

Framework Programme 7 Optics and Photonics

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European Commission
European Society and Media



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Overview

- **The photonics Market in Europe**
- **Framework Programme 7**
 - Workprogramme 2007-2008
Selected projects
 - Workprogramme 2009-2010
New calls
 - Workprogramme 2011-2013



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The photonics Market in Europe

- World Market (production) was EUR 228 billion of which the European share EUR 43.5 billion (19%).
- The revenue of the European photonics industry grew by 12% to €49 billion in 2006. This is a high growth industry.
- European photonics production is now equivalent to that of microelectronics in Europe only with a higher growth rate.
- The world market of microelectronics was 200 Billion Euro in 2006, according to the Semiconductor Industry Association. Growth forecast is only 5.4% up to 2010.



The photonics Market in Europe

- Photonics employs 246,000 people in Europe, not including subcontractors. Well over 5,000 companies are involved in manufacturing of photonics, most of them small and medium-sized enterprises.
- Europe is particularly strong in many key sectors such as lighting, measurement and automated vision, production technology, medical technology and life sciences, defence photonics and optical components and systems.
- In these areas the European share ranges from 25% to 45%.



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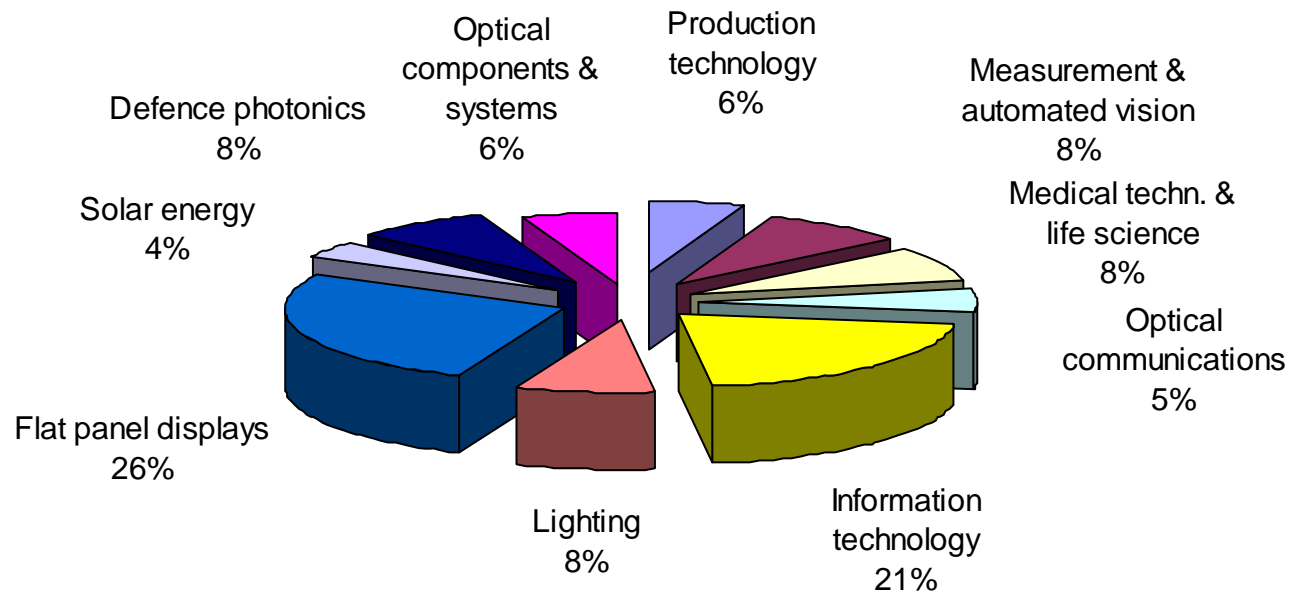


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The photonics Market in Europe World Market 2005 (production)

Photonics World Market by Sector, 2005

Total: EUR 228 Billion



OPTECH CONSULTING - October 2007



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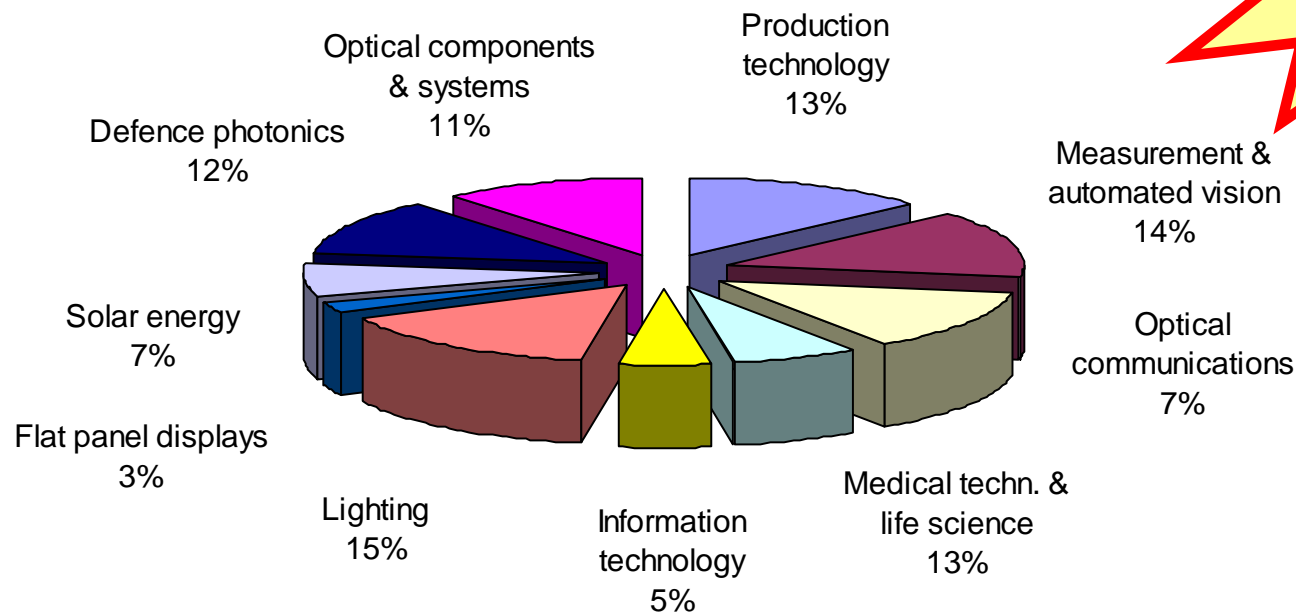


The photonics Market in Europe

European Market, 2005

European Photonics Production by Sector, 2005

Total: EUR 43.5 Billion



OPTECH CONSULTING - October 2007

19% of
World
Market



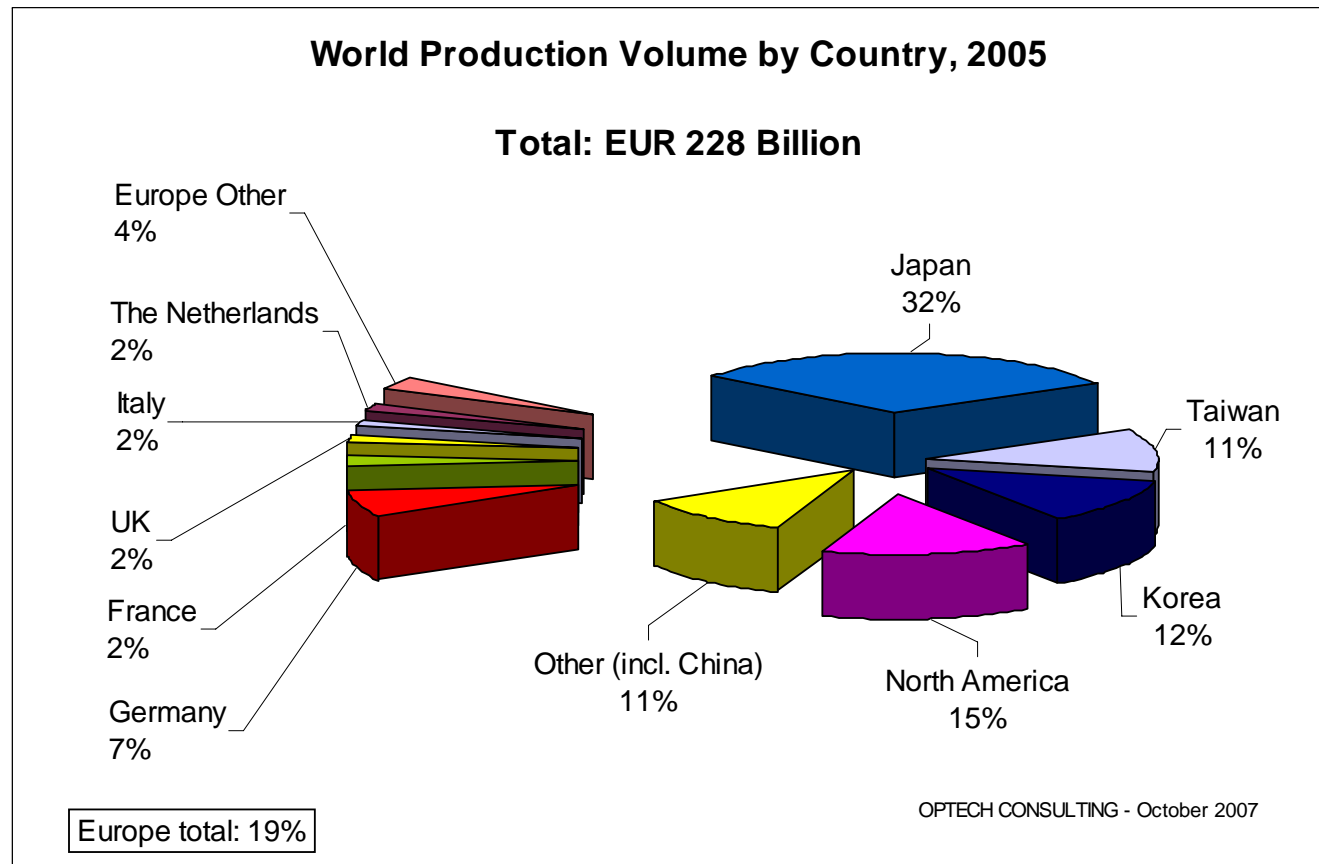
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The photonics Market in Europe

World Production by country



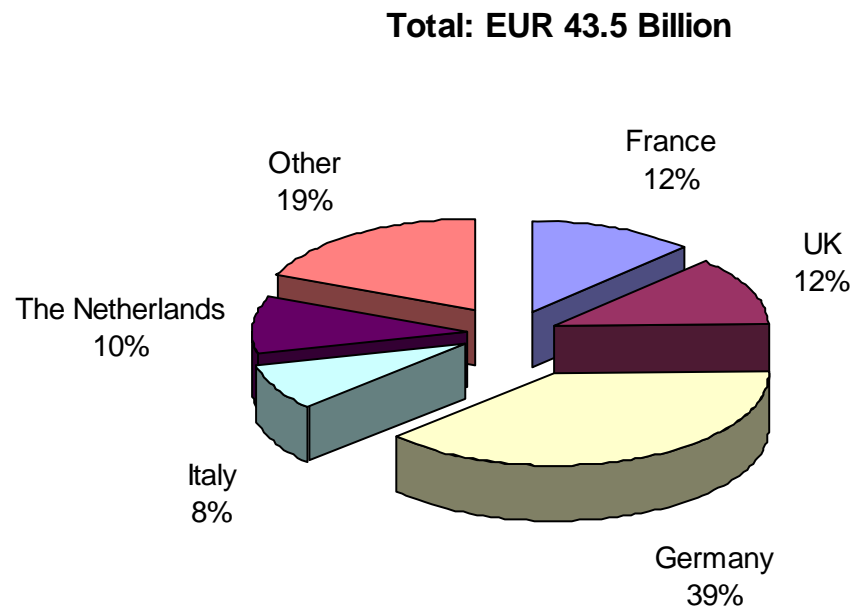
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The photonics Market in Europe

European Production by country

Photonics, European Production Volume by Country, 2005



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Workprogramme 2007-2008

Selected projects

Call Objectives

- a) Core photonic components & subsystems
lasers, lighting, fibres, imaging, sensing
- b) Application-specific photonic components & subsystems
core/access networks, bio-med, sensing
- c) Underlying technologies
- d) Complementary measures
assessment, networking
- e) Support measures
access, education, work-groups



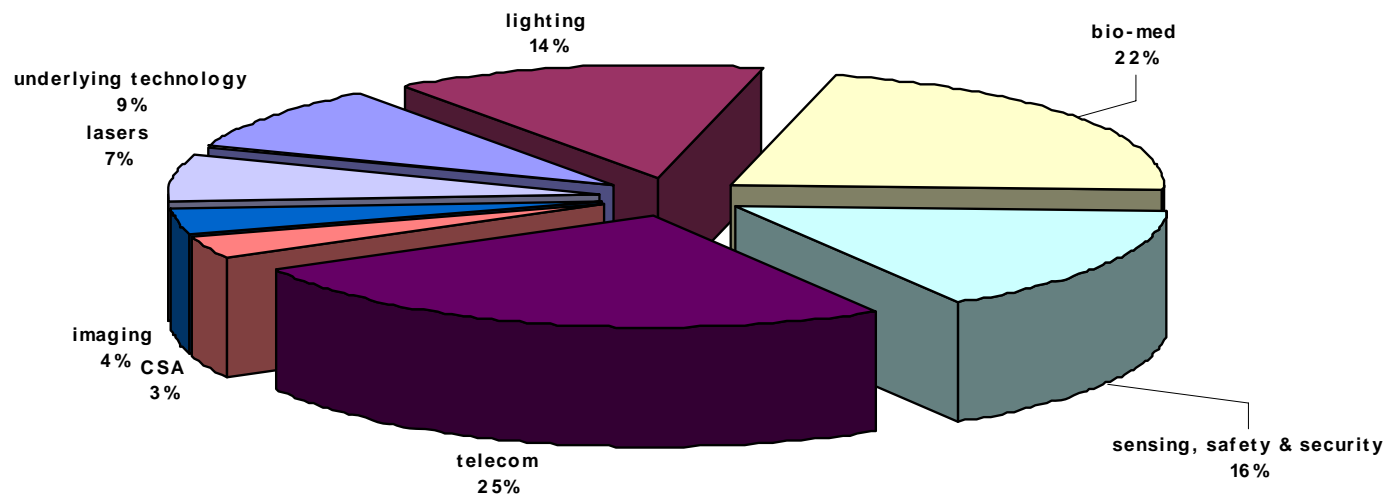
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Output per domain in % of funding

Total : 90 M€



CSA: - coordination and support actions



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Underlying Technologies

HELIOS

Photonics functional integration in CMOS

Solid-State Lighting

OLED100.eu

Organic LED lighting

Bio-medical applications

FAST-DOT

Ultra-fast quantum dots lasers based for biomedical

PHOTONICS4LIFE

NoE on Bio-photonics

MIRSURG

Mid-infrared solid-state laser systems for minimally invasive surgery

InTopSens

Point of care diagnostics



Telecommunications

APACHE

Agile photonic integrated systems-on-chip enabling WDM TBit networks

BOOM

Micro- & nano-scale Si photonic integrated components

EURO-FOS

NoE on photonic subsystems for communication networks

GIGAWAM

Gbit PON using WDM

HISTORIC

Heterogenous InP on Si for optical routing and logic

PHASOR

Phase sensitive amplifiers & optical regenerators

POF-PLUS

POF for pervasive low-cost high capacity systems

VISIT

Components for scalable economic broadband access and LANs



Lasers

DELIGHT

Low-cost technologies for the fabrication of high-performance lasers

SUBTUNE

Widely tuneable VCSEL using sub-wavelength gratings

Imaging

ICU

Infrared imaging components for use in automotive safety applications

MUSIS

Multispectral THz, infrared, visible imaging & spectroscopy

Sensing, safety and security

OPHTER

Optically driven THz amplifiers



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Sensing, safety and security continued

DOTSENSE

Group III-nitride quantum dots as optical transducers for chemical sensors

MARISE

Materials for avalanche receivers for ultimate sensitivity

MINIGAS

Miniaturised photo-acoustic gas sensor based on mid-infrared lasers

PHOSFOS

Photonic skins for optical sensing

SENSHY

Photonic sensing of hydrocarbons based on mid-infrared lasers

Coordination & Support Actions

PHORCE21

Photonics coordination in Europe – Photonics21

PHOTONFAB

Si photonic IC fab-less broker

PHOTONICROADSME

Technology roadmaps in photonics & industrial adaptation to SMEs



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Workprogramme 2009-2010

Organic Photonics and other disruptive technologies

- OLEDs
- Organic photovoltaics
- Organic guiding structures, sensors, lasers, amplifiers
- Disruptive photonics technologies (exploiting effects at the limits of light-matter interaction) for transition from advanced research to industrial technologies

Call 4
(open Dec 08)
30Meuro



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Workprogramme 2009-2010

Photonics Applications

- Communication
- Lighting and efficient light sources
- Biophotonics – imaging and diagnosis
- Imaging for safety and security
- Highly Integrated, hi-power lasers for ICT and manufacturing

Plus

- Cost effective, versatile foundry processes
- Access to technology and expertise for SMEs
- Education – outreach and transnational 3rd level programmes

Call 5

(open June 09)

60Meuro



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Workprogramme 2009-2010

Networks of the Future

- Novel Internet architectures and technologies
 - Ultra high capacity optical transport networks
 - ...
 - ...
 - ...

Call 4 + 5
(open Dec 08
and June 09)
190 Meuro



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Workprogramme 2009-2010

**Flexible, Organic and Large
Area Electronics**

Call 4
(open Dec 08)
60 Meuro



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Workprogramme 2009-2010

Microsystems and Smart Miniaturised Systems

- Heterogeneous Integration (nanoelectronics, photonics, microfluidics, mechanics...)
- Application specific (including sensing)



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Workprogramme 2009-2010

ERA-NET Plus

Next Generation broadband



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ERA-NET Plus action – what and why

- EN+ is a tool for *joint funding* between EU, national and regional programmes.
- Foster greater co-operation and alignment between national programmes.
- Critical mass on a single topic of strategic importance.



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ERA-NET Plus action – how does it work

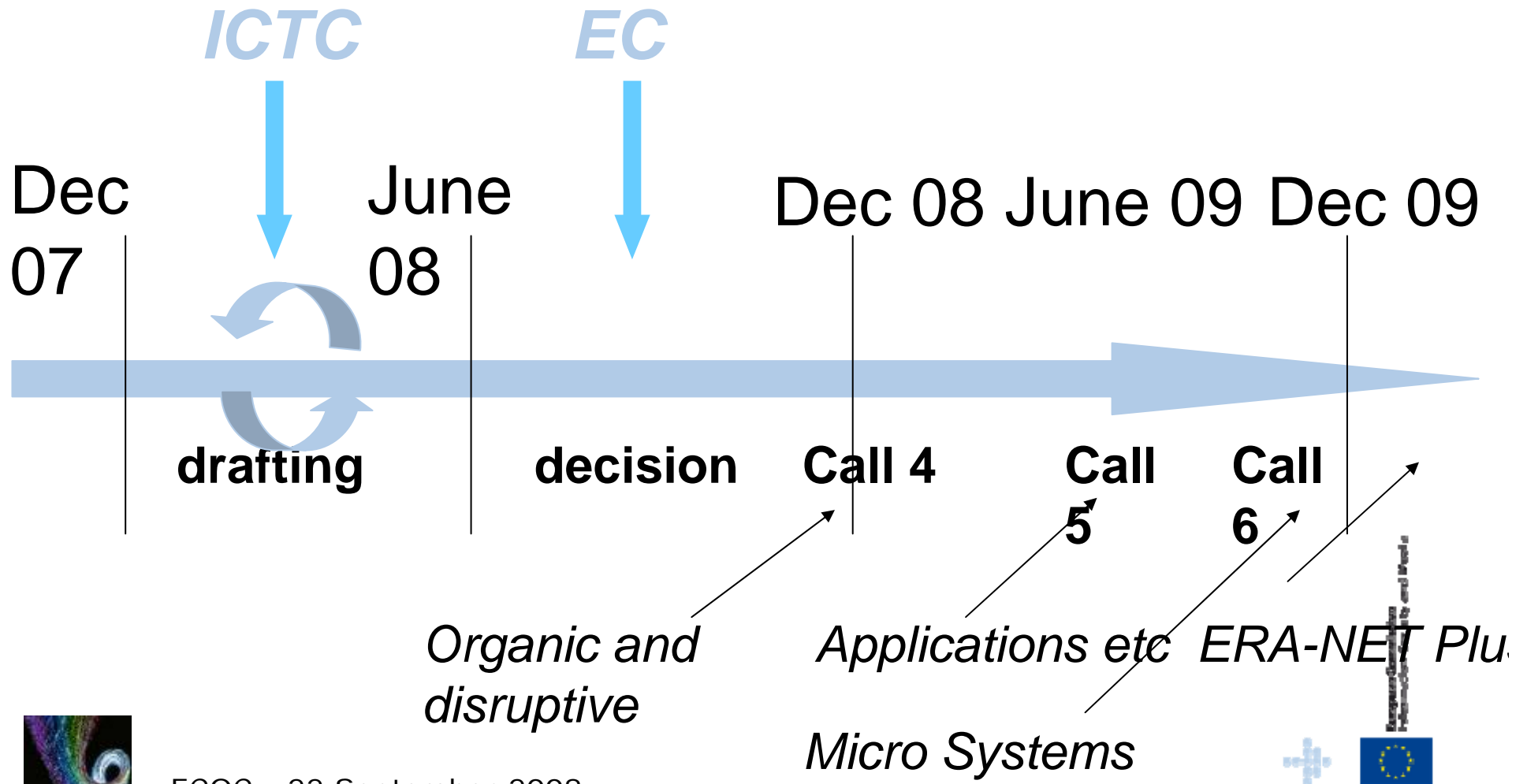
- 2/3rd funding from national funding programmes and 1/3rd funding from EU.
- The partners must be owners or managers of a research programme.
- 5 or more Member States must be involved.
- Results in a single call for proposals on a chosen topic.



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WP '09-'10 timing



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Further information

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www.photonics21.org

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