



## Innovation by Cooperation Nanofutures, a Cross Thematic Platform

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### Content:

European Innovation and Integration Technology Platform Nanofutures: Slide 1-15  
 NTC and microTEC = SMEs in Europe: Slide 16-27

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## European Technology Platforms

Bio-based economy	Energy	Environment	ICT	Production and processes	Transport
EATIP	Biofuels	WssTP	ARTEMIS	ECTP	ACARE
ETPGAH	EU PV TP		EUROP	ESTEP	ERRAC
Food for Life	TPWind		ETP4HPC	EuMaT	ERTRAC
Forest-based	RHC		ENIAC	FTC	Logistics
Plants	SmartGrids		EPoSS	SusChem	Waterborne
FABRE TP	SNETP		ISI	Nanomedicine	
TP Organics	ZEP		Net!Works	ETP-SMR	
			NEM	Manufature	
			NESSI		
			Photonics 21		
Cross ETP Initiatives					
Nanofutures					
Industrial Safety					



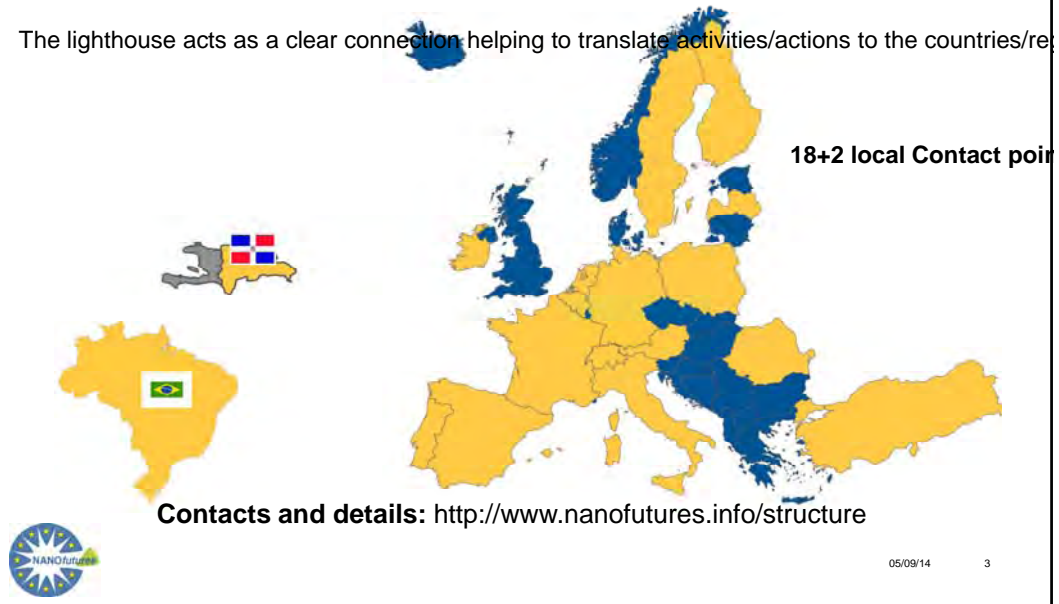
[http://cordis.europa.eu/technology-platforms/individual\\_en.html](http://cordis.europa.eu/technology-platforms/individual_en.html)

## Lighthouses Network

NANO*futures* is close to you!

Start a lighthouse in your region –Russian ETPs and networks welcome!

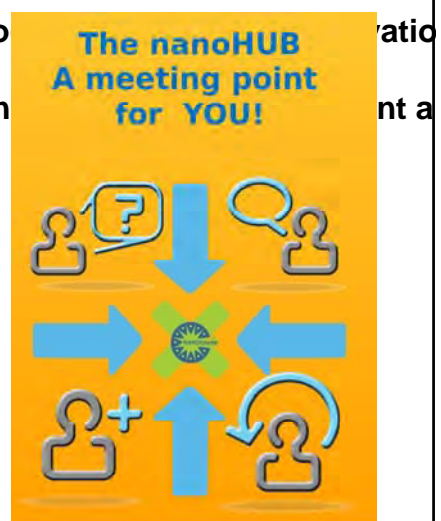
The lighthouse acts as a clear connection helping to translate activities/actions to the countries/re



## Background

NANO*futures* is the **European Technolo**

The main objective is to facilitate the nan



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## What's for me?



... all this, free of charge!

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## The Roadmap



- NANO futures Roadmap has a **Value Chain (VC)** a
- It contains a set of Tech. and non-Tech. actions al

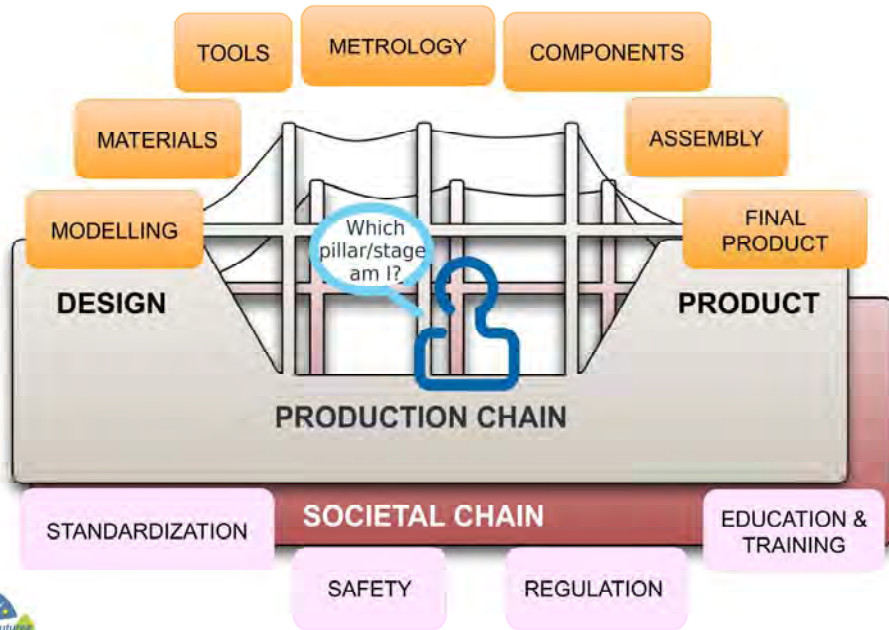
**Are you ready to cross the bridge?**



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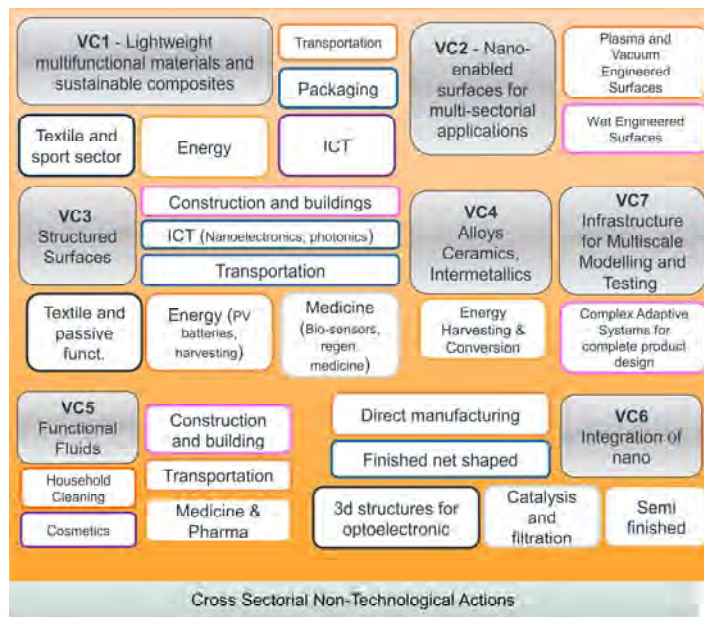
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# The Value Chain



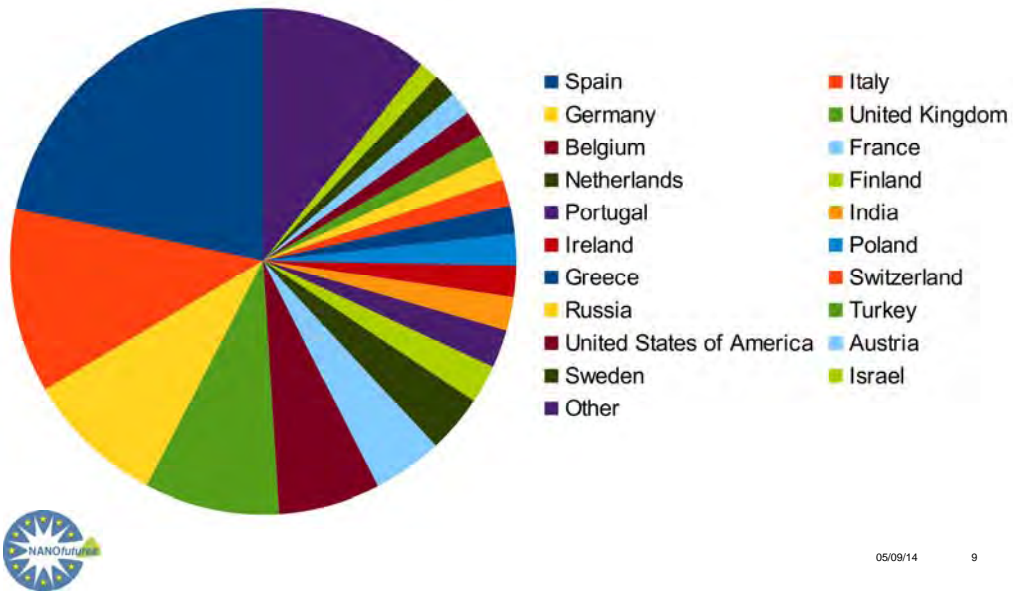
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# Roadmap Focus: VC & Markets



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Nanofutures started 2009; now 2014: Members from 53 countries  
 Innovation is based on global cooperation of R&D teams  
 in companies and at universities



## 9 Working Groups

## Chair

## Members

Communication	Andrea E. Reinhardt	292
Industrialisation/Nanomanufacturing	Vito Lambertini	400
Networking	Paula Queipo	360
Regulation	Anna Gergely	196
Research/Technology	Udo Gommel	509
Safety	Rob Aitken	303
Skills and Education	Lars Montelius	256
Standardization	Michael Stintz	221
Technology Transfer and Innovation Financing	Donato Zangani	382

NANOfutures today has 948 members.  
 ~35% of them are from industry and industry associations.

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## The Website: [www.nanofutures.info](http://www.nanofutures.info)

**Click here! Value Chain Survey**

This survey is part of the VALUE4NANO project, a Coordinated Support Action funded by the European Commission to deliver recommendations for future program topics. The project aims at developing an Implementation Roadmap of 4 value chains and their target products. The Roadmap will include business modelling and planning for a set of pilot lines and it will involve strategic industry and other stakeholders. Please take 15 minutes and share your experience. Thank you very much for your support. Please answer as soon as possible.

### About NANOfutures

- Structure
- Working Groups
- Contacts
- Documents
- National and Regional Contacts
- Get Assistance Q&A

### Get involved

- Become a Member of the community
- Become a Member of NANOfutures a.s.b.l.

### European initiative for sustainable development by Nanotechnologies

Nanotechnology is the basis for the next industrial revolution. We have several samples of successful business cases e.g. at chemical industry. Nanotechnology is everywhere, in our clothing, cars, windows, computer and displays, even in our cosmetics and medicine adding new functionalities, intelligence, integrations, portability and networking capability in many new products with high market potential. Nanotechnology is the key to markets worth billions of dollars annually. Nanotechnology helps Europe to address global challenges such as climate change, constraints in energy production and shortage of resources, insufficient access to clean water and food safety, as well as widespread diseases and affordable health care worldwide. However, the true potential of

### Latest News

- February 2014 News
- December 2013 News
- Nanofutures is part of the recently started NanoDiode project
- NANOfutures at ENF2013
- October 2012 News

### Tweets

**nanofutures** @nanofutures 7h  
Cellulose nanofiber paper

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## The Tools

### Events

- Networking events
- Brokerage: B2B
- Presence on International, national, regional events
- Expert workshops for concrete actions
- ...

### Web 2.0 Tools



**@nanofutures**

Tweets related to nano technology business and R&D, the industries active, latest events, regional/national/European and global politics, strategy and roadmaps



**NANOfutures Platform**

678 members



<http://www.youtube.com/user/nanofutureseu>



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## Structure: ETPs

are welcome, join forces!



- Wider focus: Sectorial issues , but commonalities
- Avoid duplication and fragmentation: *alignment of private and public efforts, expertise, common needs/barriers...*
- Design competitive alliances to drive to market: *effective integration and coordination of stakeholders*



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## Did you know you can...

- ... build business one2one or discuss in the WG forums with other members?
- ... contact the regional and local lighthouses for support?
- ... run your own polls and get feedback from the NANO futures members?
- ... search for companies by keywords and other criteria?
- ... learn about the members and their background?
- ... invite new members by just one click?
- ... promote your work at web and in newsletters?
- ... stay informed about the activities you are interested in via personal email?

Reserve the Date: June 2015  
EuroNanoForum Riga  
You are welcome there!



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Thank you for your attention!  
Visit us

<http://www.microtec-d.com/>

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G+ groups MEMS and RMPD

Twitter @minamnanofuture



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## Who needs Coatings and for What?



Concrete: Tubecoat (Air-drying)



Aluminium, Magnesium, Stainless Steel or Concrete:  
ET-Sil Products (Air-drying)



Aluminium, Magnesium, Stainless Steel or Titan:  
U-Sil Products (Stoving Coatings)

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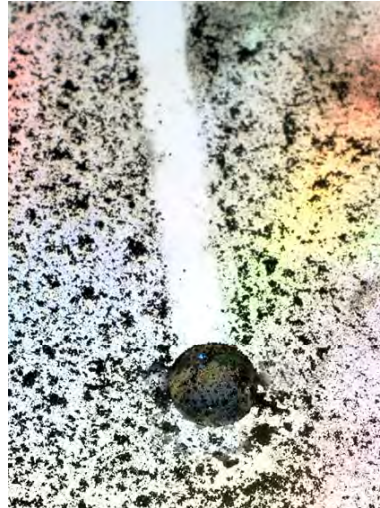


## Business Area



Functional sol-gel coatings  
for light metals and concrete:

- Corrosions protection
- Easy-to-clean properties



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## Organic-Inorganic Hybrid-Polymeres



Resistant against:

- UV-Light
- Temperature (-cycles)
- Environmental influences  
(Hydrolysis, Weathering etc.)



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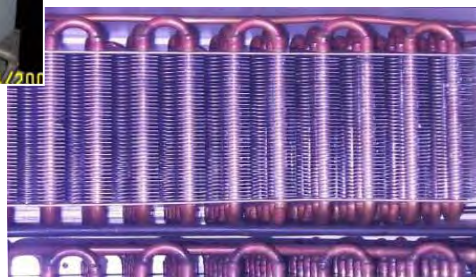
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## Example: Heat-exchangers/Air Conditioning



Heat exchanger without coating in textile industry

Coated heat exchanger of Aluminium after 2 years exposure to industrial climate; Exposition without filter pad



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## Produce micro parts with less energy and lowest chemical consumption

=> Additive Manufacturing based on fast UV curing

Using nano-enhanced UV-curing materials for customized production of precision parts (gas flow laminators, connectors, lab-on-a-chip products): microTEC is focused on customized series production of polymer chips, micromechanics and multi-material parts.

Beside the technical advantages of microTEC based MEMS production there are also cost advantages for industries:

- RMPD Systems are easy to use and easy to maintain  
=> Fast deliverable series parts in flexible units in high precision at low cost
- Easy to handle materials (fluid monomers/polymers)  
=> No high-risk chemicals

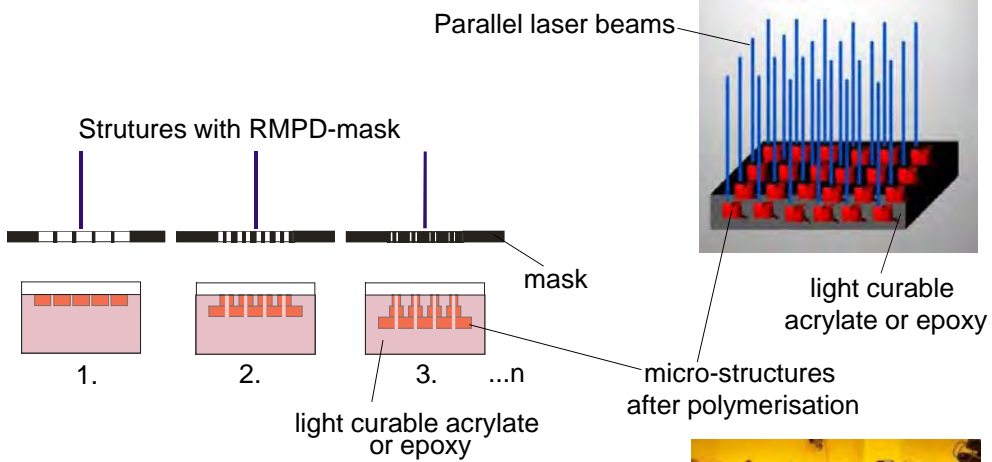


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# Additive processes for microstructures

Parallel production with RMPD



## Properties

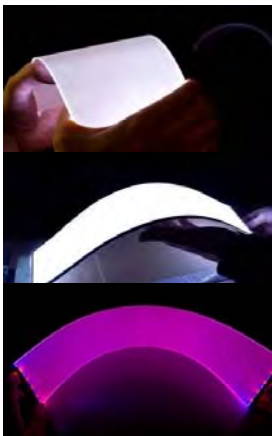
- Best accuracies
- Fast for mass production

RMPD-Rotation



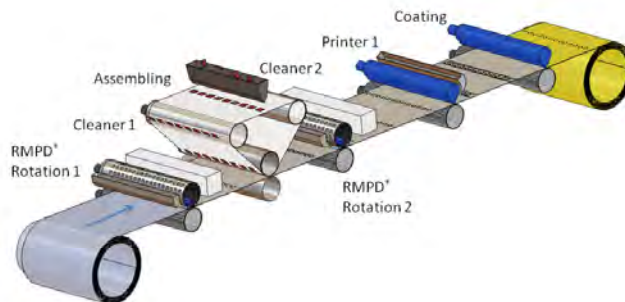
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# Light-Rolls



Courtesy of Designed Products Ltd.

Research and development of modular based production units for the seamless, high throughput manufacture of micro-structured, polymer based components and microsystems.



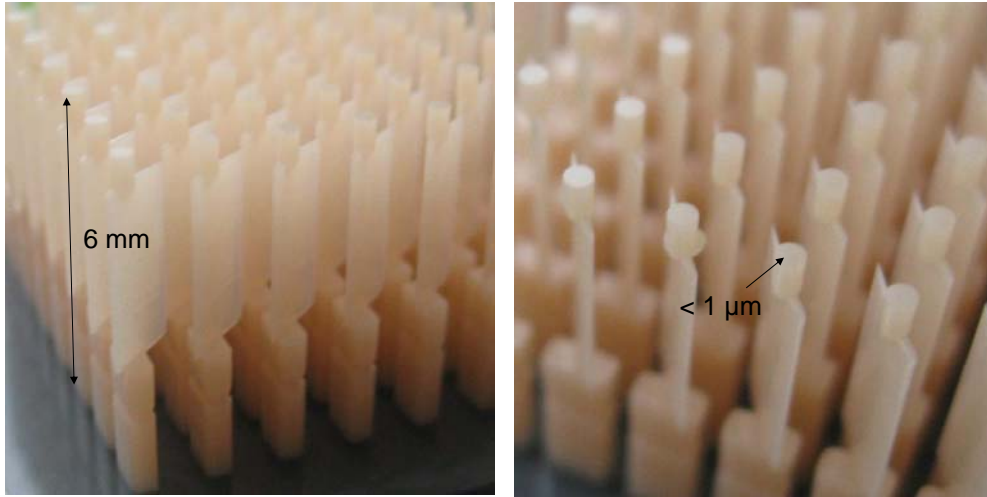
Funded by European Community's Seventh Framework Programme under Grant Agreement n° CP-TP 228686



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## Parallel production

10 parts or 1 million parts within max 10 days



## High aspect ratio for laminar flow



## Parallel batch production with RMPD



Micro fluidic devices in black polymere, with glass bottom



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## Low-Power Sensor module for pressure, temperature

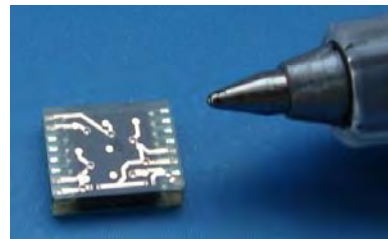
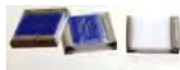


Interface to medium

3D-CSP Module



- Temperature sensor Pt 30.000
- measurement precision  $\pm 0,1$  °C
- measuring current  $< 10$   $\mu$ A
- high resolution
- 5 x 2,5 mm<sup>2</sup>



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# microTEC Locations

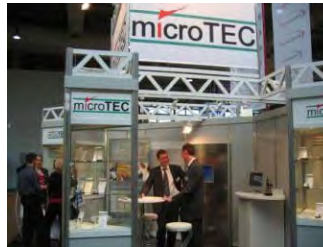
Duisburg



Bad Dürkheim



Customer Idea + microTEC  
Consulting  
R&D, Simulation  
Prototyping  
Direct Mass Production  
Training/Licensing  
= Customer Product Innovation



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