ECSEL Symposium

Electronics: a vision and how to get there

Brussels – June 19, 2018
EIB at a glance

The EU bank:
- Established in 1958
- Shareholders are the 28 EU Member States
- Around 90% of lending within the EU

World’s largest International Financial Institution:
- Largest multilateral lender
- Largest multilateral capital markets borrower
- Primarily focused on EU but with large operations outside

Solid credit fundamentals:
- AAA-rated by the three major rating agencies
- Own funds in 2016 of EUR 66.2bn
- Capital adequacy ratio in 2016 of 26.4%
- Favourable borrowing conditions passed on to clients

Key lending priorities (2016 levels of investments – EIB Group):
- ENVIRONMENT EUR 16.9bn
- INFRASTRUCTURE EUR 19.7bn
- INNOVATION EUR 13.5bn
- SMEs EUR 33.6bn

Total assets in 2016: EUR 573bn
Lending volume in 2016: EUR 83.7bn
Capital markets funding in 2016: EUR 66.4bn
EIB Group Product Offering

covering the entire cycle of a company’s development

- Pre-seed Stage of development
- Startup with <250 employees
- Small MidCaps (250-500 employees)
- MidCaps (500-3,000 employees)
- Large MidCaps (500-3,000)
- Large Caps

- Seed stage
- First “Valley of Death”
- Second “Valley of Death”
- Innovation finance gap
- Growth Finance Gap – expansion capital EUR 7.5m-25m

- Funding size (EURm)
- Access to finance
- Intermediaries (Funds)
- Intermediaries (Banks)
- Mandates/SLA
- Global Loans
- Investment Loans
- Contingent Loans
- Quasi-equity / Venture Debt
- Tech Transfer / VC
- VC / SME Funds
- VC / SME Funds
- PE / MidCap Funds

- EUR 7.5m - 25m covering the entire cycle of a company’s development
InnovFin Advisory video

https://www.youtube.com/watch?v=cj9_KCguA3E
What we do: Project Advisory, Market Consultations and Thematic Investment Platforms

**Project Advisory**
- Advise companies on EIB and other sources of financing
- Improve bankability/investment readiness
- Enable earlier/faster access to finance

**Investment Platforms**
- Leverage horizontal (market) studies to identify funding gaps
- Where necessary, recommend internal EIB-managed instruments and/or Investment Platforms (IP)
- Structure/implement IP that mobilise public/private investors

**Market Consultations**
- Improve framework conditions for financing
- Develop “business case” for new financing mechanisms in RDI sectors
- Prepare studies on increasing effectiveness of financial instruments to address specific sector/RDI policy objectives

**Funding Gap Analysis**
Access to Finance studies for:
- Financing the next wave of medical breakthroughs
- Financing the deep tech revolution
- Investments in Bio-based Industries and the Blue Economy
- Circular Economy, Agri-food, Digital Economy, etc

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**Circular Bioeconomy Investment Platform**
(InnovFin Thematic Investment Platforms) * under development

**InnovFin**
Infectious Diseases
IFA’s Portfolio of Market Consultations

Our studies lead to the creation of new financial products, while proving to be an effective outreach and sourcing tool.

**IFA’s access-to-finance market studies**

- EARTO
- Life Sciences
- KETs I & II
- Transport
- Circular and Bio-economy

**Ongoing**

- European Innovation Council
- 5G
- Renewable energy
- Digital Economy
- Agri-Food

**Source new advisory assignments**

New financial products to address identified thematic funding gaps

Policy recommendations
Market Study - Introduction -

Project context & objectives

Context

• Follow-up to the EIB InnovFin Advisory study of Access-to-Finance Conditions for Key Enabling Technologies Companies (“KET I study”) published in 2016

• Clear link with the EIB Innovfin Advisory study on “Financing the Deep Tech Revolution: How investors assess risks in Key Enabling Technologies” (the “KETs II study”) published in March 2018

• Ongoing studies on Digital Economy including access to finance conditions for supercomputers and access to finance conditions of Digital Innovation Hubs and digitalisation of SMEs

Key objectives

• Review access-to-finance conditions for companies working in Micro-electronics/components and Photonics sectors;

• Identify problems and provide recommendations to further improve the access-to-finance conditions for the companies in the relevant sectors, and

• Explore to what extent conclusions drawn and recommendations made for KET companies in general also apply to photonics and Semiconductors
## Key findings

### Grants and national programs

1. **Grant programs are a key lever** for Photonics and Semiconductor companies at early stages.

2. National agencies are important financing players for Photonics and Semiconductor companies.

### Corporates and clusters

3. **Clusters play a key role in supporting the sectors’ companies**

4. Established corporates play an important role to support the development of Photonics and Semiconductor companies.

### Specific financing challenges

5. Photonics and Semiconductor business models tend to be complex and not fully understood;

6. Photonics and Semiconductor tend to present less compelling investment characteristics vs. other industries.

### “Funding gap” in private financing

7. There is limited venture capital and private funding gap in Photonics and Semiconductors,

8. Commercial bank funding is mostly not available where needed in the Photonics and Semiconductor sectors.

### EU financial instruments

9a. There is insufficient awareness and understanding of EU financial instruments (EIB, EC, etc.)

9b. Direct lending from EIB to the Photonics and Semiconductor sectors is limited but addressing a real market need

9c. Indirect financing of VC funds is necessary but not sufficient to meet specific Photonics and Semiconductor market.

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Market study – Key findings -

More than 50 interviews with market participants
Grants and national agencies are critical levers

<table>
<thead>
<tr>
<th>Grants</th>
<th>Local and national agencies</th>
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<tbody>
<tr>
<td>• Significant funding resource for young companies</td>
<td>• Over half of our sample received support from their respective national agencies</td>
</tr>
<tr>
<td>• Vast majority of companies interviewed made use of grants</td>
<td>• Responsiveness on companies needs</td>
</tr>
<tr>
<td>• Reinforce a venture’s credibility and lower its risk profile</td>
<td>• Support generally took the form of grants or forgivable loan instrument</td>
</tr>
<tr>
<td>• Subsidies tend to cover technology development phase, but less so the market development aspects</td>
<td>• Few programs are in place at national agency level</td>
</tr>
<tr>
<td>• Complexity of application process may discourage certain players</td>
<td>• Commercial integration of selected technologies is key to future development</td>
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</tbody>
</table>

**Related Quotes**

- “National and H2020 grants are an essential source of funding for us.”
- “Grant programs are an excellent support to our R&D investments.”
- “Many European initiatives are very time consuming to apply for and the process is slow compared to the fast moving market.”
Clusters and corporates are critical for Photonics/MECS companies

Location of Semiconductors in Europe

Location of Photonics in Europe

Strategic partners

- Venture development often takes place through corporate collaboration e.g.,
  - Commercial collaboration
  - Technology collaboration
  - Infrastructure sharing

Financing and Acquisitions

- Corporates may invest strategically in early-stage ventures in parallel with other collaboration means
- At later stages, corporates may acquire successful ventures
Funding gap is most pronounced at scale-up stage

Common issue emerging across deep tech companies

### Research & development
- Basic principles observed
- Technology concept formulated
- Experimental proof of concept
- Technology validation in lab

### Product design and prototyping
- Technology validation in relevant envt.
- Demonstration in relevant environment
- Demonstration in operational environment

### Production
- System complete and qualified
- Successful mission operations
- High-volume production

#### Company funding needs
- **R&D**
  - Device and product design
  - Pilot lines
  - Commercialization

#### Size
- €

#### Risk
- Extremely high
- Very high
- High

#### Key funding sources
- Grants
- VCs
- Bus. Angels
- Growth funds
- Venture debt
- Banks

#### Key funding gaps
- **Early stage**
  - Risk extremely high, mainly due to technology risk
  - Investment requirements begin to rise (typically around 1-5 million euros) to finance product design and validation and early prototyping

- **Scale-up stage**
  - Risk remain high due to technology and market risk
  - Industrialization of production and commercialization require much larger investments (potentially above 10 EUR million)
# Opportunities for better roll-out of EU instruments and to improve awareness

## Positive aspects

<table>
<thead>
<tr>
<th>Awareness and perceived complexity</th>
<th>Direct financing instruments</th>
<th>Indirect financing</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Grants and public instruments offered by national and regional agencies are important levers</td>
<td>• Multiple instruments in place</td>
<td>• Existing instruments seen as important and necessary to support risk capital deployment in Europe, including for the sectors in scope</td>
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<td></td>
<td>• Non-dilutive features such as EIB venture debt are important to preserve founder interests</td>
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<td></td>
<td>• Multiple respondents have commented on general lack of awareness about EU/public offerings</td>
<td>• Limited financing extended to deep tech companies</td>
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<td></td>
<td>• Eligibility and link between instruments not fully understood</td>
<td>• Exception: Heliatek (PV) received financing package of 80 EUR million, including 20 EUR million in loans from the EIB, 42 EUR million in equity, and about EUR 18 million in subsidies</td>
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<td></td>
<td>• Complexity of application process also mentioned as a potential issue</td>
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## Recommendations

<table>
<thead>
<tr>
<th>Propositions</th>
<th>Description</th>
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<tbody>
<tr>
<td>1</td>
<td>Strengthen existing indirect funding via VCs and banks to encourage more private financing for deep tech companies.</td>
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<td>Overcome the obstacles including the risk-return imbalance of ventures in the sectors, and the need for deep tech expertise.</td>
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<td>Public investors could use asymmetric funds offering risk mitigation and/or return enhancement features for private limited partners to encourage VC financing to the sectors.</td>
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<td>2</td>
<td>Adapt existing financial instruments and programmes to better fit the risk-return profile of KETs companies.</td>
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<td>Need of dedicated resources for deep tech companies, which could potentially take the form of a thematic investment platform.</td>
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<td>These dedicated resources could boost existing venture debt or quasi-equity instruments, building on EIB experience.</td>
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<tr>
<td>3</td>
<td>Develop dedicated blended financial instruments (combining public and private funding) including conditional grant, contingent grant and co-investment programme to better support deep tech companies.</td>
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<td></td>
<td>Blended financial instruments have typically higher risk capacity, and bridge companies from the grant phase to moving towards private financial products.</td>
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## Recommendations

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| **Promote further coordination with national programmes** | • **Promote the expansion of financing programmes at national level and promote the coordination with EC programmes, with a specific focus on deep tech.**  
• **Development of enhanced, more coordinated and joint-up ecosystems for KETs companies.** A joint plan could be drafted to leverage EU and national programmes’ strengths with a specific purpose to bring increased financing to the sectors in scope |
| **Launch an initiative to improve the visibility of photonics and semiconductors** | • First, an **EU initiative on general communication and visibility,** aiming at increasing awareness and understanding of the technologies among investment providers  
• Second, an **EU technical support platform,** offering technological expertise and knowledge to private investors in a way to facilitate their investment activity  
• Third, **more targeted advisory services to KETs companies** including photonics and semiconductor companies to help them pitch potential investors, whether public/EU or private  
• Fourth, the development of an **information-sharing platform** to provide easy access to information about funding programmes for KET companies, and to improve dissemination and availability of information on KET companies to investors  
• Fifth, **EIB and ECSEL could improve coordination** efforts in order to ensure ECSEL funded projects are adequately considered for follow-on support (advisory or lending) by the EIB |
Heliatek, is a worldwide leader in organic photovoltaics and a large manufacturer of solar films. The Dresden based company is a spin-off from the Technical University of Dresden and the University of Ulm. The opening of the first production line in 2012 enabled the company to roll out production of it’s innovative “HeliaFilm”.

**Joint financing**

- In September 2016, Heliatek raised EUR 80m round to finance the expansion of its HeliaFilm manufacturing capacity by one million m². The series D round is a perfect example of joint financing efforts between private financing players, corporates, local authorities and European institutions.

- The financing round is a perfect example of funding cooperation between the three major players in the financing landscape (EU, national agencies and private actors).

- Today, investors include international corporates and financial companies such as BASF, HTGF, Innogy Venture Capital, Wellington Partners, eCAPITAL and AQTON SE. New investors include innogy SE, ENGIE (leading European energy companies), BNP Paribas and CEE Group. R&D, as well as the installation of production technology in the past has been financed by the State of Saxony, the German government and the EU.

**Founded:** 2006

**Raised to date:** ~ USD 156m

“This €20 million loan supported under Horizon 2020, the EU’s research funding programme, illustrates how the public and the private sector collaborate to keep Europe in a leading role...”

**Carlos Moedas, EU Commissioner for Research**

**Deal structure**

<table>
<thead>
<tr>
<th>Equity Capital</th>
<th>EUR 42m</th>
</tr>
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<tbody>
<tr>
<td>EIB Loan</td>
<td>EUR 20m</td>
</tr>
<tr>
<td>State Subsidies</td>
<td>EUR 18m</td>
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For more information:


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