



Co-funded by the COSME programme
of the European Union



Grant Agreement № 688904

LASER-GO

Creating and Developing the Strategic Cluster Partnership in Photonics for Health

COS-CLUSTER-2014-3-03 – Cluster Go International

COSME

D5.1: Roadmap and the Plan for the implementation of the Strategic Partnership in Photonics for Health

Due date of deliverable: 2017-06-30

Actual submission date: 2017-06-28

Resubmission date: 2017-08-14

COS-CLUSTER-688904-HTS-DEL-D5.1-revised

Start of the project: 1st January 2015

Duration: 18 months

HTS

Revised

Project co-funded by the European Commission within the Seventh Framework Programme (2007-2013)

Dissemination Level		
PU	Public	<input checked="" type="checkbox"/>
CO	Confidential, only for members of the consortium (including the Commission Services)	<input type="checkbox"/>
EU-RES	Classified Information: RESTREINT UE (Commission Decision 2005/444/EC)	<input type="checkbox"/>
EU-CON	Classified Information: CONFIDENTIEL UE (Commission Decision 2005/444/EC)	<input type="checkbox"/>
EU-SEC	Classified Information: SECRET UE (Commission Decision 2005/444/EC)	<input type="checkbox"/>

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Version Control

Version	Date	Author	Description of Changes
v01	07-07-2016	LITEK	Draft version
v02	22-03-2017	HTS	Document structure for discussion
v03	24-04-2017	HTS	First draft
v04	08-05-2017	LITEK	Section Performance assessment added
v05	19-05-2017	LITEK	Pre-final version for discussion
v06	19-06-2017	LITEK	Update after comments
v09	27-06-2017	LITEK	Final version for proof reading
Final	28-06-2017	LITEK	Final version
Revised	14-08-2017	LITEK	Revised version answering the comments of the EC officer

Table of Contents

INTRODUCTION	6
1 RATIONALE	7
1.1 Aims of the roadmap.....	7
1.2 The scope of the partnership	9
1.2.1 <i>The SWOT analysis</i>	9
1.2.2 <i>Thematic scope</i>	11
2 ROADMAP AND THE PLAN FOR THE IMPLEMENTATION OF THE STRATEGIC PARTNERSHIP IN PHOTONICS FOR HEALTH.....	13
2.1 The concept for the implementation of the Roadmap	13
2.2 Joint internationalization strategy in the targeted markets	16
2.3 Target group of the enlarged cluster partnership.....	20
2.4 Key performance indicators	22
2.5 Performance assessment	22
2.6 Planned actions for the period 2018-2020	25
3 CONCLUSIONS	29
4 REFERENCES.....	30

Table of Figures and Tables

Figure 1: The conceptual framework of a Value Network (source: New Zealand Institute of Economic Research, 2016).....	14
Figure 2: The concept for the development of the Global Value Network.....	15
Figure 3: The adopted New Product analysis approach	17
Figure 4: Focus group of enlarged cluster partnership	21
Table 1: List of planned non EU actions	25
Table 2: Missions planned for implementation of non EU actions.....	26
Table 3: The envisaged match-making activities	27

Introduction

This document is a revised version of the deliverable D5.1 of the project LASER-GO: Creating and Developing the Strategic Cluster Partnership in Photonics for Health, updated according to Project Officer's comments.

The project aims to increase Europe's innovation potential and the export-driven growth by leveraging the competitive strengths of three clusters active in the areas of smart specialization. These three clusters propose to create and develop a Strategic Cluster Partnership of Photonics for Health. The partnership aims to create linkages between cluster companies that could facilitate the business opportunities aimed at the growing sector of health with key enabling technologies that clusters are focused on, namely, photonics and laser technologies.

This document has been prepared on the basis of an outcome of tasks T5.1: „Performance Measurement and Feedback Collection” and T5.2: „Viability Assessment and Preparation of Strategic Documents for Internationalization” in Work Package 5 (WP5: Partnership evaluation and road mapping) which also served as the background material for the COSME Cluster Go International Strand 2 application.

The general objective here was to determine the business case for sustaining, growing, or terminating the partnership and to prepare the strategic documents: the Roadmap and the Plan for the Implementation of the Strategic Partnership in Photonics for Health, including the Joint internationalization strategy fostering complementarities between photonics and health sectors and developing ways of accessing the targeted markets in the Far East, South Africa and North America.

The deliverable is structured as follows:

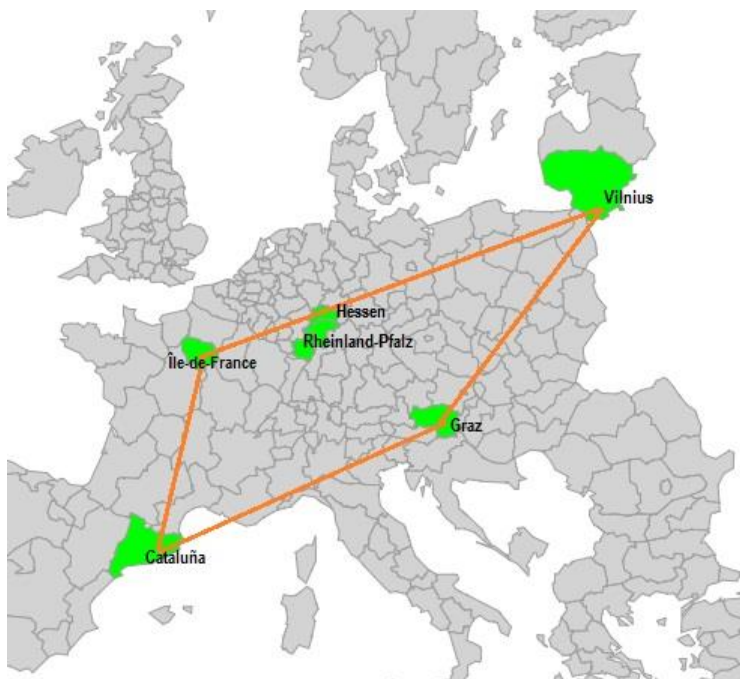
- Chapter 1 – Rationale explaining the aims of the Roadmap
- Chapter 2 – Roadmap and the Plan for the Implementation of the Strategic Partnership in Photonics for Health
- Chapter 3 – Progress Monitoring
- Chapter 4 – Conclusions

The deliverable is concluded with a list of literature used for the preparation of the document.

1 Rationale

1.1 Aims of the roadmap

The proposed Roadmap answers the cluster partnership needs by aiming to increase Europe's innovation potential and the export-driven growth by linking up 6 regions which have been identified by the Cluster Panorama Report 2016 as the regional cluster hotspots or top entrepreneurial regions:



- ** le-de-France (FR10)** – a top 10 regional hotspot (92 stars) and a top 1 entrepreneurial region in Europe;
- **Lietuva (LT00)** – a top 10 entrepreneurial region and a regional hotspot (60-74 stars);
- **Hessen (DE7)/ Darmstad (DE71)** – a top 10 regional hotspot for medical devices (76 stars);
- **Rheinland-Pfalz (DEB)/ Rheinhausen Pfalz, DEB3)** – a top 1 region for biopharmaceuticals and environmental industries;
- **Catalu a (ES51)** – a top 2 entrepreneurial region in Europe and a key region in biopharmaceuticals, digital industries;
- **Styria (AT22)** – a top region for medical devices.

The Roadmap specifically aims to achieve the above by identifying the ways to leverage the competitive strengths of six clusters active in the areas of smart specialization (which are the prioritized R&D and innovation policy intervention areas in these regions): the three founding clusters of the Strategic Partnership in Photonics for Health (LASER-GO) and three new partners involved as a result of the project. The founding members of LASER-GO Partnership are the LASER-GO project partners: Laser and Engineering Cluster (LITEK), the major high-tech cluster in Lithuania with a focus on optoelectronics and laser technologies, Opticsvalley (OV), the largest cluster in France, specialised in optics, photonics, electronics and software, and Human Technology Styria (HTS), the major cluster in Austria, specialised in life sciences and health technologies.

The new members who joined the LASER-GO partnership during the implementation of the project are:

- **Medicen**, is a cluster in  le-de-France, one of the largest clusters in Europe specialized in biotech, digihealth and medical devices, having over 300 members. Since its foundation in 2005, the cluster have accredited 250+ R&D projects for a total budget of  1.12 billion. The cluster is a

member of Council of European Bio Regions (CEBR) and European diagnostic Cluster Alliance (EDCA) and as of Jan 2017 – an associate partner of EIT Health;

- **Biocat**, a cluster in Catalonia, specialized in healthcare and life sciences, brings together 871 companies and 95 research bodies, including 41 research centers, 18 university hospitals, 14 science and technology parks, 3 large research infrastructures: ALBA Synchrotron, the Barcelona Supercomputing Centre, CNAG-CRG. The cluster has been part of the ECCP partnership bioXclusters since 2012, and a member of EIT Health, CEBR;
- **Optence** is one of the key clusters in optical technology in Germany, a member of OptecNet Deutschland, a member of the "Go-Cluster" program of the Federal Ministry of Economics and Energy, bringing together 85 companies within the regions of Rheinland Pfalz and Hessen and beyond; the cluster has been accredited with a Silver Label of the ECEI.

These six clusters (three from the field of photonics – OpticsValley, Optence, LITEK – and three from the field of healthtech – Medicen, Biocat and Human.technology) have agreed to further develop a European Strategic Cluster Partnership of Photonics for Health resulting in a Global Value Network. Altogether this network would see the creation of the alliance of the clusters having access to more than 1600 companies and some 120 RTOs from the involved bioregions and the photonics regions. Further, Biocat would act as an access point to the bioXclusters bringing together four bioregions with 1700 companies, including Bavaria (BioM), Piemonte (bioPmed), Rhône-Alpes (Lyonbiopole). Thus, in the coming years LASER-GO network would be able to reach some 2300 companies.

In order to make this wide network work and function as a meta cluster, the Roadmap envisions that the proposed partnership should further create and strengthen linkages between individual clusters and cluster companies by aiming to create a Global Value Network with a very clear focus on the application technologies and the pre-defined list of the innovation champions in the field which will be primarily targeted through this action to facilitate their export-led growth both in terms of generated feasible business opportunities in the target markets and in terms of attracted private and public investments to support the new product developments for those markets or in those markets (jointly with overseas partners for collaboration).

The overall aim is to facilitate the market take-up of new products and products in the pipeline of the innovation champions in the participating clusters by accessing the multipliers in the target markets, by putting the SMEs in touch with potential integrators or end-users and helping to stimulate the investments both from the third countries and regionally, using the financial engineering mechanisms available in each region. The ambition is to create a Global Value Network, a network of nodes consisting of both companies and intermediaries, helping to aggregate company offers into business cases to monetize the value streams from companies (products, services, knowledge and information). In this respect a Global Value Network is understood as a network (bringing together both the LASER-GO partners and their partners in the target market) driven by the entrepreneurial opportunity discovery process facilitated by the cluster organisations and the representatives in the network to provide an access to products, services, knowledge and information and to help cluster companies to develop the feasible business cases for attracting investment to implement the business plans.

1.2 The scope of the partnership

The rationale for the development of the partnership and the Roadmap comes from the accomplished SWOT analysis as detailed in the sub chapter below.

1.2.1 The SWOT analysis

Strengths

- A high level of cluster specialization in the fields of photonics, medical devices and health tech involving six regions identified (according to the ECP¹ 2016 ranking) as being the top regional cluster hotspots in the project-relevant specific sectorial areas and entrepreneurial regions, namely:
 - Île-de-France (FR10) – the Paris region is a top 10 regional hotspot) and a top 1 entrepreneurial region in Europe, one of largest European hubs in life sciences and innovation;
 - Lietuva (LT00) – a top 10 entrepreneurial region and a regional hotspot (60-74 stars);
 - Hessen (DE7)/ Darmstad (DE71) – a top 10 regional hotspot for medical devices (76 stars);
 - Rheinland-Pfalz (DEB)/ Rheinhessen Pfalz, DEB3) – a top 1 region for biopharmaceuticals and environmental industries;
 - Cataluña (ES51) – a top 2 entrepreneurial region in Europe and a key region in biopharmaceuticals, digital industries;
 - Styria (AT22) – a top region for medical devices.
- A high concentration of companies with competences in photonics, medical devices and health tech, namely:
 - Medicen Paris Region (Medicen), the life sciences cluster of the Paris Region (Île-de-France), one of the largest clusters in Europe specialized in biotech, digihealth and medical devices, having over 300 members including 200+ SMEs;
 - Biocat, a cluster in Catalonia, specialized in healthcare and life sciences, brings together 871 companies and 95 research bodies, including 41 research centers, 18 university hospitals, 14 science and technology parks;
 - Optence, one of the important clusters in optical technology in Germany, a member of OptecNet Deutschland, the “Go-Cluster” program of the Federal Ministry of Economics and Energy, bringing together 85 companies within the regions of Rheinland Pfalz and Hessen and beyond, including the Swiss cluster Swissmem / Photonics;
 - OpticsValley, the photonics cluster in the Paris Region brings together over 150 organisations (over 120 companies) active in the fields of optics, electronics and software engineering;

¹ European Cluster Panorama

- Human.technology cluster, a health tech cluster in Styria region (Austria), brings together 90 members (56 SMEs) active in sensors and wireless products, diagnostics, diagnosis, medical technology and biomedical engineering.
- A high level of cluster cooperation activities and internationalization actions targeting the following regions/countries:
 - Canada (OpticsValley, MEDICEN, Biocat);
 - US (OpticsValley, MEDICEN, Human.technology, Biocat);
 - China (Biocat);
 - Japan (Biocat);
 - Australia (Biocat);
 - South Korea (Biocat);
 - Brazil (Biocat);
 - Singapore (LITEK);
 - South Africa (LITEK).
- A high level of internationalization activities in all six clusters which have been involved in a number of key projects such as:
 - H2020 CSA project “Regional and National European Support for Photonics Innovation Clusters enhancing SMEs Innovation Potential (RespiceSME)” (LITEK);
 - H2020 CSA project “EU-wide outreach for promoting photonics to young people, entrepreneurs and the general public (Photonics4All)” (OpticsValley);
 - FP7 CSA project “Action to Support Innovation Clusters in Europe” (ASPICE) (OpticsValley);
 - COSME Strand 2 project “ESCP on Personalised Healthcare (bioXclusters+)” (Biocat);
 - BMWi project “Development and implementation of an online capacity exchange measurement and production in the field of photonics” (Optence);
 - OMNI-NET project of the Steinbeis Europa Center aimed at promoting clusters of industry and science in the optical, microelectronic and nanoelectronic industries (Optence).
- The high level of compatibility between the clusters involved: three clusters representing the photonics sector (each with a different focus and specialization) and three clusters representing the health tech sector (each with a different scope) as follows:
 - LITEK – optical components and laser systems;
 - Optence – optical systems and final installations;
 - OpticsValley – imaging systems and image analysis;
 - Human technology – optomechanical systems and medical devices;

- Biocat – medical devices and health technologies;
- MEDICEN – diagnostics and imaging systems, ICT for health.

Weaknesses

- Insufficient involvement with the end-users in the health tech market;
- Lack of expertise in collaborating with companies in the field of medical devices;
- Insufficient time to develop stronger ties with counterparts in the targeted markets;
- Lack of intra-cluster collaboration and match-making activities involving the clusters within the partnership.

Threats

- Economic sustainability of the EU regions in the long-term and the ability to foster growth long-term;
- Regulatory issues as concerning the registration of medical devices in the third countries;
- Competition from the US and Chinese companies in the targeted non EU markets, especially in ASEAN, Japan, Canada;
- Uncertainty over the regional trade agreements and the trade policies of the major economies (US, China).

Opportunities

- A new demand and a market growth in the targeted markets that could raise the need to present the companies on multiple occasions using the channels available to the LASER-GO partnership;
- Technological breakthroughs in the companies of the participating clusters leading to creation of a next-generation line of high-end products;
- A consolidation of the photonics sector (including Mergers and Acquisitions and further investment in the companies) involving the companies of the partnership can create a momentum where the development of new products and new markets could be even further prioritized.

1.2.2 Thematic scope

The Roadmap is based on the agreed thematic scope of the partnership. The LASER-GO partnership is focused to tap the following areas where the cluster members have the identified sources of value:

- Photonics for diagnostics and interventional imaging, including photonics microscopy, imaging, infrared spectroscopy;
- Photonics for medical and environmental sensing applications, including the fibre optics for sensing, monitoring, data acquisition;
- Photonics for regenerative medicine and biomaterials, including laser additive manufacturing of biomaterials.

The strategic objectives of the Partnership for 2018-2020 are:

- To intensify a cluster and business network collaboration and the cross-sectorial learning in the fields of photonics, optics and health tech applications across borders and sectorial boundaries between the regional hotspots and entrepreneurial regions of Île-de-France, Rheinland-Pfalz, Hessen, Catalonia, Styria and Lithuania and beyond;
- To support the further development of European Strategic Cluster Partnership in Photonics for Health to lead international cluster cooperation in the fields of strategic interest, namely, the joint development and marketing of innovative products for the use in health applications in diagnostics and interventional imaging, sensing, regenerative medicine and biomaterials;
- To develop the Global Value Network, connecting the SMEs and cluster organisations with their counterparts in the third markets and in emerging sectors (such as digital health, advanced manufacturing) that can help to monetize a value stream from the existing SME offering within the partnership through the implemented model of the shared SME economy.

The specific objectives for the period 2018-2020 are:

- To create the measures and tools for creating a Global Value Network involving the partners from the target markets into the existing or potential collaborations with cluster SMEs in new product development or product adoption in the third countries;
- To gather intelligence about the unmet market needs in the target markets by creating a network of technology scouts and the network representatives from the local photonics and health tech ecosystems and creating viable entrepreneurial opportunities for them;
- To organize Global Value Network building activities based on a systematic analysis of the value streams of the SMEs involved in the participating clusters and match-making their value propositions with those of the companies from the business networks in the target markets to create joint business cases, and to that end to prepare the Value Mapping Analysis Tool for assessing the offerings of a particular company in a specific target market;
- To prepare the detailed actionable plans for the extended partnership collaboration globally: the updated Roadmap for the development of the Global Value Network and LASER-GO GLOBAL for 2020-2025 and the Plan for the collaboration with the European Strategic Cluster Partnerships.

2 Roadmap and the Plan for the Implementation of the Strategic Partnership in Photonics for Health

2.1 The concept for the implementation of the Roadmap

The Roadmap has been prepared as a deliverable D5.1 of the LASER-GO project and the implementation of the Roadmap is the next step for continuation of the LASER-GO partnership. The partnership has been built on the basis of a clear understanding of the potential uses and values that photonics being one of the key enabling technologies could bring to the health tech sector in Europe and globally, especially in those technology development and application areas where Europe unmistakably leads globally or is among the leaders on global markets. These are the technologies related to imaging, detection and processing and the applications being in health and life sciences where the EU excels.

However, the research and innovation communities working in the fields of photonics and health constitute different cultures and indeed ecosystems. The LASER-GO partnership has attempted to breach the existing cultural, technological gaps and ignorance by bringing together laser and medical companies through the missions organised by two photonics clusters (OpticsValley, LITEK) and one health tech cluster (HTS). During the implementation of the LASER-GO project the consortium came into the realization that a closer integration with the health sector in Europe is needed; hence the decision was made to engage with the largest top bioregions in Europe (Medicen Paris Region and Biocat) on the one hand side, while strengthening the business planning aspects of the partnership. The missions carried out by LASER-GO to the third markets in North America, Middle East, South Africa and Asia helped to develop a model for developing the partnership as a Global Value Network – contributing to rather than extending the existing value chains in Europe.

In high technology business and knowledge intensive services, the value creating system is better understood as a network than as a chain. Value networks differ from value chains in that there are more actors carrying out a broader variety of functions in a value network than in a value chain, where producer-distributor-consumer relationships predominate.

Understanding the roles of the different actors in a value network allowed us to adopt a conceptual approach that could help to harvest value from the entire value-creating system, and to benefit from the activities of actors with whom they have no value chain or commercial relationship. Transacting frequently with the important actors in a network can overcome the disadvantages of distance. Yet for that value streams need to be iterated over a period of time to bind the actors in the network closer together and this becomes a challenge for the markets located at a greater distance.

This conceptual approach has been adopted by both the advanced and high-growth economies that are disadvantaged by the geographical distances, time zone differences and other limitations that impact the scalability of their products, as indicated by the mapping of trade flows as evidenced by UN Comtrade data. Hence, Singapore, New Zealand are strongly advocating for their SMEs the creation of value networks (New Zealand Institute of Economic Research, “Global value networks How to succeed in business without worrying about scale, distance or thin networks”, 2015; Report of the Committee on the Future Economy, Pioneers of the Next Generation, Singapore, Jan. 2017).

The benefits that the constituted Value Networks can bring to SMEs are as follows:

- Participating in value networks helps to monetize additional goods and services such as information, knowledge, services;
- Network provides scalability and helps to ensure competitive advantage against the third parties which aim to substitute or easily imitate high-tech products and related services;
- SMEs who wish to sustain their participation in value network develop internal capabilities which are imperfectly imitable or non-substitutable;
- Value Network provides an opportunity to deliver imperfectly imitable or non-substitutable capabilities of a company into the network through the value proposition and seek the win-win business solutions with other participants of the network.

This new conceptual understanding explains the difficulty the high-tech SMEs face in the medium-higher wage countries (the growing economies) when trying to tap into their value chains with their products. The LASER-GO overseas missions have helped to realize that the market entry in third countries could be facilitated not only by direct product offerings organized via multiple channels or multipliers but by developing value propositions (business cases), involving partners from the business networks in the target markets. The concept is explained in the diagramme below.

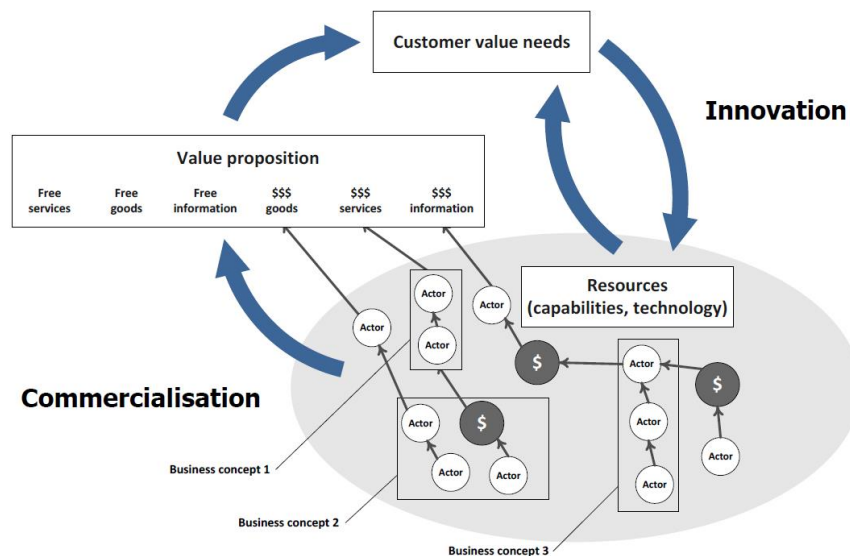


Figure 1: The conceptual framework of a Value Network (source: New Zealand Institute of Economic Research, 2016)

Customers extract value from the value-creating system by consuming the value propositions of the various firms acting within the network. Not every element in a value proposition is monetised: the customer does not pay for each element of the value they consume. Value propositions can be classified into paid products, services and information, and free products, services, and information.

Within each of these categories, a number of individual value streams are typically found. A value stream is similar to a value chain: it is a combination of business concepts organised to extract value from the system by being consumed by another actor in the system. Business concepts are the basic building blocks of the entire system in a Value Network. A business concept here is a collection of transactions between actors within the system that can be combined to form value streams which address customer needs and opportunities.

Business concepts are also important when considering innovation. Innovation is an attempt to create new customer value or to capture customer value as it evolves. In both cases, the transactions that generate innovation are those between the resources and capabilities of the innovating firm and the changing value dynamics. These do not need to be transactions between the innovating firm and the end-customers themselves, but the changing customer value preferences, however mediated through the value network, and should in effect become the R&D process for an SME and its collaborating partners. Innovation is realised and commercialised by changing the business concepts within the value streams, or by creating new value streams based on new business concepts, which then capture value from the network through the value propositions of the actors within the network.

Thus, the object of value network is to connect value realised to the resources used to create it, recognising all the relevant relationships between the actors in the network. The transactions that make up the business concepts are carried out by actors who represent the firm-specific resources within the value network. The dynamic capabilities framework VRIN defines four criteria that define firm-specific resources as source of value: Valuable, Rare, Imperfectly imitable, Non-substitutable.

On the basis of the discussed conceptual approve as above the concept for the development of the Global Value Network through the realization of the goals of the LASER-GO partnership has been developed as below.

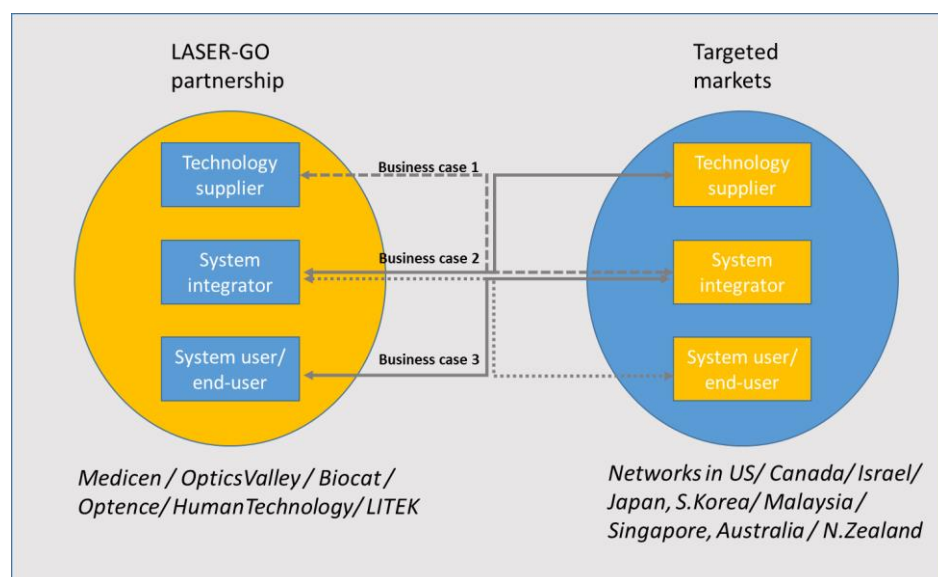


Figure 2: The concept for the development of the Global Value Network

The business cases are based on the match-making and involvement of SMEs in different value-creation roles (technology supplier, system integrator, system user/end-user) by identifying the matching flows of value. The framework used will help to structure the strategic approach of the partnership allowing to determine the need for an enlarged partnership network, based on assessing core capabilities of cluster companies, identifying market opportunities, and developing partnerships that deliver capabilities to pursue those opportunities.

2.2 Joint internationalization strategy in the targeted markets

The Roadmap will be operationalized through a joint internationalization strategy aimed at accessing, exploring and expanding the target markets. The strategy is based on the implementation of the following consecutive steps:

1. Value Network Analysis;
2. New Product Analysis;
3. Technology Scouting;
4. Innovation Missions;
5. Networking Events.

Value Network Analysis. The analysis will be used to evaluate performance across current product or service portfolio and business operations (thereby surfacing gaps that could be complemented by a partner's resources) of the selected 30 companies from each cluster. The Value Network Mapping and Analysis tool will be developed on the basis of the existing methods used to analyse the value streams such as Value Stream Mapping (VSM). VSM is method for mapping and analysis of the flows of products, materials, people, information, etc. in manufacturing facilities. A typical VSM project involves the development of maps: (1) a Current State Map and (2) one or more Future State Maps that represent progressive improvements in the Current State Map under the projected conditions. In the Current State Map, one would normally start by mapping a product family that accounts for a significant proportion of the total annual production volume and sales earnings (or even profit margin) of the company. Due to confidentiality restrictions only the aggregated and simplified version of the Value Stream Maps will be used. Altogether 20 SMEs from each cluster will be mapped and their data will be anonymously aggregated to form the basis of the high-level concept of the Value Network of LASER-GO.

New Product Analysis. The analysis will be used to identify capabilities or resources that deliver a unique, sustainable value to the selected cluster companies (and could therefore be valuable to a strategic partner to other cluster companies).

The new product analysis will follow the developed approach in the LASER-GO project, where the special approach has been adopted to conduct the market analysis reflecting the match of the targeted companies with the relevant market segments (see Figure 3). The approach consisted on analyzing the market/partnership fit and establishing the estimated photonics value in the targeted markets.

This has been accomplished in the following steps:

1. The estimation of the overall value of the targeted market segments have been estimated for photonics and health tech markets in the LASER-GO target markets,
2. The estimation of the overall value of the photonics products in the photonics and the health tech market segments in the targeted LASER-GO country markets;
3. The estimation of the value of the LASER-GO partnership sales in the targeted country markets.

On the basis of such market analysis the market segment assessment, the market-partnership fit has been done. The analysis has helped to carry out additionally market potential analysis: to single out high value geographical market segments, to identify submarkets having high value technologies and to list of the

high value product types. The analysis and the gathered comprehensive information will be used for preparing the guide for partner screening for the planned partnership which take into consideration both the matching aspects and the identified opportunities in the selected geographical markets.

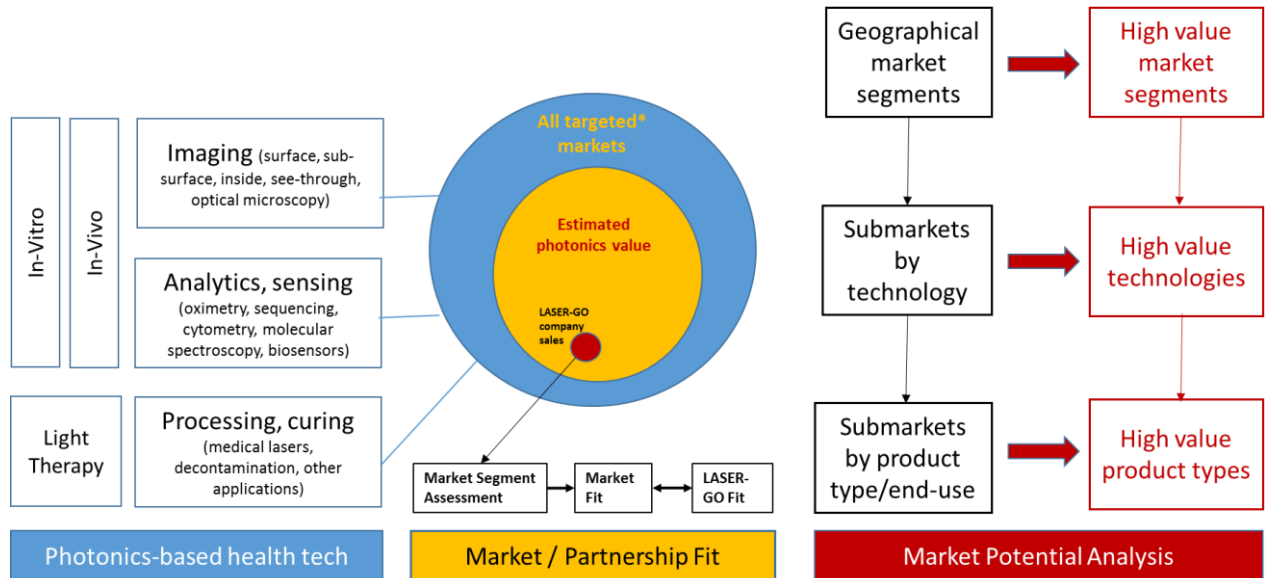


Figure 3: The adopted New Product analysis approach

Altogether five most innovative products from each cluster will be analysed and the analysis will be used to produce the deck of slides for presenting the portfolio of company offerings during the overseas missions.

The completion of these activities will help of this to:

- Baseline of current performance of selected cluster companies;
- Identified unique capabilities and key resource gaps of the analysed cluster companies.

At this point, the partners should have a strong sense of strengths and weaknesses of cluster companies, which capabilities might be valuable to potential partners, and which gaps a strategic partner should help an organization to address.

Technology Scouting. The scouting will be used to conduct a technology scouting in the targeted markets searching for potential components, systems, integrators and end-users for personalized medicine and assisted living. The Technology Scouting will search the novel developments using the pre-established list of the potential photonics technology uses identified during the previous stage of the partnership development, namely:

1. Photonics microscopy/ Imaging;
2. Image analysis;
3. IR Spectroscopy;
4. Ophthalmological technology;
5. Laser illumination for high-speed imaging;
6. FACS-technologies;

7. Laser microfabrication, additive fabrication of biomaterials;
8. Q-switched lasers;
9. Molecular spectroscopy;
10. Laser-induced breakdown spectroscopy;
11. Multispectral spectroscopy;
12. Endoscopy;
13. Intense pulse light;
14. Laser-induced photo-acoustic measurement;
15. Tonometry;
16. Photo-sterilization;
17. Photodynamic (light-induced) disinfection;
18. UV/VIS-Spectrophotometry;
19. Fibre-optic phototherapy;
20. Optical coherence tomography;
21. Bright light (Phototherapy);
22. Laser thickness measurement;
23. Light-sheet fluorescence microscopy;
24. Eye tracking system;
25. Human centric lighting;
26. LASIK (Laser-assisted in situ keratimileusis);
27. Laser scanning with photomultiplier tube for luminescence detection;
28. Low level laser therapy;
29. Laser-assisted liposys (liposuction);
30. Photovoltaic retinal prosthetic;
31. Photo dynamic therapy using laser sources for IR radiation;
32. X-ray spectroscopy;
33. Light sources for optogenetics;
34. In vivo/ in vitro diagnostics;
35. General laser components and systems.

Technology scouting will be carried out by the technical experts as well as the identified potential collaborators in the target markets. A succinct technological description of each technology application assessing the level of novelty and potential need in the target market will be provided with the help of

the technical experts and the technical scouts. A list of technologies and applications will be used as a material for matchmaking companies from the participating clusters and their counterparts for collaboration and entrepreneurial opportunity discovery process. Each technology will be scores against the technology readiness level benchmark adopted from the publicly available sources.

Innovation Missions. The innovation missions will organized according to the plan as summarized below. The geography of the targeted markets reflects both the interest of the cluster organisations and the export priorities of the regions involved: USA, Canada, Southeast Asia, Israel, Australia and Japan.

Networking Events. The networking activities will be used to organize networking events which could involve the stakeholders and the potential investors in the planned business collaboration projects.

The completion of these activities will help to:

- The size of the potential network that any others may want to access through partnership will be estimated;
- The network's future growth potential will be estimated/predicted;
- Changing customer needs and purchasing patterns will be evaluated;
- Stakeholder map will be prepared and analysed.

At this point, the Partnership should have a strong sense for current and prospective network's growth potential, how changing customer and stakeholders needs either align with or diverge from the existing capabilities within the clusters, and the role that partnership might play in helping to modify the cluster growth strategy accordingly. Altogether 4 business roadshows are planned and 6 participations (one for each cluster) in match-making activities. Each business roadshow event would consists of a series of presentations by the cluster representatives presenting business opportunities from their clusters and a moderated session in groups to discuss the potential development of those business opportunities into a value propositions with the participation of the identified companies and intermediaries in the targeted markets as component, system suppliers, integrators or end-users of European products. In addition to that each cluster will undertake to participate in a regional cluster matchmaking event at their cost, presenting the business cases under development as part of the LASER-GO mission efforts. Progress monitoring.

Services and activities to increase the marketing efforts in non EU markets

In order to more focus on the international marketing efforts in non EU markets the following services would be undertaken to increase the marketing efforts in non EU markets:

- Direct access to a large pool of companies – the top of the class;
- Access to the R&D base in photonics and medical technologies;
- Joint market exploration in third countries (Asia, North America);
- Exclusive collaborative arrangements for product development;
- Support for marketing efforts in the European Union;
- Advise and insight on the regulatory matters;
- Joint events in the top tech regions in Europe and in Brussels, and

- Co-branding.

It was agreed that these efforts would be followed by the regular activities that each member of the partnership is expected to carry out as part of the responsibilities to the LASER-GO partnership, namely:

- Offer match-making opportunities;
- Have activities with focus on Europe;
- Represent long term commitment;
- Facilitate the transnational transfer of knowledge and technologies between the Cluster Members and promote available R&D results for better commercial use;
- Help to make cutting edge photonics technologies and solutions visible inside and outside Europe and facilitate their application into various key and emerging markets;
- Encourage and support SMEs to participate in European and International project and to access additional sources of public and private financing;
- Support activities on business creation outside Europe.

2.3 Target group of the enlarged cluster partnership

The progress monitoring is based on the clearly defined targeted SME group.

The action will bring together six clusters (having over 1600 cluster company members, of which some 1000 are SMEs) from two main sectors: 1) the photonics sector covering optics, laser technologies, precision engineering and 2) healthcare and health tech sector. The photonics sector clusters (OpticsValley, Optence and LITEK) have access to 342 SMEs and 25 RTOs, the health and health tech clusters (Medicen, Biocat, HTS) have access to some 650 SMEs and 75 RTOs:

- About 150 SMEs and 10 RTOs working in the fields of optics, electronics and software (mostly based in the NUTS3 regions of Essonne (FR104), Yvelines (FR103), and Val-de-Marne (FR107) situated on the Outer Ring of Paris represented by OpticsValley;
- About 200 SMEs and 10 RTOs working in the field of medical devices, health tech situated within the NUTS3 regions of Paris (FR101), Seine-et-Marne (FR02), Seine-Saint-Denis (FR106) represented by Medicen;
- About 500 SMEs and 95 RTOs working in the field of health and health technology mainly within the regions of Cataluna (DE142) represented by Biocat;
- About 100 SMEs and 12 RTOs working in the fields of biobanking and biomarker technologies; pharmaceutical engineering and production processes, advanced biomedical sensor technologies and biomechanics (mostly based in the NUTS3 regions of Graz (AT221) and Östliche Obersteiermark (AT223) represented by Human.technology;
- About 82 SMEs and 5 RTOs working in the field of optical technology mostly based within the regions Darmstadt (DE71), Rheinhessen-Pfalz (DEB3) represented by Optence;
- About 60 SMEs and 10 RTOs working in the fields of optoelectronic components, including optical

materials and lasers (mostly based in the NUTS3 regions of Vilnius County (LT001) represented by LITEK.

Twenty SMEs, innovation champions, from each cluster (the most relevant ones for the cooperation at the intersection of photonics and health technologies) have been shortlisted to be directly targeted through the planned activities (see Deliverable D2.1 and D3.1).

Thus, altogether the direct target group includes a cohort of 120 SMEs with the estimated number of ca. 1000 employees generating ca. 300 MEUR in sales and contributing approximately 15% of the total revenue to R&D. The clusters form a complementary cross-sectorial network which involves optoelectronic components and systems (LITEK, Opticsvalley, Optence), the health tech integrators using optical components and photonics systems (HTS, Biocat) and the health tech users benefiting from end products (Biocat, Medicen). The SME annual growth rates in the clusters are about 10-15% with Medicen generating a 20% growth (2016) and in the case of other clusters – a 10-15% growth.

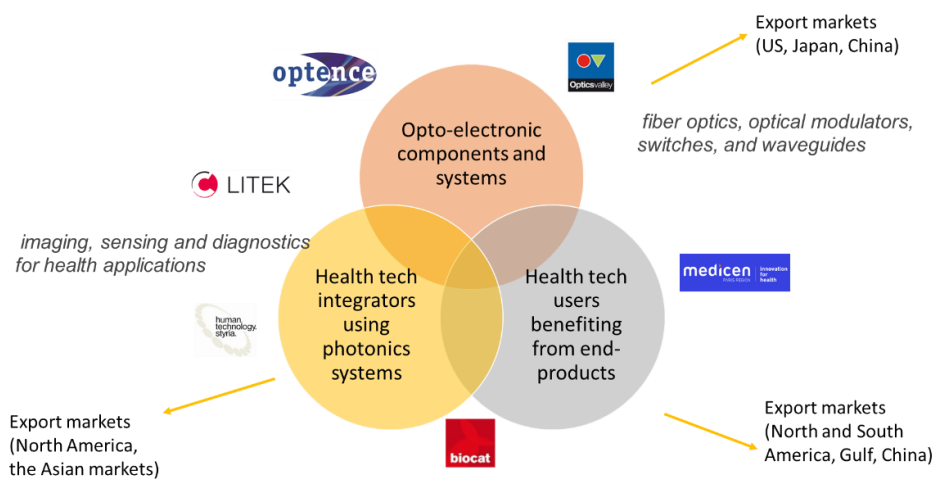


Figure 4: Focus group of enlarged cluster partnership

An expected mutual added value resulting from the planned activities of the partnership

A mutual added value is based on the expected generation of new leads through the channels made available through the internationalization activities.

The Partnership aims to directly target 120 SMEs from 6 cluster networks and further indirectly target at least another 120 SMEs. Of this number it is expected that at least 1/8 of the direct intervention actions and 1/20 of the indirect interventions would lead to collaborative business agreements which would amount to 21 signed agreements and/or MoU. In addition, it is estimated that this could lead to the increase in the percentage of the turnover from international activities by 15% on average in the 50% of the overall target groups to be direct and indirectly targeted (240 SMEs). In addition, it is estimated that of 21 signed agreements at least half would be in a position to attract investments from private or public sources into R&D and innovation of at minimum 1 MEUR over the period of 2 years with the matching co-funding from the companies, thus resulting in 20 MEUR additionally attracted R&D investments in 2 years after the completion of the action.

These targets have been selected on the basis of the LASER-GO project KPIs where a similar indicator was achieved with 5 MEUR attracted per partnership (consisting of three partners) for collaborative R&D projects during the period of 18 months. Since in some cases the exact attribution is problematic as

several factors (each impacting at different moments in time) influence in the successful outcomes, in the coming years the outcomes would be attributed only in those case when there is a proof of the involvement of the cluster personnel and the cluster companies in the activities resulting in attracting those investments.

These targets will be measured by conducting the entry-level survey of cluster companies and the exit-level survey activities using two indicators and then followed up by a continuous monitoring exercise timed to the time of the submission of tax returns. The following indicators will be monitored: a share of sales in export markets and a percentage of R&D investment from the total revenue. These indicators will be monitored by cluster managers on a yearly basis for the duration of the five years since the completion of the LASER-GO partnership.

2.4 Key performance indicators

In order to follow up the progress of the implementation of the planned strategy as presented above the following Key performance indicators (KPIs) have been established.

- **KPI 1:** Number of cluster organisations and business networks from different COSME participating countries having benefited from the supported actions – 6;
- **KPI 2:** Number of Partnership agreements resulting from the supported actions – 6;
- **KPI 3:** Number of events (workshops/ matchmaking events / working group meetings) organised – 4;
- **KPI 4:** Number of cluster and business matchmaking meetings supported – 6;
- **KPI 5:** Number of SMEs with an increase in the percentage of the turnover from international activities, and employment in Europe, of the SMEs having benefited directly and indirectly from the supported actions, as measured through a survey by the end of the action – 240;
- **KPI 6:** increase in the percentage of the turnover from international activities, and employment in Europe, of the SMEs having benefited directly and indirectly from the supported actions, as measured through a survey by the end of the action – 20%;
- **KPI 7:** impact of the supported actions in terms of number of resulting cooperation projects between international cluster and business network partners – 6.

2.5 Performance assessment

The overall objective of this activity is to evaluate the planned partnership's performance quantitatively and qualitatively. By tracking progress against specific metrics and capturing valuable feedback to assess the partnership's continuing viability and make adjustments accordingly.

The activities will be organized in seven tasks:

1. Networking Partner Screening;
2. Creating the Network of Affiliates;
3. Negotiating Cooperation Agreements;

4. Communicating the Network;
5. Updating the Roadmap;
6. Performance Measurement and Feedback Assessment;
7. Viability Assessment

Networking Partner Screening. The screening will be used to identify potential new partners that are a good fit with an organization's needs (and are willing to partner with LASER-GO partners). The partner search, assessment and the final screening will be carried out using the tools developed as part of the LASER-GO project, including the Partner Screening Guide. The agreement on the inclusion of the international partners will have to be unanimously approved by all the constituent partners of the consortium following the procedures outlined in the deliverable D4.2: Partnership Contract.

Creating the Network of Affiliates. The activity will be used to create the network of affiliates and representatives of the planned Global Value Network. This would involve a three step process: first, the analysis of the existing distributors, authorised resellers or other trade partners of the companies from the participating clusters in the target countries, shortlisting those which match the predefined characteristics of a potential affiliate (namely, their ability to act as a multiplier being involved in the business network or a cluster-type association or a business support agency and their interest in benefiting from transactions with the EU SMEs), second, contacting them and interviewing over phone or in person (during the missions and networking events), and, third, preparing and offering them to sign a Memorandum of Understanding between their organisation and the partnership clusters interested in collaboration with a particular affiliate. It is expected that in each target market at least 2 affiliates will be engaged in the negotiations, hence creating a network of 16 nodes, each leading on to a different business network or an ecosystem. The number of ties would as a result of that increase from the existing 36 (involving 6 participating clusters in the partnership) to 96, and could potentially increase the possibility of a successful entrepreneurial opportunity discovery almost threefold.

Negotiating Cooperation Agreements. The activity will be used to develop a partnership contract that is comprehensive and mutually beneficial. The cooperation agreements will be prepared according to the law of the participating countries (5) and those of the target markets (8). Altogether 13 different versions of the default cooperation agreements will be prepared at least in seven different languages.

Communicating the Network. The communication strategy will be created and implemented to reinforce and sustain the knowledge about the Network and activities, not only in the LASER-GO regions but also in other European regions and abroad in the target markets. The strategy will encompass the following components:

- Development of a strong marketing strategy through the creation of a common LASER-GO image, presented as a brand towards markets outside Europe. The common image to be supported by marketing messages and a common strategic approach was defined in order to create sustainable activities;
- A corporate-type website of the Network will be setup to reinforce the visual communication and brand recognition where all the information about the Network will be made available as well as the dedicated repository for the cluster members;
- A use of the ECCP European platform will be significantly enhanced as a tool to spread the

knowledge of the Network to other projects/organisations within Europe and as a platform to increase the visits to the corporate website;

- A LinkedIn company profile will be setup and linked with those of the counterparts in the target markets to spread the knowledge as widely as possible and providing updated news of the Network's activities. In addition, the partnership will be redistributing relevant information about the target markets to the followers on LinkedIn;
- Press releases and specific communication messages will be released in a form of short videos posted on a Youtube channel.

Specifically, the partnership is aiming to explore new means of communication through laser projected demonstrations (laser shows) presenting the references to the clusters, the companies and their products.

The dissemination activities will be used to inform the media, customers, and competitors of a newly signed strategic partnership. Completion of these activities would enable to achieve the following:

- Strategic partners based off their fit and level of interest pre-screened;
- A mutually beneficial agreement with a selected partner for the partnership negotiated;
- The agreement finalized in a comprehensive contract;
- The partnership announced to stakeholders, employees, and customers.

At this point, the consortium should have a finalized, publicized partnership with a well-aligned strategic partner dissemination network.

Updating the Roadmap. The Roadmap for the development of the LASER-GO partnership into the Global Value Network will be based on the internal survey of the stakeholders and the cluster companies identifying their needs for the period 2020-2025 and using the inputs gathered during the technology scouting, networking and other business planning activities. It is expected that 120 SMEs will be surveyed. In addition all the key stakeholders identified during the network building phase will be involved in the survey. Three groups of semi-structured questions will be put in the survey: 1) the SMEs will be asked to evaluate the expected market needs in 5 years' time by providing informed guesses or estimations about the future direction of the photonics-driven health applications, 2) the respondents will have to evaluate the business opportunities in the target markets as identified during the implementation of the LASER-GO project, 3) the questions will be asked to estimate the level of resources and the barriers that can delay the developments. On the basis of the answers from the survey the report will be prepared in a form of the Network Roadmap.

Performance Measurement and Feedback Assessment. Performance Measurement will be used to assess the partnership's performance against a specific set of measurable criteria, while Feedback Collection will be used to capture customer and stakeholder feedback regarding the partnership's potential and performance. A specially designed survey tool will be used to survey customers and stakeholders' opinion on the performance or effectiveness of the planned strategic partnership. Sales reps in particular should complete this form following interactions with customers. It will help to identify areas of concern that need to be addressed. Importantly, this survey will also help maintain open communication with sales force, partnership stakeholders, and key customer segments that the

partnership is designed to target. The feedback collection will be made available through the Network website (planned to be developed).

Viability Assessment. This activity will be used to determine the business case for sustaining, growing according to the developed Roadmap and the Plan for the Implementation of the Strategic Partnership in Photonics for Health. The activity will be used to prepare the revised and updated version of the Joint internationalisation strategy fostering complementarities between photonics and health sectors and developing ways of accessing local health care service provider markets in the target markets. The joint internationalisation strategy will envision concrete actionable plans for the achievement of the target outcome, the increase of the percentage of turnover by 20% of cluster companies from the internationalization activities within the 5-years period and the R&D expenditure of 20 MEUR per consortium within a 2-year period after the completion of the project. The action plans will consider the collaboration of the following funding programmes:

- ESIF in the involved regions: involvement of the cluster companies and RTOs in providing R&D and technology services within the projects funded from ESIF interventions in the following smart specialization areas relevant to the partner countries: Health technologies and biotechnology (priority sub-fields: Molecular technologies for medicine and biopharmacy, Intelligent applied technologies for personal and public health, Advanced medical engineering for early diagnostics and treatment) and photonics and laser technologies, medical devices and complex systems and software engineering, Sciences and materials and production;
- Horizon 2020 programmes: SME Instrument, Societal Challenges (Health & Aging), especially ICT28: Cross-cutting ICT KETs, involving photonics, healthcare.

2.6 Planned actions for the period 2018-2020

The planned actions in non EU targeted markets have been planned on the basis of the accomplished to-date. Those are listed in the table below.

Table 1: List of planned non EU actions

Partnership number	International activities	Outcomes and follow-up plans
LITEK	A mission to South Africa A mission to Singapore A mission to Thailand (due after the completion of the project) Participation in the annual trade show LASER World of Photonics	Established links with South Africa, Singapore Planned bilateral agreements with those countries Scaling out activities in ASEAN (Thailand, Malaysia) Planned participation in the annual trade show Photonics West (US)
OpticsValley	A mission to Canada A mission to the US Participation in the annual trade show Photonics West (US)	Established links with the counterparts in Canada and the US Expanding the contacts with Canada (outside the region of Quebec)
HTS	A mission to Iran A mission to the US	Established links with the counterparts in Central Asia and North America

Partnership number	International activities	Outcomes and follow-up plans
	Participation in annual trade shows AdvaMed (US), MEDICA	Close links with counterparts in Germany, Switzerland
MEDICEN	10 delegations of SMEs per year to the US (Boston), Canada (Quebec, Montreal), Israel as well as within the EU Participation in the annual trade fair MEDICA	Established strong networks in the US, Canada, Israel and in Europe involving life science partners Scaling out activities in Israel and Canada
Biocat	A mission to China A mission to USA A mission to Japan A mission to South Korea A mission to Brazil A mission to Australia	Planned follow-up missions to Japan A planned mission to Canada, Israel
Optence	Participation in the annual trade show LASER World of Photonics, LASER World of Photonics China, LASER World of Photonics India, Photonics West	Close involvement in the photonics networks in Germany, Switzerland Scaling out activities in the US (Arizona), planning new activities directed towards South Korea, Malaysia

Altogether eight joint missions are planned for implementation of these actions (as summarized in the table below). Each mission would have a lead partner who would be responsible for the practical arrangement of the mission and a co-organizing partner who would support the lead partner with the materials and the information needed to prepare the mission. The list of the mission have been approved by the consortium partners after careful deliberations: it consists of four target markets addressed during the previous activities (namely, US West Coast, USA Midwest/EastCoast, Canada, Singapore) and four new target markets (South Korea, Israel, Australia and Japan), of which three target markets (South Korea, Israel, Japan) have been already pre-explored by the new members of the partnership. The only new target market is Australia which could be tied with New Zealand (the decision on the final choice will be made after consulting with the stakeholders and companies). All missions are organised in the markets that have important health sectors and are characterized by either having an advanced economy (North America) or by exhibiting high growth patterns (ASEAN, G7 countries).

Table 2: Missions planned for implementation of non EU actions

Planned mission	Lead Partner	Co-Organizer
Mission 1: USA (West Coast)	OV	Medicen
Mission 2: USA (Midwest or East Coast)	HTS	LITEK
Mission 3: Canada	OV	Biocat
Mission 4: Malaysia and Singapore	Optence	LITEK
Mission 5: South Korea	Optence	HTS
Mission 6: Israel	Medicen	Biocat
Mission 7: Australia	LITEK	Optence
Mission 8: Japan	Biocat	Medicen

The following contact points have been established to help with the preparation of the above missions:

- USA West Coast: California Life Science Association, Holly Smithson, Senior Vice President, Business Strategy & Development, Biocom, Shannon Colette Lee, Senior Membership Coordinator;
- USA Midwest or East Coast: New York Photonics Industry Association, Thomas Battley, Executive Director, Michigan Photonics Cluster, Michelle Stock, Chair and Board Member, AdvaMed (Advanced Medical Technology Association, Ruey C. Dempsey, Vice President Technology and Regulatory Affairs);
- Canada: Quebec Photonic Network, Ms. Mireille Jean, President and CEO, Montréal In Vivo, Frank Béraud, CEO, Medec, Benoit Larose, Quebec Coordinator;
- Malaysia: EU-Malaysia Chamber of Commerce and Industry (EUMCCI), Claudia Grigoras, Business Support Executive;
- Singapore: Economic Development Board Singapore, Gavin Tan, Lead in Precision Engineering, and Lux Consortium, Choi Pheng Soo, Programme Director;
- South Korea: Kumoh National Institute of Technology, Prof. Dr. Hyungsik Woo, President Kumoh National Institute of Technology;
- Israel: Israel-EU Chamber of Commerce and Industry, Yair Levy, CEO, the Israeli Export and International Cooperation Institute, Shauli Katznelson, Sabin Segal;
- Australia: Prof. Saulius Juodkazis, Centre for Micro-Photonics, Swinburne University of Technology;
- Japan: Japan Bioindustry Association, Sakayu Shimizu, Chairman, EU-Japan EU-Japan Centre for Industrial Cooperation, Jessica Michelson, Hamamatsu Agency for Innovation, Takashi Furumura.

In addition 4 business roadshows are planned and 6 participations (one for each cluster) in match-making activities. Each business roadshow event would consist of a series of presentations by the cluster representatives presenting business opportunities from their clusters and a moderated session in groups to discuss the potential development of those business opportunities into a value proposition with the participation of the identified companies and intermediaries in the targeted markets as component, system suppliers, integrators or end-users of European products. In addition to that each cluster will undertake to participate in a regional cluster matchmaking event at their cost, presenting the business cases under development as part of the LASER-GO mission efforts (see table below).

Table 3: The envisaged match-making activities

Type of event	Related mission	Responsible Partners
Mission 1: USA (West Coast)	OV	Medicen
Mission 2: USA (Midwest or East Coast)	HTS	LITEK
LASER-GO Business Roadshow event 1	Canada	OV, MEDICEN
LASER-GO Business Roadshow event 2	Malaysia/Singapore	LITEK, Optence
LASER-GO Business Roadshow event 3	Japan	Biocat, MEDICEN

Type of event	Related mission	Responsible Partners
LASER-GO Business Roadshow event 4	South Korea	Optence, HTS
Participation in a regional cluster matchmaking event in Northern Europe	Denmark	LITEK (covered by the cluster)
Participation in a regional cluster matchmaking event in Central Europe	Hungary or Germany	HTS (covered by the cluster)
Participation in a regional cluster matchmaking event in Southern Europe	Italy or Spain	Biocat (covered by the cluster)
Participation in a regional cluster matchmaking event in the British Isles	UK or Ireland	Optence (covered by the cluster)
Participation in a regional cluster matchmaking event with the US counterparts	Belgium or France	OV (covered by the cluster)
Participation in a regional cluster matchmaking event with the ECCP partnerships	Brussels	MEDICEN (covered by the cluster)

Existing international partnership initiatives directed at similar target countries and thematic areas

The partnerships that are of relevance to LASER-GO are those which are pursuing similar objectives in either the field of photonics and optics and the health tech or both. The analysis of the competitive landscape has shown that no existing partnerships are formed in Europe which have the same scope as LASER-GO, except the European Strategic Cluster Partnership for Personalized healthcare (bioXclusters). bioXclusters have targeted the US, however, their major focus was on Global Cluster Biomarker Programme which is outside the scope of LASER-GO. Due to the overlap in certain areas (such as photonics applications for scientific research in life sciences) LASER-GO has teamed up with Biocat, a cluster member of bioXclusters which has the largest interest in photonics for health from the whole consortium. Together with Biocat it was agreed that Biocat would act as a connecting node between the two partnerships and its involvement in LASER-GO would focus on the photonics-driven health tech applications, mainly related to biosensing and imaging.

It has been agreed to constantly monitor the emerging clusters and prepare to engage with them in a co-creation of business opportunities through the planned Global Value Network (LASER-GO GLOBAL) inviting them to join the Network as associated members. As stipulated in the signed Partnership contract any legal entity relevant to the LASER-GO GLOBAL mission statement and willing to work to implement the Plan for the Implementation of the Strategic Partnership in Photonics for Health can apply to become an Associated Member of the Network. They would have the right to use the LASER-GO brand and logo for their actions, to attend Network Coordination team meetings, lead and participate in working groups and joint projects, to make proposals for update of the Plan for the Implementation of the Strategic Partnership in Photonics for Health, encourage the participation of cluster members in international LASER-GO GLOBAL activities including other clusters' flagship events.

3 Conclusions

The Roadmap and the Plan for the implementation of the LASER-GO partnership aims to further develop the European Strategic Cluster Partnership in Photonics for Health into a Global Value Network bringing together six clusters from 5 EU countries from the healthcare, health tech and photonics sectors and the business networks and intermediary organisations from eight advanced and/or fast growing economies. The planned meta-cluster (having access to some 1600 SMEs and 100 RTOs from six regional hotspots and entrepreneurial regions in the emerging sectors) will setup through the global network of clusters and their counterparts in the target markets the Global Value Network through which cluster company offers will be realized as business cases at a scale to monetize the value streams from company products, services, knowledge or information. Specifically, the implementation of the Roadmap entails the development Value Mapping Analysis tools, gathering intelligence about the unmet market needs in the target markets and the creation of a network of technology scouts and the network representatives from the local photonics and health tech ecosystems. Network building activities are envisioned to be based on a systematic analysis of the value streams of the SMEs involved in the participating clusters and match-making their value propositions with those of the companies from the business networks in the target markets to create joint business cases attractive for investors and markets. The LASER-GO consortium will organize the network building activities (innovation missions and events in the target markets) to facilitate the transfer of cluster knowledge and learning. The KPIs for the enlarged LASER-GO will be to target 240 SMEs, of which 120 directly, to reach 21 collaboration agreements, to increase the percentage of the turnover from international by 20% of the 50% of the target group within 5 years after the envisioned Action and to attract ca. 20 MEUR of investments from private and public sources into R&D activities.

4 References

- Définition de la déclinaison régionale de la S3 pour la mise en place du PO francilien 2014/2020, Stratégie de spécialisation intelligente de l’Île de France, September 2013
- DG REGIO; JRC; RDI, Roadmap, Smart Specialisation: a fresh approach to the European growth and jobs through regional research and innovation strategies, 20/12/2016
- Economic Strategy Styria 2020 - Growth Through Innovation, 2013
- European Cluster Observatory, European Cluster Panorama 2014
- European Cluster Observatory, European Cluster Panorama 2016, Nov. 2016
- European Cluster Observatory, European Cluster Trends, March 2015
- European Cluster Observatory, Cluster Collaboration and Business Support Tools to Facilitate Entrepreneurship, Cross Sectorial Collaboration and Growth, September 2016
- European Technology Platform Photonics²¹, Towards 2020— Photonics Driving Economic Growth in Europe: Multiannual Strategic Roadmap 2014-2020, Brussels, April 2013.
- Innovationsstrategie Rheinland-Pfalz, 13 May, 2014
- New Zealand Institute of Economic Research, “Global value networks How to succeed in business without worrying about scale, distance or thin networks”, 2015
- The Programme on the Implementation of the Priority Areas of Research and (Socio-Cultural) Development and Innovation (Smart Specialisation) and their Priorities, Government of the Republic of Lithuania, April 2014
- Report of the Committee on the Future Economy, Pioneers of the Next Generation, Singapore, Jan. 2017.
- RIS3CAT: Research and Innovation Strategy for the Smart Specialisation of Catalonia 2013
- Synthesis of the Research & Innovation Strategies for Smart Specialisation of French regions, December 2015
- OECD, “Knowledge Networks and Markets”, OECD Science, Technology and Industry Policy Papers, No. 7, OECD Publishing, Paris, 2013. <http://dx.doi.org/10.1787/5k44wzw9q5zv-en>