Space Technology Transfer

Validé

norinnova

KJELLER INNOVASJON

CIRiS CENTRE FOR INTERDISCIPLINARY RESEARCH IN SPACE

www.spacetransfer.no

illustration: Space & Energy

Validé – Technology Transfer Office, Incubator & Investment

Validé

Validé is official TTO for regional research environments and approved SIVA business incubator.

TTO; idea search and qualification, IPR management, market analysis, business development, product and service development, commercialization.

Business incubator; targets innovative regional and national startups, evaluating up to 350 new ideas and startups annually.

Investment; invest capital, time and knowledge into the highest potential startups, most notably through pre-seed funds.

Activity areas; ICT, Energy, Health, Food, Culture, Biotech, Bioeconomy, Aquaculture, Smart solutions, **Space Technology Transfer**

- ***Responsible for ESA's National Technology Transfer Initiative in Norway***

Established January 1st, 2016; Former Prekubator TTO and Ipark

NATIONAL TECHNOLOGY TRANSFER INITIATIVE (NTTI)

Industry-wide technology transfer initiative between space and non-space in Norway

- Spin in & spin out
- Technology scouting
- Technology needs scouting
- Opportunity/leads management
- Demonstrator projects

Part of an ESA-managed European network for technology transfer

NATIONAL TECHNOLOGY TRANSFER INITIATIVE (NTTI)

esa
space solutions

Members:

esa
European Space Agency

Norsk Romsenter
NORWEGIAN SPACE CENTRE

norinnova

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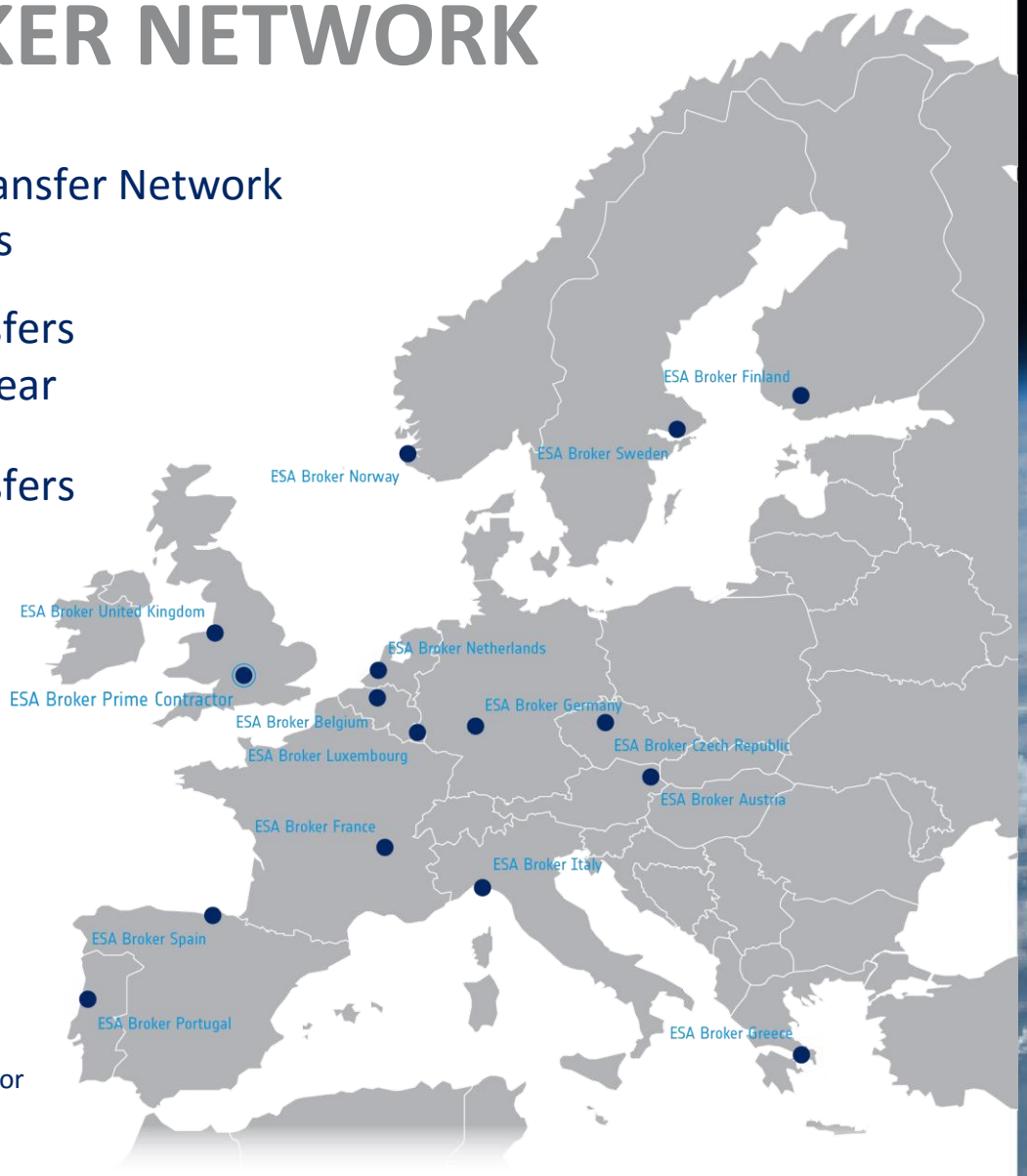
Prekubator
TTO | TECHNOLOGY TRANSFER OFFICE

ESA BROKER NETWORK

ESA Technology Transfer Network
Across 15 Countries

15 Transfers per year

300+ Transfers



LEGEND

- ESA Broker
- ESA Broker Prime Contractor

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ESA BUSINESS INCUBATION

Network of 13 Centres supporting space-related start-ups to get their business of the ground.

100+ Yearly start-ups supported across Europe

350+ Start-ups supported to date

- ✓ EBN Partnership
- ✓ 9 European Agencies
- ✓ 12 Research Institutes

LEGEND

- ESA Business Incubation Centre

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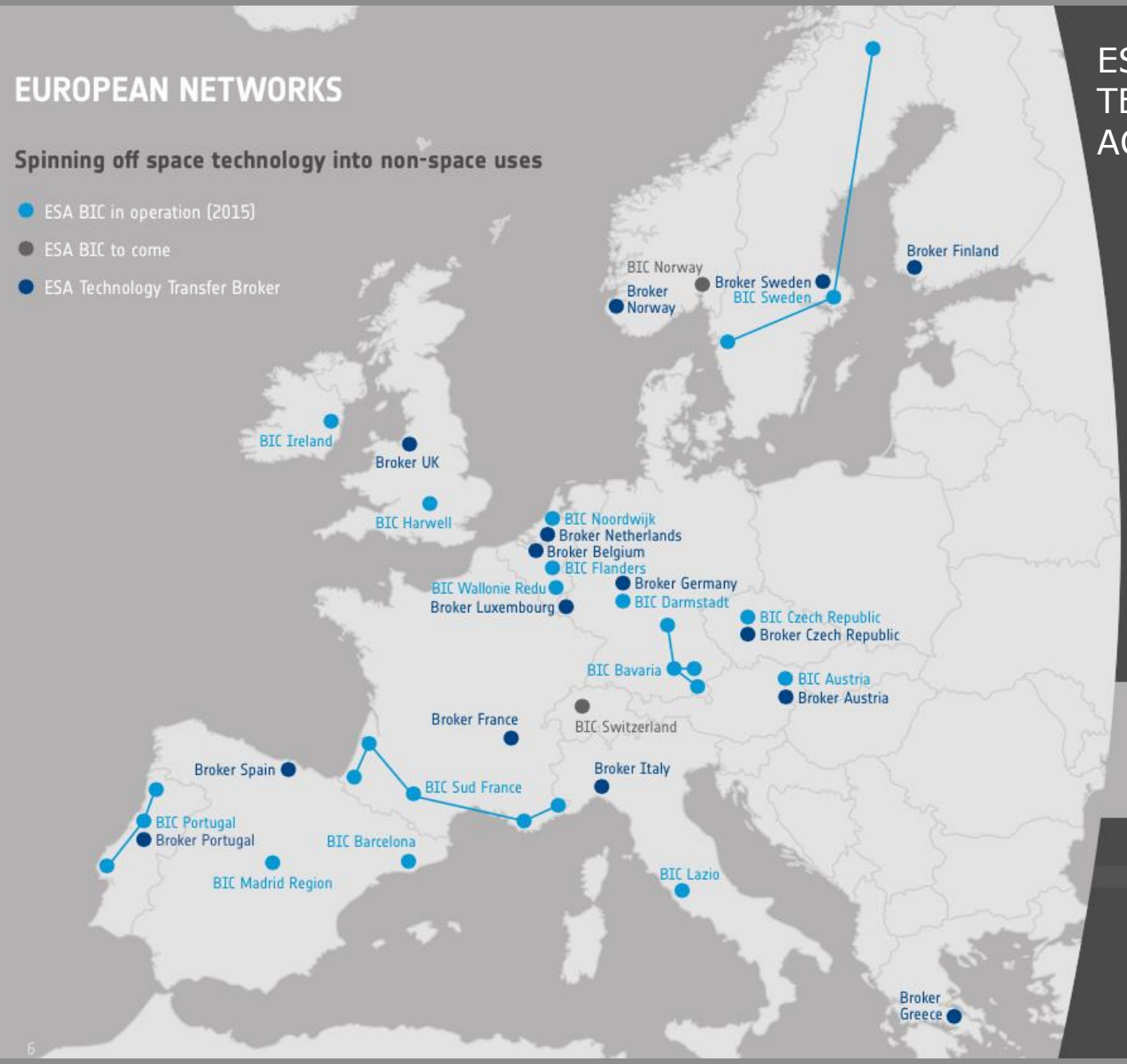
space solutions

The space you need to get your business off the ground

ESA BIC / BROKER TECHNOLOGY TRANSFER ACTIVITIES



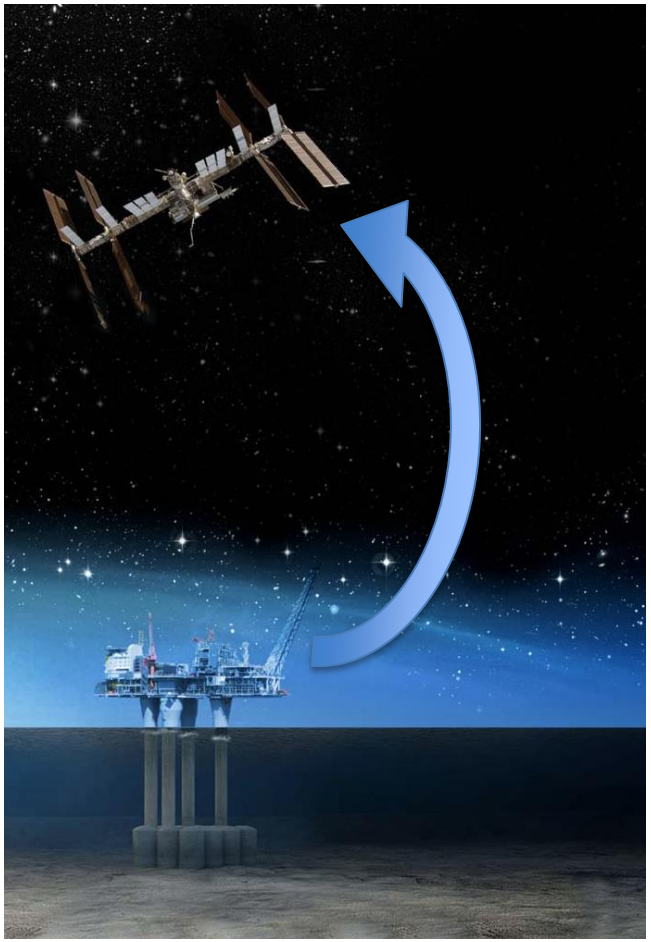
Creating jobs
Boosting Europe's global competitiveness
Investing in local economies

Our goal

Obtain **technology transfers** between space and other industries to strengthen Norwegian industry

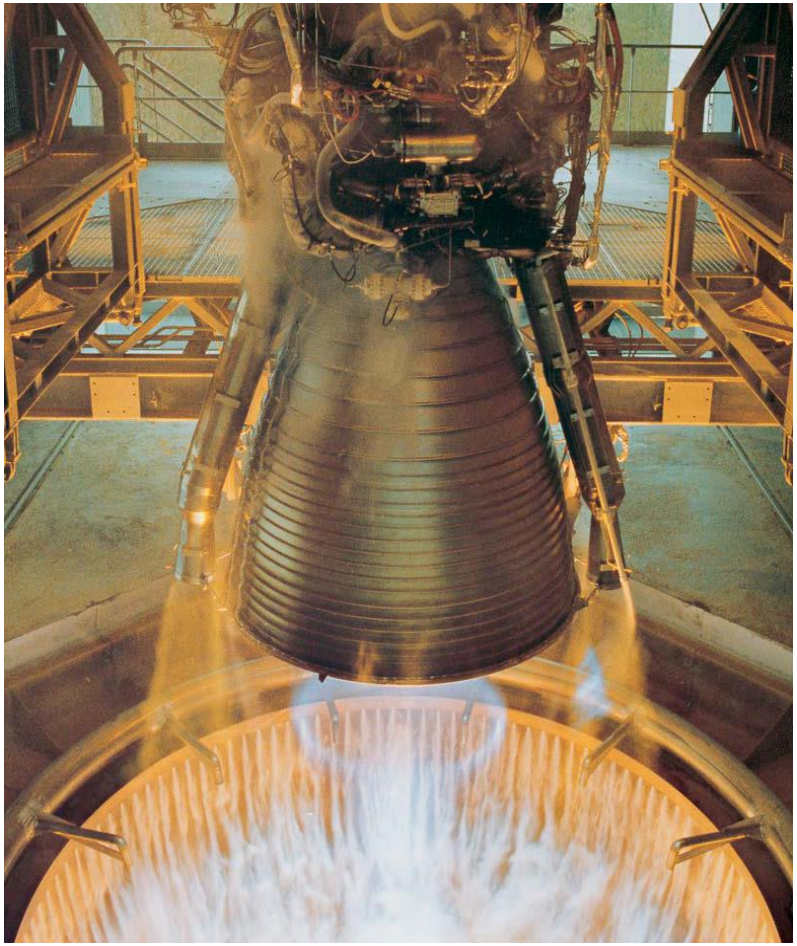
Technology transfer involves a Norwegian technology donor or receiver

Spin-in



Spin-out

Why use space technology in other markets?

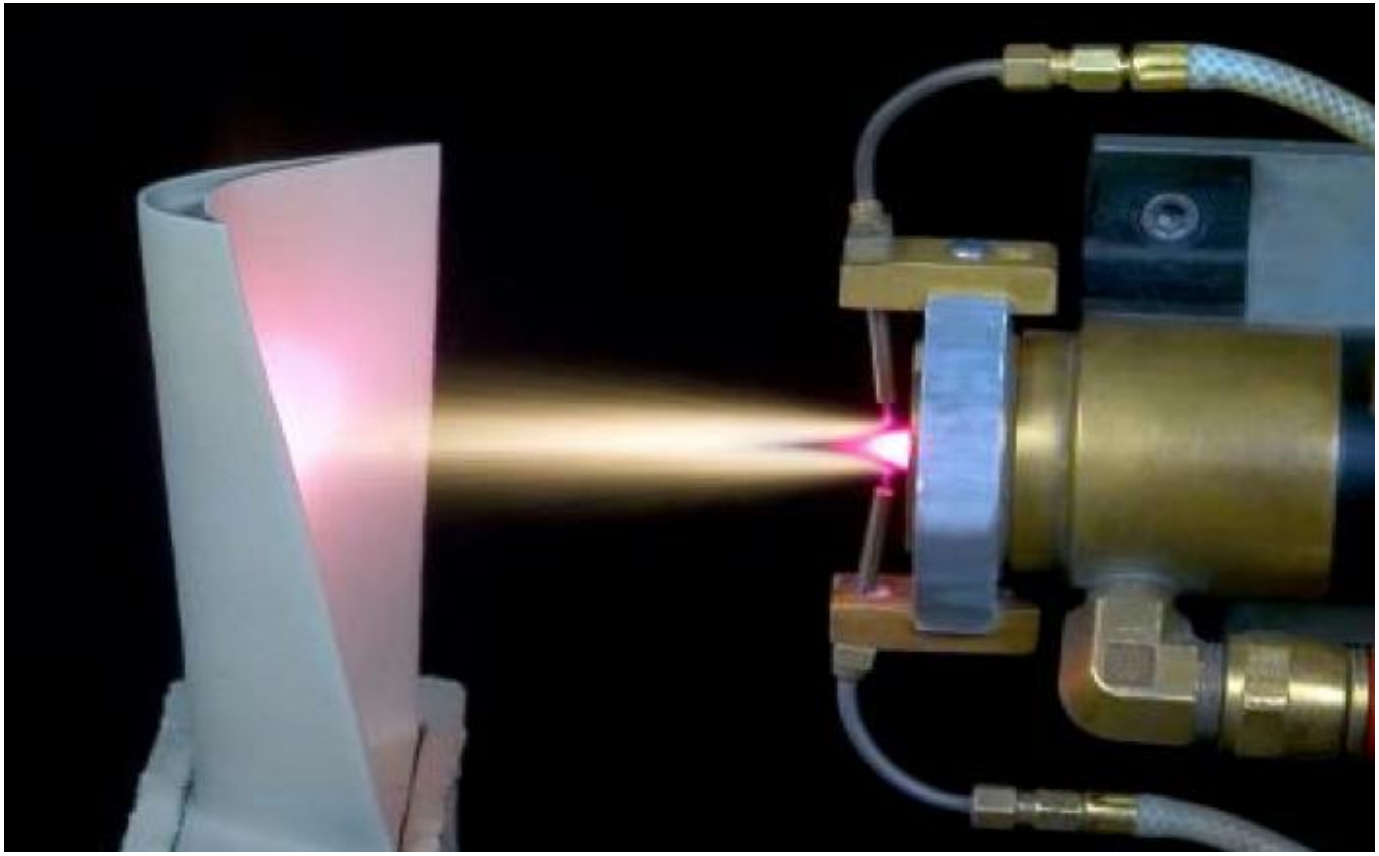


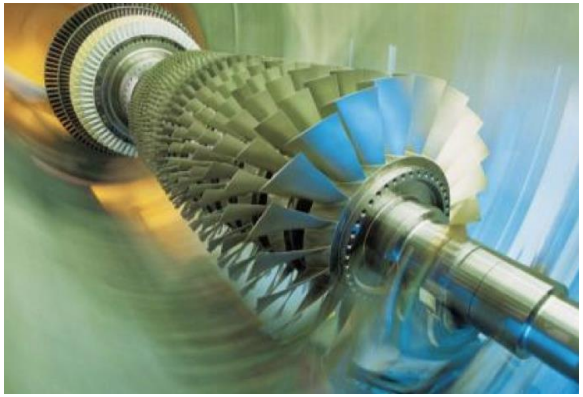
- Verified quality
- Highly specialized technology
  - low weight
  - strength and durability
  - efficiency and reliability
  - compactness
  - autoimmunisation
  - temperature resistance
  - radiation resistance
  - corrosion resistance
  - communication

25 technology domains

Spin-in example: Marintek's Systems for logistics supporting transportation to/from the International Space Station based on maritime experience

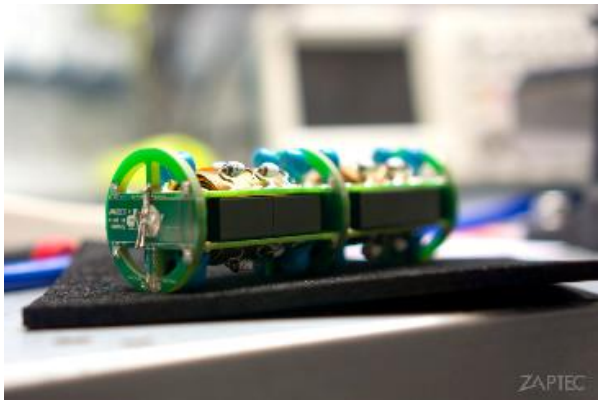
Spin-in lead: ThermaSiC – Silicon carbide coating



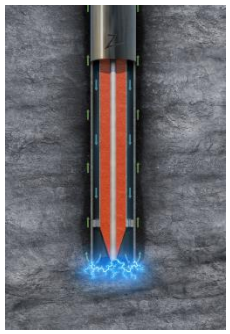


Property	ThermaSiC SiC	Tungsten Carbide WC	Titanium Carbide TiC	Chromium Carbide Cr_3C_2
Hardness	Excellent	Excellent	Excellent	Good
Density	Excellent	Poor	Good	Average
Dry friction coefficient	Good	Average	Good	Good
Thermal shock resistance	Excellent	Good	Average	Good
Raw material price $ / kg	10	99	47	53

Spin-out example: Compact, lightweight, high power transformer

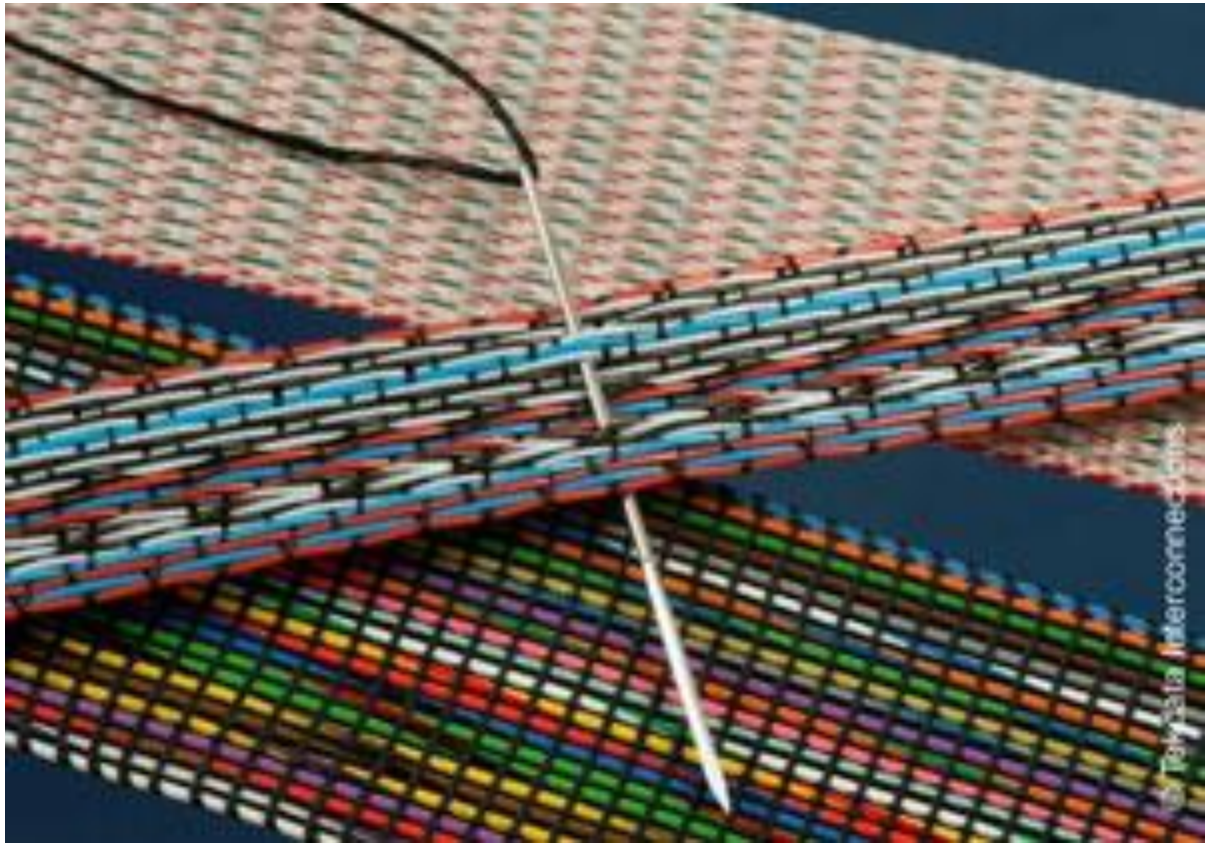


ZAPTEC



Images courtesy Zaptec

Spin-out example: Cable that is flexible and fits where traditional cables won't



JOTNE - SPACE BRINGS SAVINGS TO OFFSHORE OIL AND GAS

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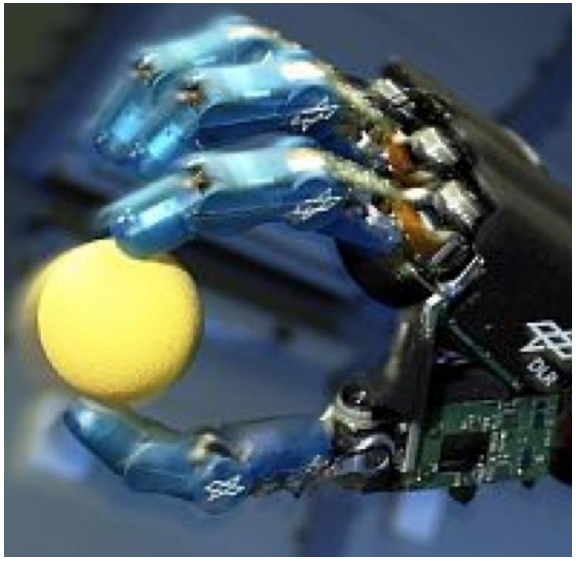
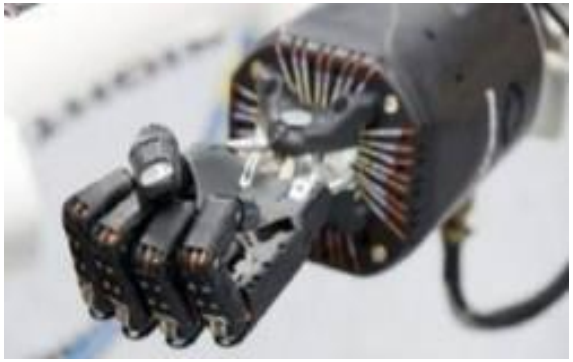
Jotne®

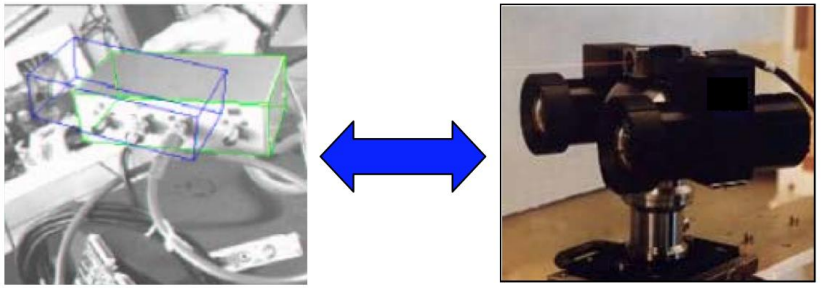
A sophisticated product lifecycle management tool developed in Norway for building ESA spacecraft is helping to improve safety and drive down costs for engineers operating deep sea oil and gas installations.

Robot arms





Inspection

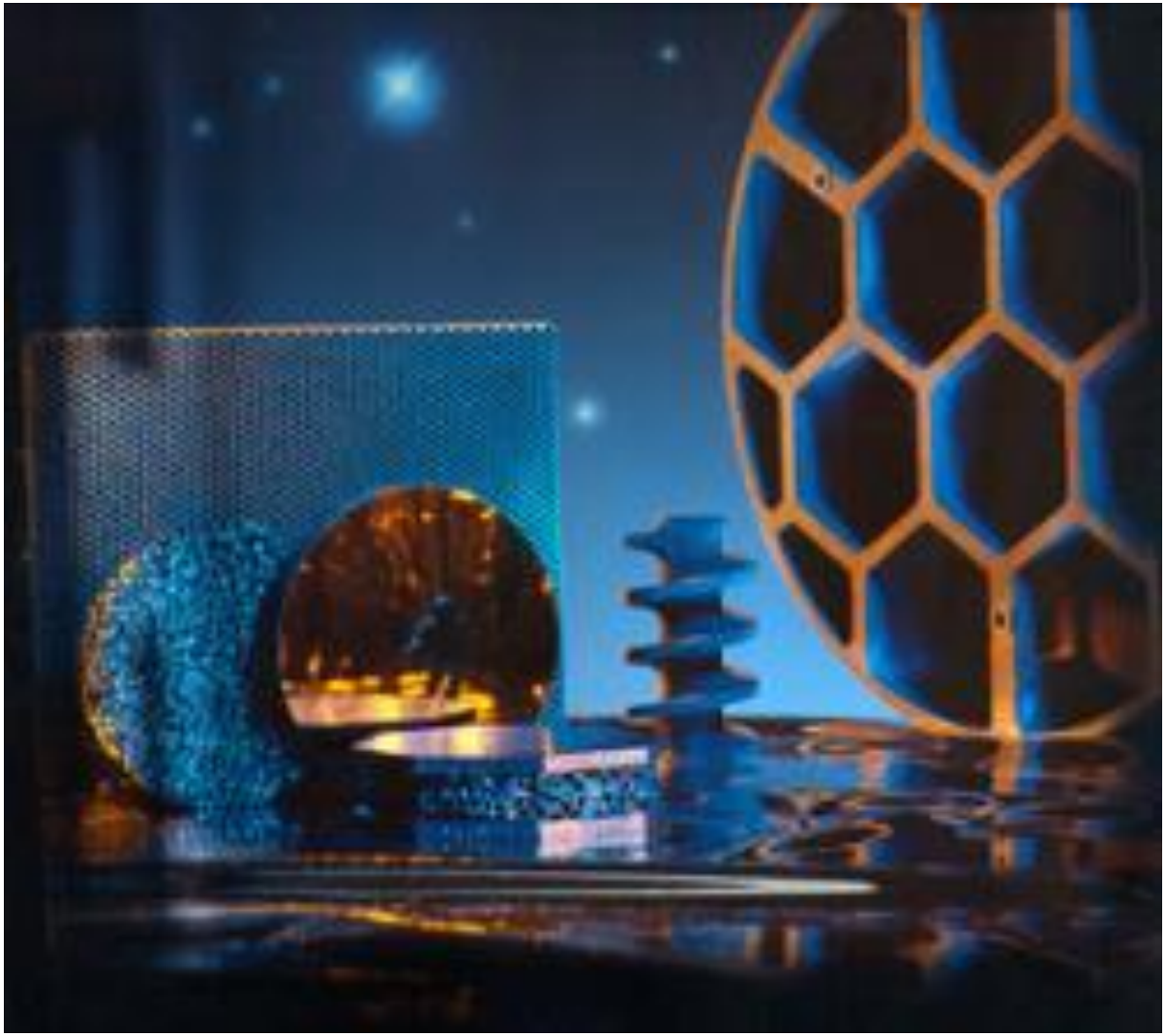


Stereo Vision Measurement systems

Real time capable stereo camera

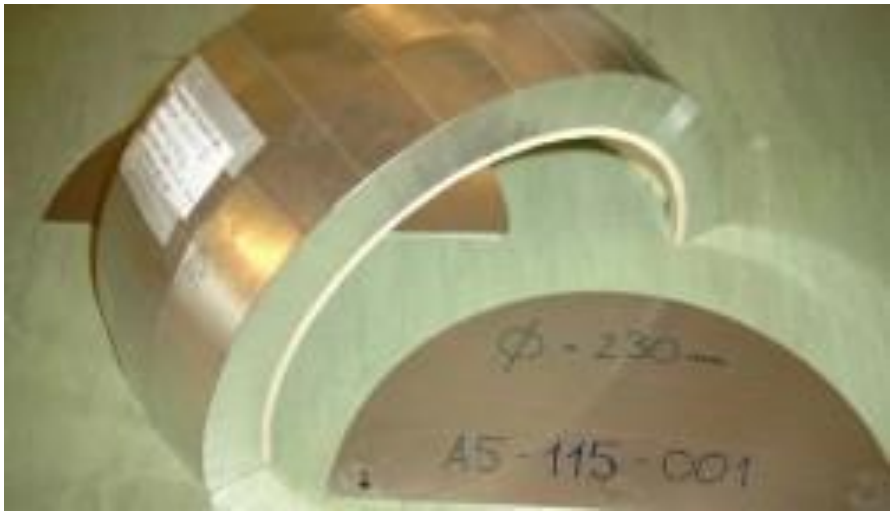
Micro-laser rangefinder

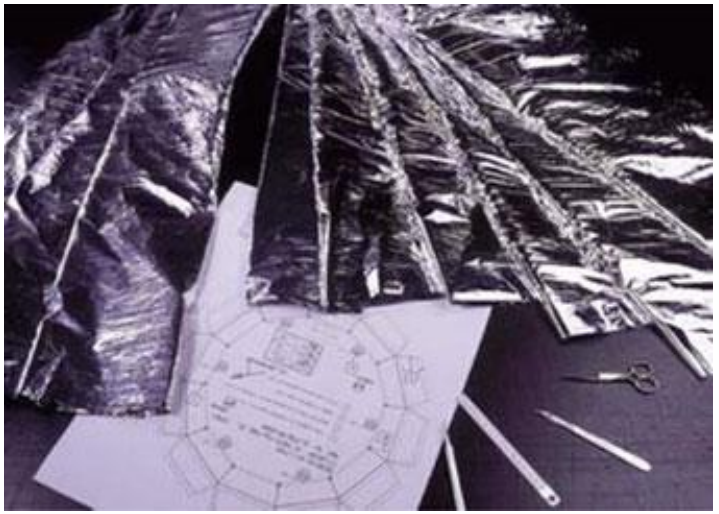
Materials

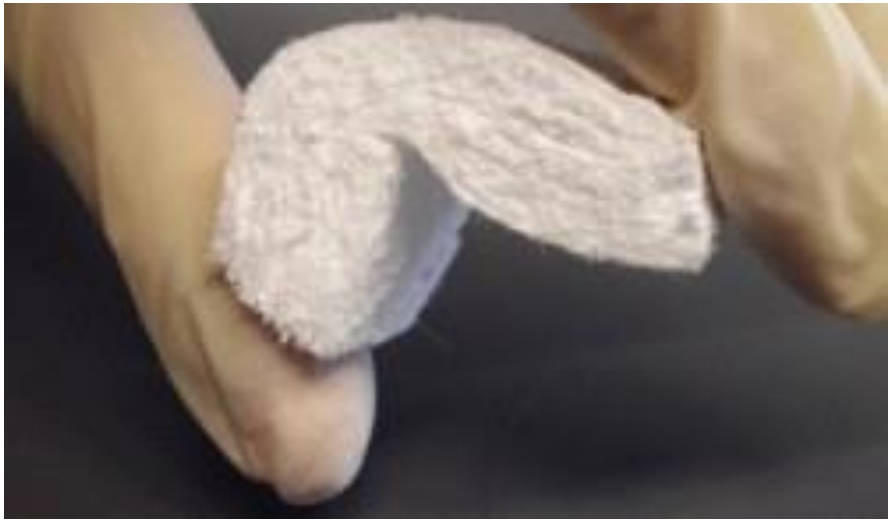


Carbon-fibre reinforced silicon carbide

Insulation



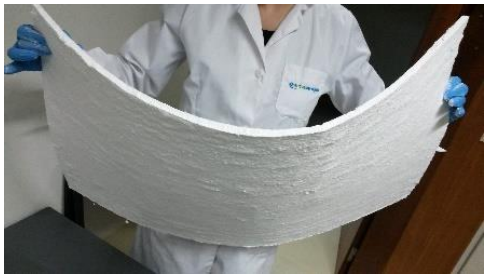


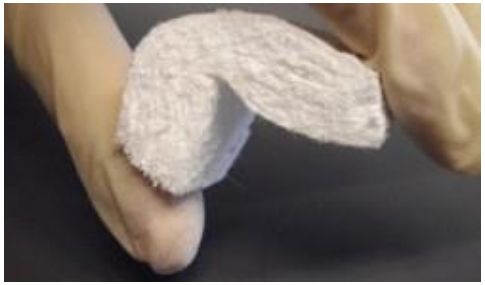


TECHNOLOGY – EXAMPLE

ACTIVE AEROGELS - NANO-STRUCTURED MATERIALS FOR THERMAL INSULATION

activeaerogels





Low density, low thermal conductivity, hydrophobicity, flexibility and suitability for temperatures from -250 to 350^{o}C; may be supplied in blocks, blankets, foam or powder.

TECHNOLOGY NEEDS – EXAMPLES

- Noise insulating material
- Thermal insulation of survival suit
- Logging through multiple pipes
- Cracking of cement due to large temperature variations
- Reduce use of sand in onshore operations
- Reduce use of water in onshore operations
- Materials for high temperature fluctuations

TECHNOLOGY DESCRIPTIONS

esa space solutions

The **Technology Exchange** - your portal into technology that has been developed as part of the ESA Space Programme

Home > Technologies

Technologies

TECHNOLOGIES SHOWCASE

Plasma Processing of Waste and Biofuels

stop >

CLICK HERE TO SEE MORE TECHNOLOGIES

TruePLM (Product Lifecycle Management solutions, using ISO 10303 STEP/PLCS)

Abstract

TruePLM, based on ISO 10303, is a scalable solution for engineers that need to manage their PLM/CAD/CAE information using either portable devices, a multi-user server system within the firewall or multi-organisation cloud-based subscription services. Large and complex products such as aircraft, vehicles, oil and gas installations and ships depend on accurate engineering information for their successful operation and maintenance throughout a life cycle often measured in decades.

Description

The TruePLM solution has been designed to provide maximum capabilities to companies executing concurrent engineering strategies. The system allows users to;

- Increase Data Management Capabilities
- Support concurrent processes and document dependencies
- Consolidate design models in a repository based on open standards compliant formats
- Increase Document Management Effectiveness
- Archive data in an open standard format, PLCS (ISO 10303)
- Support information longevity
- Improve Information Quality Management
- Create solutions for Life Cycle Data Management

Please see video
here: http://img1.custompublish.com/getfile.php/906376.861.usvwpvvbay/PLCS_Trailer_01.swf

Innovations and advantages of the offer

The Jotne approach to the PLM domain is to establish and use a common or master data unified repository in which product and process information from many sources (such as systems, companies, etc.) can be merged and consolidated. The TruePLM repository is designed to handle many product versions and configurations and distinguish between information packages received from multiple suppliers and partners delivered to many customers. Using the ISO 10303 standards the Jotne solution addresses your requirements of interoperability, and Long Term Archiving and Retrieval (LOTAR) as defined by the AIA/ASD standardization effort of the same name.

Further details here: http://www.jotneit.no/products/edmtrueplm

CATEGORY
Computer Hardware & Software

REFERENCE NO.
TDO0081

Could this technology benefit your business? Please contact Fredrik Fjellså Prekubator TTO

PRINTABLE VERSION
TDO0081 - TruePLM (Product Lifecycle Management solutions, using ISO 10303 STEP/PLCS)

DISCUSSION

DEMONSTRATOR PROJECTS

Technology Transfer Demonstrator projects support the transfer of space technology to terrestrial applications where there is a strong commercial or societal benefit and there is a clear technical risk that can be eliminated.

These projects result in the development and testing of new hardware and software which increase the likelihood of the core technology being transferred from space to ground.

- EUR 39.000
- Norwegian receiver of technology

New open call Summer 2016

GET IN TOUCH…

www.spacetransfer.no

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