

Photonics emerges from the shadows

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(PhysOrg.com) -- The name has been around for four decades, but only now is a recognisable photonics community emerging in Europe. A European study has documented a fast-growing sector of more than 2100 companies and 700 research laboratories.

In 2005, Europe's photonics sector earned €43.5 billion and was growing at 12% a year. It employed 246,000 people, accounted for 19% of world production and was already bigger than the semiconductor sector.

Yet, at the same time, the industry was hardly recognised in Europe.

So what is photonics? As a scientific discipline it includes everything to do with the manipulation of photons, the particles of light. The term was coined in 1967 but its wide-ranging and interdisciplinary nature means that photonics is only recently becoming recognised as a distinct sector of industry.

And before the EU-funded OPERA2015 project was launched in 2005 to take stock of this nascent industrial sector no-one really knew the extent of Europe's activities in photonics.

“When we started about three years ago there was no photonics community existing in Europe,” says Markus Wilkens, the project coordinator. “Photonics itself was rather fragmented and still is. Because photonics is a horizontal technology you will find it in many different fields like defence, or manufacturing or healthcare.”

Indeed, a recent report identified the photonics industry as encompassing ten subsectors, including production technology, optical measurement and machine vision, medical technology and life sciences, optical communications, information technology, lighting, flat panel displays, solar energy, defence photonics, and optical systems and components.

So broad is the sector that many businesses have been working in photonics without recognising their shared interests.

Industry database

It is precisely this fragmentation which has delayed the emergence of photonics as a recognised industrial sector and hampered its ability to pursue a coherent programme of development.

“So far, only Germany, and to some extent the United Kingdom and France, have dedicated funding programmes in the field of photonics,” Wilkens notes. “The aim of OPERA2015 was to compile as much information as possible at a European scale to make the industrial research landscape more visible.”

One of the project partners, TNO in the Netherlands, compiled a database of more than 2100 photonics companies in the EU and candidate and associated states. Another partner, Opticsvalley in France, identified over 700 institutes and laboratories specialising in photonics. On top of this, the project found about 50 clusters devoted to photonics around Europe.

This is the first time such an inventory has been published. It reveals that Germany, France and the UK are the leading players in Europe’s photonics sector, followed by Italy and the Netherlands. The database is freely available from the OPERA2015 website along with other resources compiled during the project.

The numbers are likely to be underestimated. Industry sources believe that there may be more than 5000 photonics companies manufacturing in Europe, most of them SMEs.

The project finished in April this year with a summit meeting at the Photonics Europe congress in Strasbourg, France.

Building a community

OPERA2015 worked closely with another EU initiative known as Photonics21, one of a series of European Technology Platforms established to define priorities for research, technology and development in strategically important industrial sectors. Indeed, Wilkens' company, VDI Technologiezentrum in Düsseldorf, also hosts the Photonics21 secretariat.

“OPERA2015 was more about collecting information and the aim of Photonics21 is to agree on common strategic research priorities for Europe,” he explains. “But of course, the overall aim is to support the establishment of a photonics community in Europe, agree on a common research strategy and then implement the strategy.

“So you need information, for instance, on how many companies and research institutes are present in Europe, and what they are doing? All this wasn't known before.”

The figures reveal that Europe is strong in production technology, in optical components and systems, in medical technology and life sciences and also in lighting. But some sectors, like flat panel displays, are dominated by Asian firms - except for some niche applications.

Now that OPERA2015 has completed its work, the database has been taken over by Photonics21 which is using information gathered during

the project to steer its strategic research agenda for Europe.

“The aim of OPERA2015, shared with Photonics21, was to make people aware that photonics should be regarded as a known discipline both in scientific research and also in industry,” Wilkens says.

The good thing for the European Commission, he suggests, is that it no longer has to listen to 30 different representatives from 20 countries and different associations. Now the photonics community speaks with one voice.

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Provided by [ICT Results](#)

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