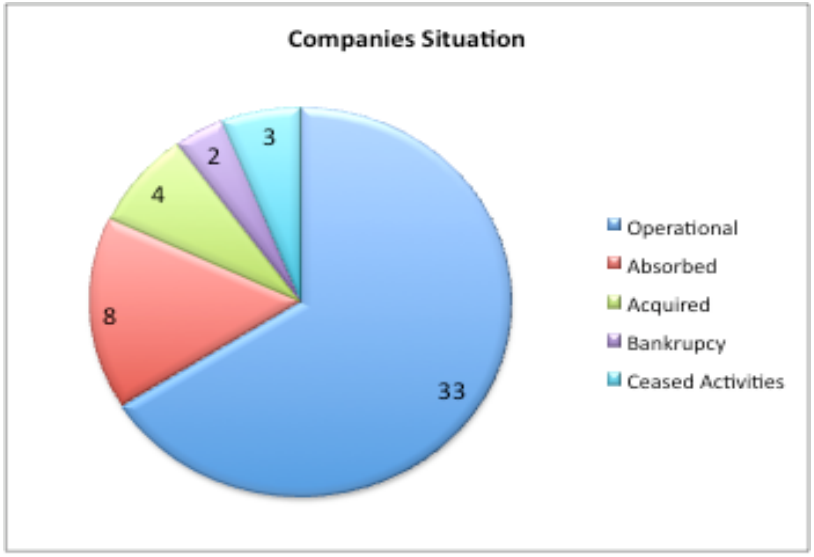
mobili

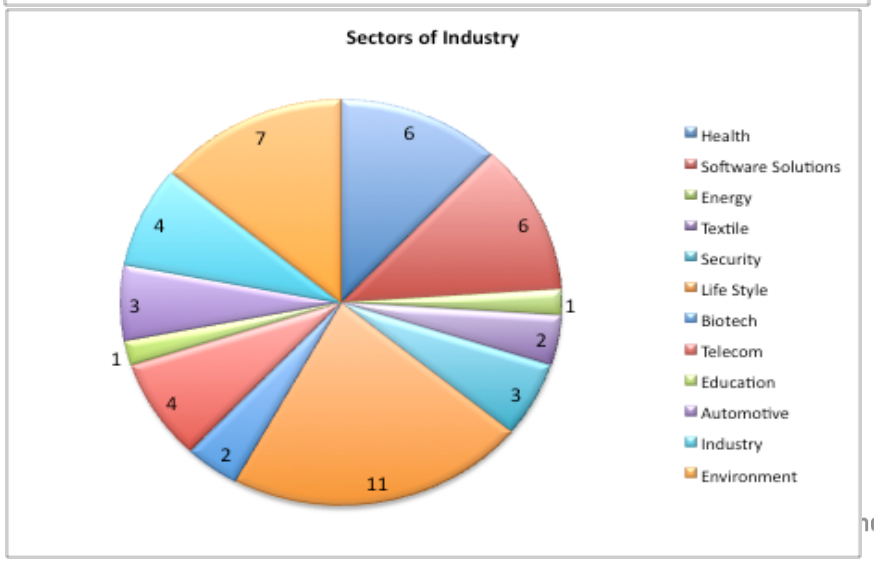
Achievement of ESA BICs

As at end 2008 (4.5 years)

- 50 alumni (49 ESTEC, ESOC)
- Survival rate 90%
- 180 Full-time equivalent Staff
- Turn-over €9m
- Equity investment €18m







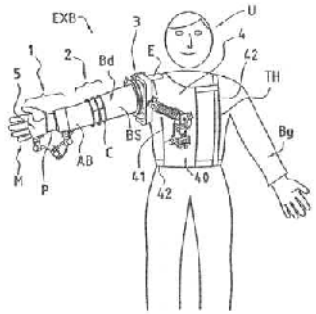
ESA Patents

ESA REF: PAT 474

EXOSKELETON FOR THE HUMAN ARM, IN PARTICULAR FOR SPACE APPLICATIONS

(US 2003223844)

The invention relates to an arm exoskeleton comprising a moving system of joints placed in parallel with the joints of the human arm, the exoskeleton comprising a shoulder exoskeleton, an elbow exoskeleton, and a wrist exoskeleton. In all, the exoskeleton has sixteen joints providing sixteen degrees of freedom. A support worn on the torso of a human operator comprises a rigid front plate and a rigid back plate. The shoulder exoskeleton has its proximal end fixed to the front plate, whereby the front plate provides a fixed reference for all movements of the exoskeleton, and the wrist exoskeleton is fixed to a rigid glove worn on the hand of the operator. Active joints are controlled by flexible cable tendons bridging the exoskeleton, said tendons themselves being actuated by control units disposed on the rigid back plate.; Inflatable cushions prevent the wrist exoskeleton and the shoulder exoskeleton from moving relative to the arm of the operator. The invention is applicable in particular to remotely controlling a robot in space.



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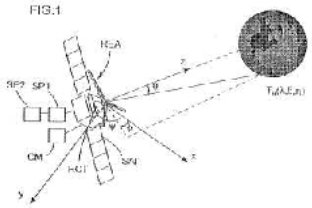
ESA REF: PAT 426

INTERFEROMETRIC RADIOMETER

(EP 1868010)

The radiometer has a signal processing unit (SP1) calculating a bi-dimensional sample group of a radiation emission visibility function by cross correlation of signals received by receiving elements. Another signal processing unit (SP2) reconstructs an intensity image of the emission from the group. A rotation unit (ROT) rotates a bi-dimensional or three-dimensional network (REA) around rotation axis (Z) directed towards a terrestrial disc. The unit (SP2) reconstructs the image from a set of bi-dimensional sample groups. Each group corresponds to an angular position different from the network.

FIG.1



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Spring ESA Investment Forum

19th / 20th May 2010, Messe, Stuttgart, Germany

To register: www.e-unlimited.com

Autumn ESA Investment Forum

5th October 2010, Palazzo Giureconsulti, Milan, Italy

To register: www.e-unlimited.com

European Space Agency

Thank You

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