EPIC
European Photonics Industry Consortium

Opportunities in Photonics 2011

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General Secretary, EPIC

SwissLaser Net Meeting
Bern 27 April 2011

Summary

- EPIC
- EPIC activities
- EPIC members in Switzerland
- EU call 8
  - Smart factories
  - Nanoelectronics
  - Photonics in general
- The Green Paper
- REACh
- SBIR

EPIC : Mission

***EPIC*: owned and operated by its industry members**

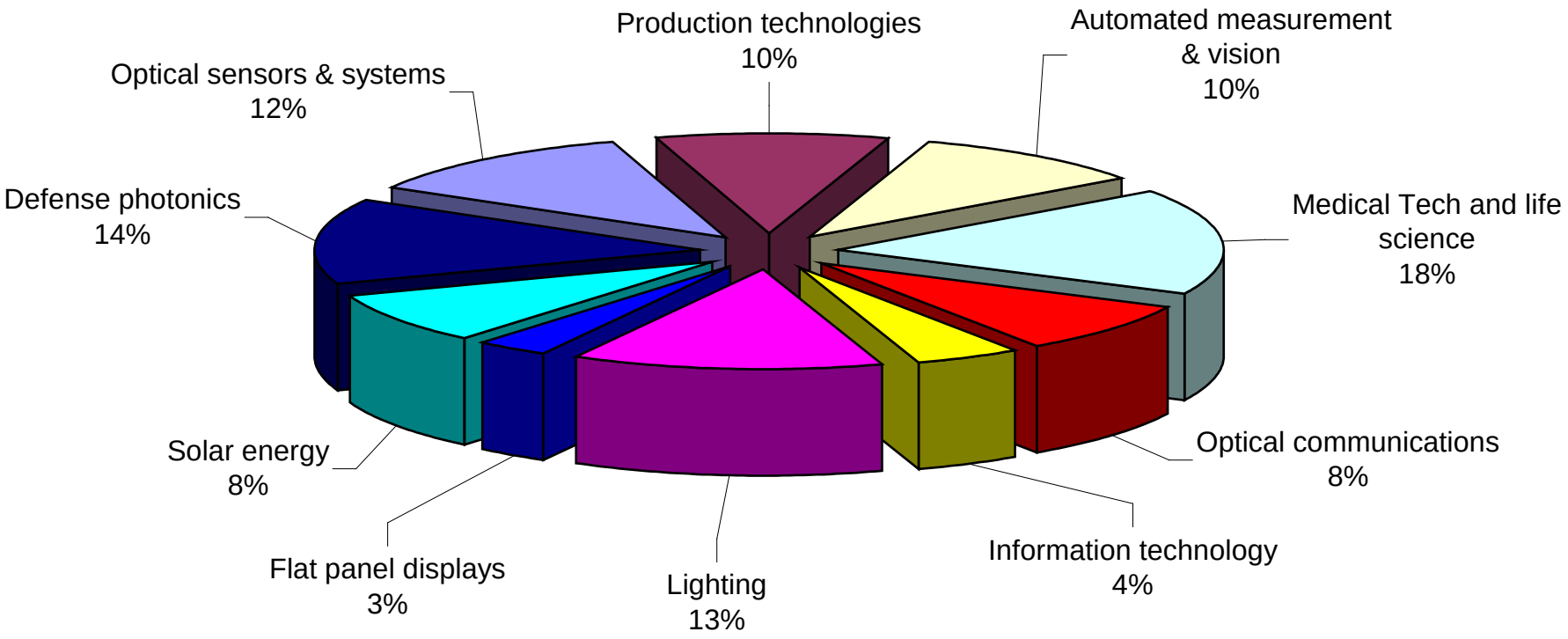
Promote Sustainable Growth for the European Photonics Industry

Implementation

- Working to increase the revenues of our members
  - Resources and financial support for prototype development and evaluations
  - Enhanced access to R&D funds
  - Reduced production costs
    - Creating new manufacturing infrastructure
    - Facilitating partnering
    - Vital business development services
  - Networking
    - Timely market and technology intelligence
    - Developing your customer base

European Production in 2009

European Photonics Production by Sector
2009 estimate Total = 52 Billion euros



EPIC activities in 2010

- The return on investment in 2010
- EPIC members were paid 2.2 million euros net for participation in European projects, representing a 11 times return on membership fees paid (190 keuros)
  - Membership in EPIC is a financial resource, not a cost.
- EPIC Symposium on Next Generation Access Technologies at ECOC in Torino,
- Contributions to the Key Enabling Technologies Initiative of the European Commission.
- Individualized services to members: introductions & meetings with customers, publicity, market data, reports, a technology audit
- Organisation of a 700 k euro EU project involving 8 EPIC members to implement prototype exchange and evaluation for SMEs.

23 EPIC member companies participated in 8 meetings organised by EPIC during the last year

- **4 EPIC members on video:** Berlin, Germany, 6-17 November 1 2009
- **Visit to members:** Zürich and Lausanne, Switzerland, 14-18 December 2009

- **Visit to members:** Bordeaux , France 10-12 February 2010

- **EPIC organised the LIFT project on Fiber Lasers:**

A 17 million euro project funded by the Commission

- **Invest in Photonics: Finance for SMEs:** Bordeaux, 18-19 March 2010

Breakthrough Events: Business Roundtable Takes off

Innovation and Integration

EPIC European Photonics Industry Consortium

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SCOTTISH OPTOELECTRONICS ASSOCIATION

smepact

- Create business relationships between photonics companies leaders in sensor innovations and technology integrators who are seeking specific capabilities and performance for sensing in harsh environments.
- Photonic sensing in harsh environments includes both civilian and defence applications.
- Traditionally produced for air, marine and ground forces, photonic sensors are now diversified to civilian applications to meet stringent security requirements. Going even further,
- photonic sensors are now key technologies in oil and gas exploration. The “dual-use” philosophy is driving unprecedented innovation and growth in the photonics sensors sector.

EPIC members in Switzerland

- Exalos
- Haute Ecole Suisse
- OneFive Laser
- Oclaro
- Silitec
- Suss Micro Optics
- SwissLaser Net
- Time Bandwidth Products

- And You?

Calls for proposal from the European Commission

- There are 2 dates to remember

- 2 December 2011
  - « Smart Factories » 40 million euros

- 17 January 2012
  - Everything else 200 million euros

FoF-ICT-2011.7.1 Smart Factories: Agile manufacturing

Lasers and laser systems for manufacturing and materials processing:

i) High-brilliance active fibre and diode lasers (laser arrays) with nearly diffraction-limited beam quality. Simultaneous targets are:

multi kW continuous wave output power,

efficiency of 40% or more,

coupling into small diameter fibres

ii) New wavelengths and on-line adaptation of beam properties:

novel lasers and laser systems opening-up new process windows This

widely tuneable lasers, ultra-short pulse lasers, versatile frequency conversion

in order to produce stable beams of sufficient power and quality for the intended process.

iii) Projects are expected to be industry-driven and to contain a strong validation element with quantifiable targets.

Photonics and Nanoelectronics

- Objective ICT-2011.3.1 Very advanced nanoelectronic components: design, engineering, technology and manufacturability (60 million euros)
  - the combination and convergence of advanced More-than-Moore elements with Beyond-CMOS devices and their integration and interfacing with existing technology.

- Objective ICT-2011.3.2 Smart components and smart systems integration (39 million euros)

- Objective ICT-2011.3.5 Core photonic technologies (92 million euros)
  - 1. *Optical data communications:*
  - 2. *Biophotonics for early, fast and reliable medical diagnosis*
  - 3. *Imaging and sensing for safety and security:*
  - 4. *Lighting and displays*
  - 5. *Photonics integration platforms*

Beyond FP-7 Common Strategic Framework

- Planning for the next Commission framework programme is going ahead full-steam
- The name is changed to Common Strategic Framework (not FP-8)
- The Commission has drafted a « Green Paper » and is seeking your input.
- Here is the website address to download your copy and respond to 27 questions from the Commission
- http://ec.europa.eu/research/csfri/index_en.cfm?pg=home

REACh

- Registration, Evaluation, Authorisation and Restriction of Chemicals
  - An initiative of the European Commission
- ECHA = European Chemicals Agency
  - Recommends classification for chemicals
- DG Environment
  - Receives recommendations and makes classifications

Gallium Arsenide and Indium Phosphide

- The ECHA has
  - considered GaAs (2010) and InP (2009)
  - Used a questionable procedure
  - Recommended to DG Environment
    - Carcinogenic toxins
    - Reproductive toxins
    - Specific organ toxins

EPIC and REACh

- We think that the initiative is a good idea
- Recommendations should be based on scientific evaluations that measure the effect of the actual chemical under consideration
- In fact, both GaAs and InP do present health dangers in the synthesis and processing stages
  - These were ignored by ECHA
- In fact, neither GaAs nor InP represents a health threat in the finished device
  - This is where ECHA focussed its recommendations

What does it mean?

- If the recommendations are adopted.
  - GaAs and InP will be labeled as toxic materials
  - The use of the compounds in commercial products will be restricted, and probably subject to a user tax
  - Kiss goodbye to your i-phone
  - The GaAs and InP industries will be exported from Europe to regions where REACh does not apply : ie Asia, US

- Basically, we are looking at a catastrophe for photonics in Europe.

What should you do?

- Be informed:
  - Go to the REACh site and consult the documents available for GaAs, InP, and AlP

http://echa.europa.eu

http://echa.europa.eu/consultations/harmonised_cl_en.asp

- React: Political lobbying works
  - Submit your comments on the proposed recommendations
  - Make your opinion known to
    - Karl Falkenberg, Director-General, DG Environment
    - Your EU representatives
    - Your government representatives

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Innovation support for start-ups and small companies

- R&D: Spending money to create ideas
- Innovation: using ideas to create money
- This part of the presentation is about innovation

State Aid for Innovation is not Forbidden!!

- Neelie Kroes, Commissioner for Competition, 2006
- Competitive markets should lead to the most efficient outcome in terms of R&D&I.

- It may take several years before an efficient and functioning market is developed for innovative products.

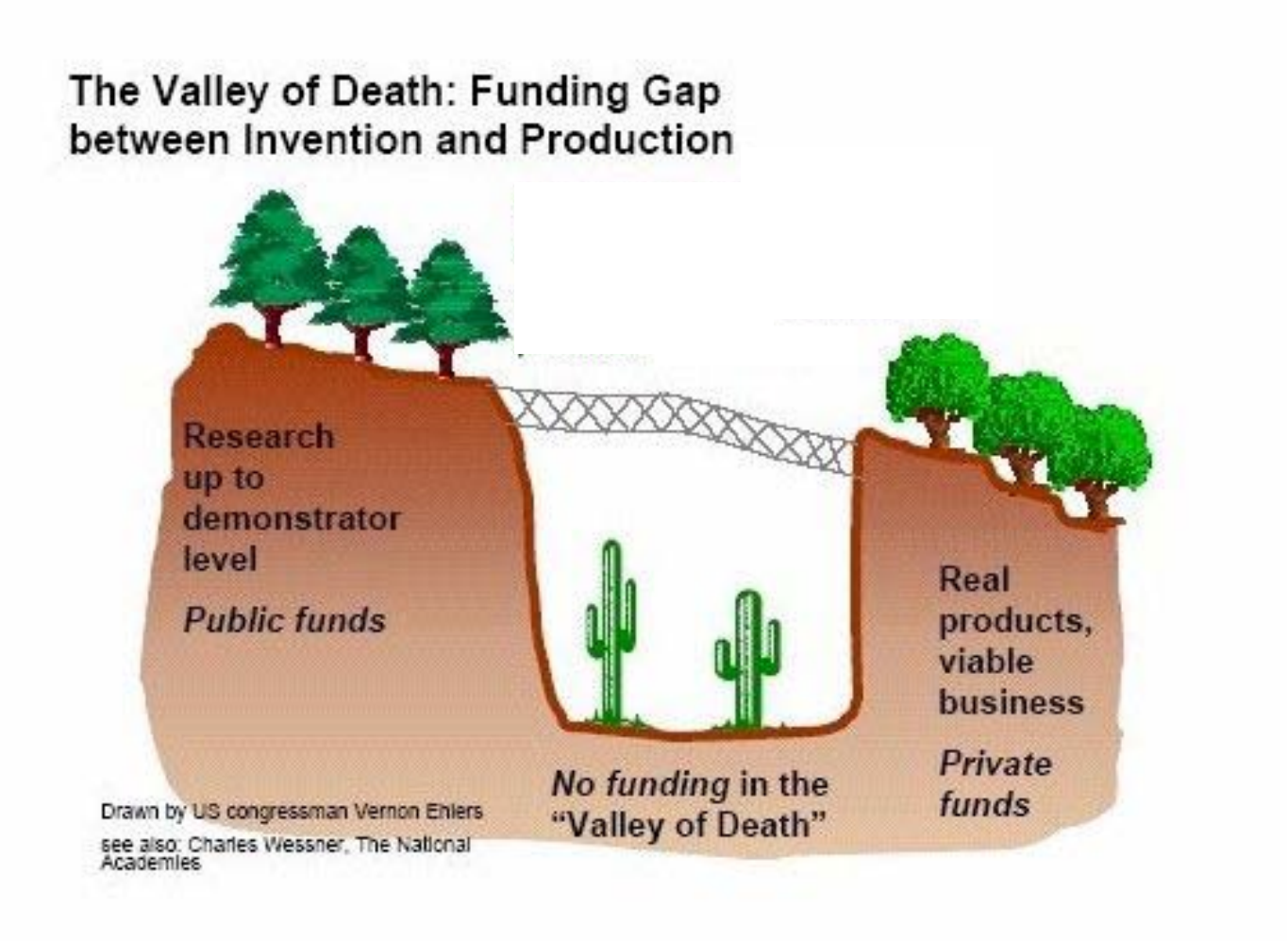
- Market failures are one reason for a low level of R&D&I.

- Government intervention might then improve the outcome.

- State aid may play a role in counter-weighing market failures.

COMMUNITY FRAMEWORK FOR STATE AID FOR RESEARCH AND DEVELOPMENT AND INNOVATION 08/09/2006

Small Business Innovation Support



What is needed?

- Small Business Innovation Support
  - SBIR Innovation support in the US
  - CHIS : (Swiss Innovation Support)
- Fiscalisation (tax credit)
- Venture funding
- Manufacturing innovation centres
  - Could be a public-private partnership
  - Foundry
  - IMEC model
  - Manufacturing development centres for lasers

Small Business Innovation Research: basic parameters

Purpose: Allow small firms to undertake cutting-edge, high risk, high quality scientific, engineering, or science and engineering education research with a high potential economic payoff if the research is successful.

Phase 1. Grant application (10 pages) success rate is 15%, but time investment is low

Grants

SBIR – Small Business -- $100,000 for 6 Months: an outright grant

STTR – Small Business + University Researcher(s) -- $150,000 for 12 Months (outright grant)

Advantages of program:

- Small company focuses on its own particular priorities
- Small company does not have to share or disclose IP to other partners
- Small company receives outright grants with no « strings attached » or other conditions.
- The initial grant covers 100% financing of project.
- Small company can use the SBIR grant to leverage funding from bank, venture capital, and other sources of finance.
- Co-financing by small company occurs at later stages of the program as a result of earlier successes.

The EU is not the right organisation

- The EU requires multiple partners in each project
- Intellectual property must be shared among all partners
- Up to now funds are invested in pre-competitive research

In Europe, the most promising approach would be a programme at the national or regional level.

How you can get started:

- The National Science Foundation
  - Invented the SBIR programme in the US, 40 years ago
- David Stonner is current Head of the NSF Europe Office
- He is also the world's leading expert on SBIR programmes
  - Represented the SBIR programmes in budget negotiations with US Congress for 15 years.
  - He is a skilled political actor.
- David Stonner would be pleased to help you start your own innovation support programme

Comparison of innovation funding instruments

	IPR Ownership	Time Bureacracy	SME Priorities	Effectiveness as SME development	Market distortion	Lever for funding
SBIR Direct Grant	plus	minus	plus	plus	neutral	plus
Loan	plus	minus	plus	neutral	plus	plus
Tax Credit	plus	plus	plus	plus	neutral	neutral
European Project	minus	minus	minus	minus	neutral	minus

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