

# EMERGING TECHNOLOGIES

## NEW SKILL NEEDS IN THE FIELD OF NANOTECHNOLOGY

International workshop

11-12 July 2005, Stuttgart, Germany

The workshop will discuss the current situation and the development potential of this technology and will focus on approaches and first results to identify of future skill requirements and new emerging occupations in the EU.

### General information

<b>Workshop venue</b>	Fraunhofer IAO, Nobelstr. 12, 70569 Stuttgart, Germany
<b>Organisers</b>	European Centre for the Development of Vocational Training (Cedefop) Fraunhofer Institute for Industrial Engineering (Fraunhofer IAO) German Federal Ministry of Education and Research (BMBF) Institut für Strukturpolitik und Wirtschaftsförderung (isw)
<b>No of participants</b>	Max. 50
<b>Target groups</b>	Representatives from policy, social partners, research and business with a particular interest in activities and results in the field of 'Identification of skill needs' in the sector of nanotechnology/new technologies
<b>Working language</b>	English

# Agenda

Monday, 11 July 2005

08.30-09.00 Registration of participants

## Opening

09.00-09.40 Welcome by organisers:

*Dieter Spath*, Fraunhofer IAO, Germany

*Manfred Tessaring*, Cedefop

## Introductory session

Chairing: *Manfred Tessaring*, Cedefop

09.40-10.00 Presentation of Skillsnet – *Olga Strietska-Iliina*, Cedefop

10.00-10.20 Presentation of FreQueNz – *Gudrun Steeger*, BMBF, Germany

10.20-10.50 **Keynote 1:** Trends and applications in Nanotechnology and their impact on future skill needs – *Daniel Donoval*, Nanotech-network in Slovakia, Slovakia

10.50-11.00 Discussion

11.00-11.20 Coffee break

11.20-11.50 **Keynote 2:** Identification of skill needs in Nanotechnology (overview)  
*Uwe Schumann*, isw, Germany

11.50-12.00 Discussion

12.00-12.30 General discussion

12.30-14.00 Lunch

14.00-17.30 **Two parallel working groups**

### Working group I:

#### Nanotechnology and its effects on skill needs/occupational profiles

Chairing: *Helmut Kuwan*, HK-Forschung, Germany

Report: *Uwe Schumann* and *Henriette Freikamp*, isw, Germany

14.00-14.45 *Richard Cutting*, Advanced Materials Research Institute, University of Northumbria, United Kingdom

+ questions and answers

14.45-15.30 *Jan Voves*, Department of Microelectronics, Faculty of Electrical Engineering, Czech Technical University, Czech Republic

+ questions and answers

15.30-16.00 Coffee break

16.00-16.45 *Grit Petzholdt-Gühne*, Schott, Germany

+ questions and answers

16.45-17.30 Final discussion

### Working group II:

#### Skill shortages and gaps in emerging technologies

Chairing: *Susanne Liane Schmidt*, Fraunhofer IAO, Germany

Report: *Bernd Dworschak*, Fraunhofer IAO, Germany

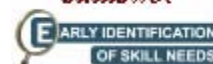
14.00-14.45 *Wolfgang Luther*, Future Technologies Division of VDI TZ GmbH, Germany

+ questions and answers

14.45-15.30 *Oudea Coumar*, EADS-LV, France

+ questions and answers

skillsnet



15.30-16.00	Coffee break
16.00-16.20	<i>Daniel Heubach</i> , Fraunhofer IAO, Germany + questions and answers
16.20-17.30	Final discussion
20.00	Dinner

## Tuesday, 12 July 2005

### Plenary session: Summary of the WG results

Chairing: *Alena Zukersteinova*, Cedefop

09.00-09.30	Summary of the results, working group I <i>Uwe Schumann</i> and <i>Henriette Freikamp</i> , isw, Germany + questions and answers
09.30-10.00	Summary of the results, working group II <i>Bernd Dworschak</i> , Fraunhofer IAO, Germany + questions and answers
10.00-10.30	Conclusions and discussion
10.30-11.00	Coffee break

### Final plenary session:

#### Transfer of research results into policy and practice

11.00-11.30	Chairing: <i>Olga Strietska-Ilina</i> , Cedefop European Nanotechnology Gateway (nanoforum.org) – <i>Mark Morrison</i> , Nanoforum, Institute of Nanotechnology, United Kingdom + questions and answers
11.30-12.00	Future needs of business and the economy – <i>Tim Harper</i> , Cientifica, Spain + questions and answers
12.00-12.30	Final discussion
12.30-13.00	Official closing of the workshop

## Parallel sessions description

### Working group 1: Nanotechnology and its effects on skill needs/occupational profiles

The nanotechnology sector has demonstrated the fundamental revolution in a number of technology fields. It is considered to have a very high growth potential and therefore to generate increasing demand for skilled labour. Nanotechnology is a cross-sectoral and highly interdisciplinary field. It penetrates into many industries, such as textile, chemistry, food, medicine, automobile, ICT, environment and many others. Development of nanotechnology brings along a number of totally new tasks, and even jobs and occupations whose requirements have to be identified and transferred into education and training as soon as possible.

This working session will deal with trends and developments in the field of nanotechnology and with their effects on occupational profiles and future skill needs.

The session attempts to answer the following questions:

- What are the trends in the sector of nanotechnology?
- How do these trends affect skill needs and occupational profiles?
- How do these trends affect other specific sectors and activities (and their skill needs and occupational profiles)?

### Working group 2: Skill shortages and gaps in emerging technologies

Emerging technologies – and nanotechnology is a good example – often initiate high growth for particular sectors and new jobs at different occupational levels (e.g. jobs for researchers and scientists but also for a range of technicians and specialists with secondary, post-secondary and non-university tertiary educational attainment). Moreover, the whole area of new technologies demands a set of basic skills which can be specific or general at different occupational levels and which can promote innovation, research and development (e.g. innovation management). Particular skill gaps and skill shortages may significantly diminish the growth potential and other positive effects of the new technological field.

This working group will discuss different solutions for different levels (enterprises, education and training institutions and systems etc.) as well as experiences from other technological fields and sectors.

The session attempts to answer the following questions:

- How can we identify future skill shortages and gaps in emerging technologies?
- What are specific shortages and gaps already identified/estimated for the nanotechnology sector? What are typical skill shortages and gaps experienced by other newly emerging and fast developing technology sectors? What can the nanotechnology sector learn from these experiences?
- How can skill shortages / skill gaps be tackled and possibly prevented?

## Address of the organisers

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