



# OASiS

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Science Infrastructures for SMEs

**Project No. 619230**

**Deliverable 3.5**

## Roadmap of the needs of the SMEs in the next years

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## Introduction

In this deliverable we point out the needs of the SMEs working in the fields of Biophotonics. These inputs came to the OASIS partners during the contacts with SMEs that happened in the framework of the project, mainly the workshops, the direct contacts (calls, email, visits) performed to involve them in the activities of the project, and a questionnaire that was sent to the workshops attendees.

The results are different: SMES can ask for technical needs and clusters supports, to improve their technological skills and product competitiveness. We are thus presenting the results as we had from the different contacts. First of all the results from the questionnaires is presented, then a list of needs is reported. These results come from different clusters, i.e. different regions, but can be considered as transversal to all the consortium. Moreover, in order to guarantee the “anonymous” request of needs, presented by the companies, we are not declaring the name of the company that expressed a specific need, except in one case.

## Evidence of needs as a result of a questionnaire

In order to investigate the SME’s needs, first of all a survey has been proposed to the companies attending the workshops. We collected the answers form 28 participants (28 companies). The survey is made by a questionnaire: here in the followings are reported the questions (and answers) that we addressed to the companies interviewed.

Q1: Which are your current needs: network of contacts, project partner search, search for funding/investors, search for a repeatable/scalable business model, technology/product development and testing, search for target markets, other?

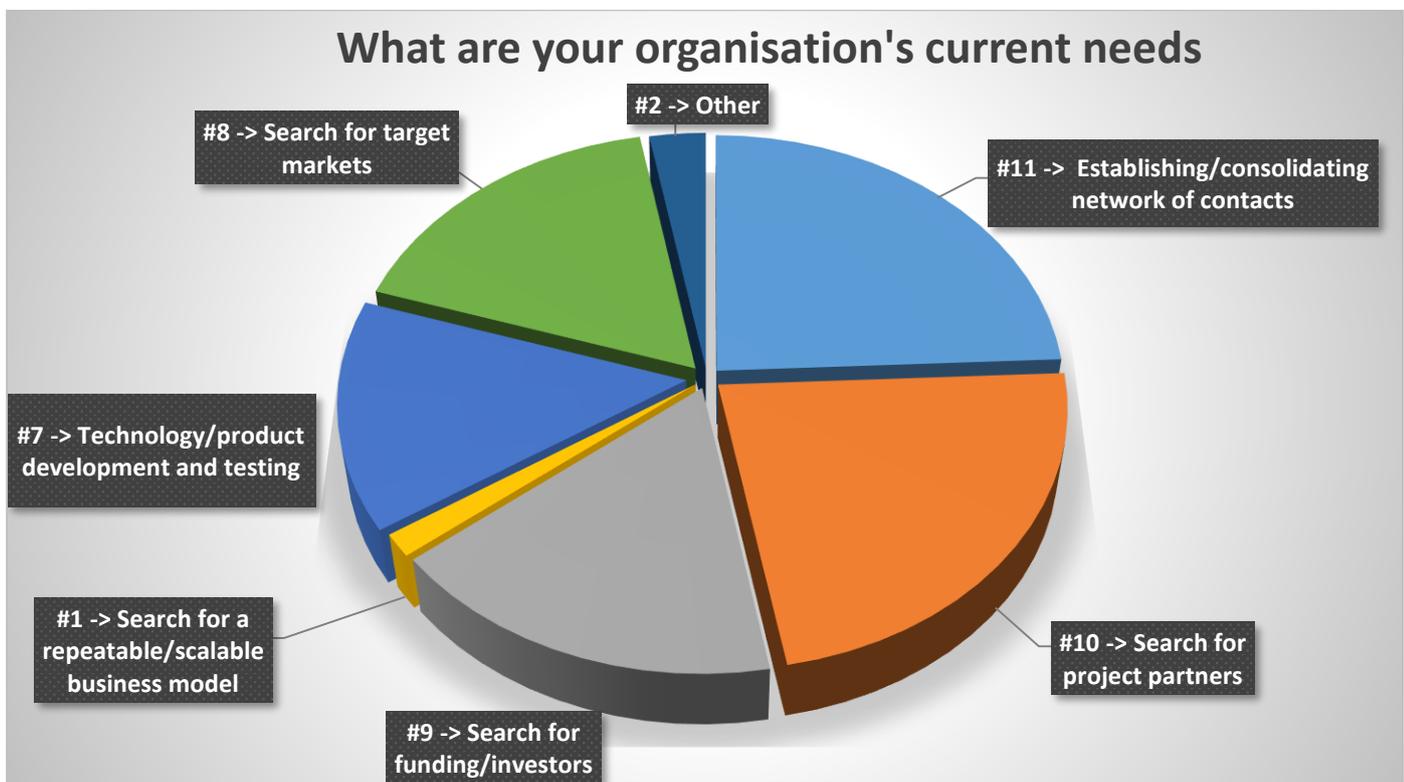


FIGURE 1 : NEEDS OF THE SMES THAT PARTICIPATED TO THE OASIS WORKSHOPS

The answers to “other needs” were: Cooperative research and launching customers.

Q2: If possible, describe your company and the expected needs for the next 5 years: visibility, reduced time to market, market expansion and business growth strategy (please quantify)

A2:

1. Business growth strategy.
2. Partners for specific parts and tasks for Medical MRR-applications: sensitive layers, surface treatment, etc.
3. Business growth on present and new domains like healthcare.
4. Improve the visibility.
5. Increase the number of customers.
6. Increase the Turn Over.
7. Partners for wound spectral imaging systems: algorithms, user software, filtering techniques.
8. Partners for NIR measurement: light sources, filters, detectors, etc.
9. Research and development for product valorization.
10. Reduced time to market of new products and business growth strategy.
11. Market expansion.
12. Research and development for product valorization.
13. Since we are a new born company, the first need is the diffusion of our technology and consequent increase of market penetration. In the short-medium term we will need to improve our technology with products having new functionalities in order to have new customers. For this, we will need investors/technical partners.
14. Participation in one or two H2020 projects in the photonics area, identification of one or two partners in R&D projects, increase visibility of our capabilities and results.
15. I am part of a research institution searching for occasions to establish connections in the framework of our technology transfer activity.
16. Strategic partnerships with photonic industry.
17. Visibility (all relevant companies should now be focal) and business expansion in the area of chemical imaging.
18. At least two new research partners.
19. Primarily, we would like to apply for grants and participate in projects related to photonics applications to biology, food and plant production fields.
20. Making eco-system in Europe area for our research and development activities in spectral imaging and photonic.
21. Research and technology development.
22. Launching customers; market expansion.
23. The company have a target to grow and therefore is looking for new markets, new applications.
24. Market expansion for our devices and R&D projects over 2.5 millions of euros.

## Needs as resulted from the 1<sup>st</sup> year' questionnaire

During the first year of OASIS project, we scouted the companies and we also asked them to report their needs. Here in the followings we report a part extracted from the D3.3.

The SMEs were requested to express their needs and the problems they encountered in collaborating with research centers, hospitals and facilities. The requested needs are reported in the following picture.

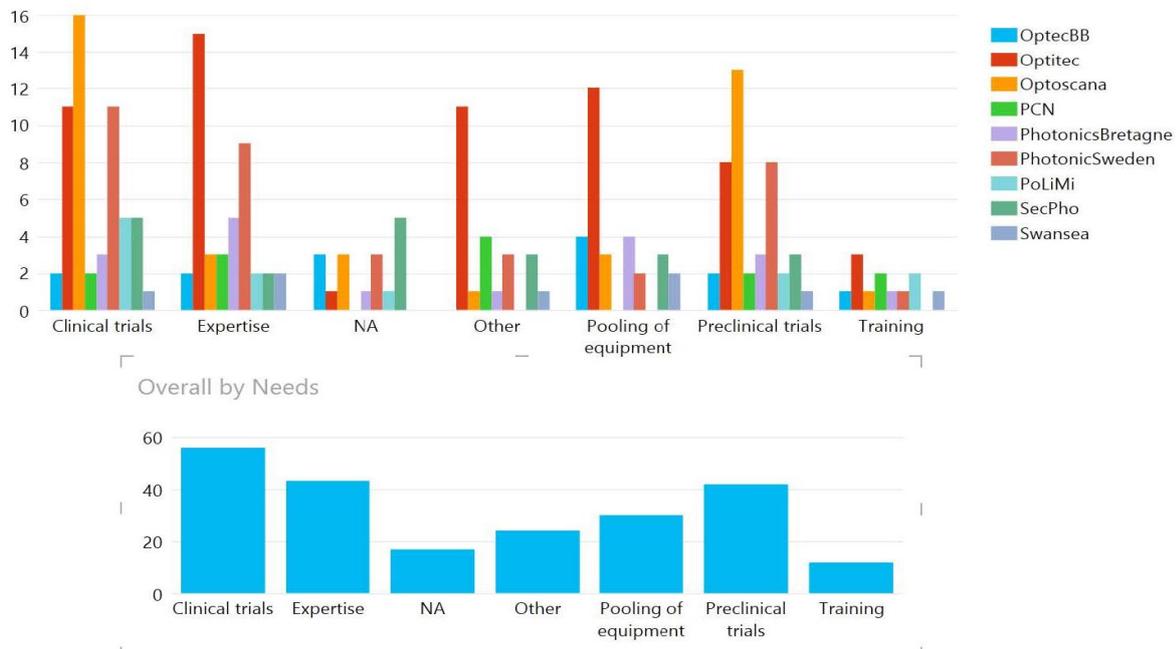


FIGURE 2 : SKILLS AND SERVICES NEEDED BY THE COMPANIES PARTICIPATING IN OASIS PROJECT. IN THE UPPER GRAPH THE NEEDS ARE SUMMARIZED SHOWING THE DIFFERENT CLUSTERS REQUESTS. IN THE BOTTOM GRAPH YOU CAN SEE THE RESULTS IN THE WHOLE PARTNERSHIP.

Clinical Trials, Expertise and Preclinical Trials are the most important needs: these are crucial for the development of new products, but the road to start a pre-clinical trial or a clinical trial is really long and time and money consuming. This process can be really impossible to perform for a micro or small company.

Moreover, from the analysis of the drawbacks in the collaborations with the academia or research centers and facilities, the need of a “technology translator”, i.e. a skilled personnel with both a technical/academical background and the experience of working in a company.

## Contributions from the clusters' activities

In the routine activities of the clusters when contacting the companies, some needs arose. They are both technological needs and a request of a support at a “political” level.

As a technological need for example we had a request of pilot lines and test beds, for developing a specific application. In other words the request is to be hosted in a particular facility where a specific application can be simulated, in order to test the "optics and photonics technologies" in a particular environment.

Other specific needs came from the analysis of OPtecBB. The optics cluster of Berlin and Brandenburg is divided into six focus areas of which one is biomedical optics and ophthalmology. In this specific sector they found the following needs that they are planning to support:

- Enhancement of the communication between medical engineering and R&D institutes

- Reduction of administrative obstacles for an enhancement of the communication and joint projects of the federal states of Berlin and Brandenburg
- Identification of R&D needs and cooperation partners in the field of single use diagnostics
- Support of the establishment of the future-oriented field "glasses as a media carrier"
- Support of the establishment of an application/reference laboratory for ophthalmology
- Support for opticians/optometrists to open the access to modern diagnostic tools

From other clusters, such as Photonics Bretagne, it came out that companies need supports to contact the end users of different applicative areas (Biotech, AgroFood, SeaFood) in order to develop new technologies and applications. They also need a help in designing and developing collaborative projects in Biophotonics between SMEs and research labs at regional, national and European level.

From the activities of OPTOSCANA other two requests were evidenced. The first one is a support from the cluster to sustain the interactions between different technologies, i.e. incrementing the collaborative activities between clusters of crosscutting technologies. The technology in one field, such as photonics, is in fact nowadays at a top level. The innovation now can rise from the integration of photonics with other high level technologies such as robotics and precision mechanics. The companies are asking to support them and find collaborations not only with partners in same technological field (the Biophotonics in the present project), but also the direct contacts with developers of other technologies (robotics, mechanics, ICT, etc.).

Another problem that arose from the analysis of the needs in the next five years in Tuscany, is the possibility to sustain the whole value chain, including distributors and maintenance services. Nowadays usually a SME is selling the products abroad via a network of local distributors that are also providing maintenance services to local customers. This kind of organization is a cost for an SME. The companies can have a direct contact to an end user thanks to the new ICT technologies (website, social network and so on), thus reducing the need of local distributors. There is still the need of local maintenance services: the local cluster can help at this point, supporting a training program (workshops, lessons in labs and school rooms) for local maintainers. This can be organized grouping technologies and companies per application areas. The role of the cluster is also to play a key role of this value chain, supporting the transitions of the distributors into a new role of local support and services.

## An example from OPTOSCANA

As an example of the documents resulting from contacts with SMEs, we report here in the followings the document that Light4Tech (a SME that is part of OPTOSCANA cluster) compiled. In this document they describe their company, their market and their needs in the next future.

When contacted, the Light4Tech company answered the proposed question (which are your company needs in the next five years?) by writing this short contribution, evidencing its characteristics and needs.



### About us & Our mission – March 2015

The company Light4Tech was founded as a spinoff of LENS (European Laboratory for Non--Linear Spectroscopy) in Florence in 2005 has participated into several European funded research projects developing a number of "two photons microscopes". Since 2007 we have developed and patented in collaboration with CNR an innovative LED based Medical device using light to induce haemostasis on blood and accelerate the healing of difficult and chronic wounds up to second degree. Our tests on animals and on blood samples showed very promising results. The company is now finalizing the project and developing the protocol for human testing and certification approval.

## The Company Team

- Prof. Francesco Pavone: Director of LENS expert in photonic co-founder of the company responsible for the scientific development.
- Lorenzo Targetti: Entrepreneur successfully managed large size companies in the professional light field, co-founder of the company and CEO.
- Domenico Alfieri: (MD in Engineering) R&D responsible, in charge of the development of the device and its industrialization.
- Claudio de Mauro: Ph.D. (in Physics), Scientist, responsible for optical setups and engineering.

## Overview & Emoled introduction

180 million people in the world suffering every year of hospital grade wounds.

15.6 billion USD annual sales were expected in 2014 of wound healing products worldwide.

“Emoled” is a low-cost, easy to use, photo-haemostatic device based on LED technology to accelerate wound healing. Emoled meets all parameters of today’s successful therapeutic devices: Immediate effectiveness, cost effective, low disposable costs, easy to use and absolutely safe. We successfully concluded pre-clinical tests and shortening the healing time by half.

## Our Solution & Technology

We developed a Medical Device using LED light emission in a specific wavelength that selectively interacts with the haemoglobin inducing the haemostasis of blood and shortens the inflammatory phase of the healing of a wound. This device allows doctors to stop bleeding, closing instantly blood vessels up to 10nm in diameter without altering the status of the tissue around and start rapidly the proliferation and reconstruction phase. It is a unique application protected by an European patent already awarded that can find several applications in the medical field providing a more effective solution to coagulate blood compared to actual traditional methods. It is a Low Voltage and Low Wattage device, with rechargeable batteries, can be used without medical skills, and can be carried & packed easily for use in the ambulatory and at home.

## The Market

The Wound Care market is segmented by wound type and difficulty of the healing process. Emoled can be effective in most internationally recognized wound classification such as Surgical Wounds (114,271 patients / 14 days stay), Chronic Wounds (40,400 patients / >48 days), Laceration (20,645 patients / 14 days) and Traumatic Wounds (1,627 patients / 28 days). Worldwide sales of wound care products in 2014 were expected at 15,6 billion USD & CAGR 3,2% for next 5 years, and Sales of Wound Therapy Devices were estimated at 4,4 billion USD in 2014 worldwide.

## The Business Model & Financing Needs

The market is dominated by large players active in seeking & acquiring new technologies to enlarge their portfolio. To maximize the investment value Light4Tech aims to realize a 5 years strategy: in 1 year to obtain market clearance from regulatory authorities and set up production, 4 years to build solid evidence of effectiveness of the technology applied to various types of wounds and to enter a number of markets. We raised 3 million Euro by FP7 European research project, local government and private investor. Now Light4Tech plans to raise an additional 3 millions Euro to improve clinical documentation supporting reimbursement and sale.

## Conclusions

From this analysis we can conclude that there are several different needs that the companies are asking the clusters to support.

First of all, there is the request to find new contacts or to consolidate the existing network. The network is related to the whole value chain: companies, end-users, distributors and services. Moreover, there is a request to build up a network between cross cutting technologies clusters, to sustain the whole innovation process.

As a second need there is the request of support in finding investors and/or funding actions, new markets and new customers for a specific device.

Beside this, there is also an urgent need to overcome problems related to bureaucracy and regulatory affairs. Also the network in the last field is important: to find the right partner/facility where to perform preclinical trials and clinical trials can reduce the time to market.

Another need is to support the communication between companies and facilities: a technology translator can be trained and supported by the clusters.

Then there are specific technology needs that can be addressed thanks to the OASIS network. One request was to find a sort of "space for simulation" of a specific application area. Maybe this can be a new service for the clusters to think about.

All these results will be the input for the WP4 and WP6 activities. In particular the D4.5 is describing some new services that can be offered to the companies and that are linked to the needs scouting presented in this D3.5. Also the exploitation plan presented in D6.3 is partially based on the results of this deliverable.