D9.1 – Plan for Exploitation and Dissemination of results

Project Information

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Project Coordinator	Stefano TOFFANIN (CNR)
Project Website	http://www.moloko-project.eu

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Contributors	Mark Whatton (QCL)
Reviewers	Stefano Toffanin (CNR)
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PU	Public	✓
PP	Restricted to other programme participants (incl. Commission Services)	
RE	Restricted to a group specified by the consortium (incl. Commission Services)	
CO	Confidential, only for the members of the consortium (incl. Commission Services)	

Document Log

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V1.0	24/04/2018	Lisa Bregoli	First draft of the document
V2.0	27/04/2018	Mark Whatton	Contribution to the Exploitation Plan Session
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V4.0	08/05/2018	All partners	Final revision, introduction of further information about Dissemination Plan (journals, fairs,..)

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1 Executive Summary

The PEDR summarises the consortium's strategy and concrete actions to disseminate, exploit and protect the foreground generated by MOLOKO and will serve as a guideline to the Consortium for the dissemination and exploitation activities.

This report is the first PEDR release. It gives an introduction of the dissemination planned activities at M4 and the ones planned for the subsequent period, together with the identification of exploitable opportunities and identification of target segments for MOLOKO project. The report will be up-dated at time of project's mid-term report (M18) and final report (M42).

The two key areas addressed by this deliverable are the dissemination and the exploitation actions which are separately reported in Dissemination Plan and Exploitation Plan.

Section A (Dissemination Plan) describes the dissemination measures and activities which are going to be performed. This deliverable aims at the presentation of a suitable dissemination plan for making the project known all over Europe as well as China, Japan, Honk Kong and the USA. Based on the plan in the DoA, target groups for dissemination in MOLOKO are identified and the subjects and matters of these actions are described. The management as well as the tools and activities are defined and the partner roles are shown. As the resources dedicated to dissemination are restricted, cost-effective ways are chosen to achieve a maximum of publicity for the project and its results.

Section B (Exploitation Plan) describes the routes for the exploitation of results that project partners have envisioned at the beginning of the project and which are being redefined as the project technically progresses. As the EP will be developed along the project, this initial PEDR only contains the general EP strategy which was outlined during proposal phase.

The deliverable is structured in five chapters: chapter 1 gives a short introduction to the project and the aim of the present deliverable. Chapter 2 is focused on the **dissemination strategy**, where different paragraphs illustrate the objectives of the dissemination, the target audience, the timing of the activities, the dissemination management policy and methodology and the dissemination tools. Chapter 3 contains the Project Communication Plan (PCP), outlining the **dissemination activities** to be performed during the first project period.

Chapter 4 describes a preliminary Exploitation Plan, which will be developed along the MOLOKO project. In chapter 5 the IPR management strategy is briefly outlined reported. The Appendices contains functional additional material.

1.1 MOLOKO in a nutshell

MOLOKO is an Innovation action which brings together 12 partners from 8 Countries in Europe:

MOLOKO aims to develop and validate a **self-managing and automatic miniaturized integrated photonic sensor** to be used as process analytical instrumentation for fast-response on-site monitoring of interest analytes for security and quality within milk supply chain. For this purpose, the consortium is driven by the interest of all R&D, SME and large-industry partners, towards the development of an innovative value-added bio- and photonic- based system for quality and safety control in the milk production and distribution chain. The consortium also involves food-safety regulatory body and institution, which catalyse the exploitation of consortium results.

In particular, the aim is to realize multiplexing quantitative detection of up to 10 analytes among which **food safety parameters,** e.g**.** antibiotics (i.e. penicillin, ampicillin, cephalonium) and toxins (i.e. mycotoxins and bacterial toxins) and **food quality parameters** e.g. lactoferrin and caseins by implementing a highly-integrated optoplasmonic-microfluidic sensor in the strategic checkpoints along the entire supply and value chain of milk.

The MOLOKO miniaturized integrated photonic sensor will be specifically designed according to milk primary production, processing and distribution end-users in order to enable and guarantee self-monitoring safety and quality standards by the use of a reliable, highly sensitive and specific, low-cost innovative self-screening photonic technology. The effectiveness and market-placement of the engineered functional prototype will be quantitatively evaluated by direct comparison with respect to standard analytical methods and commercially available optical biosensors.

1.3 Scope and objectives of the PEDR

The MOLOKO PEDR is one of the main activities of WP9, with the aim to underpin dissemination and exploitation of methods and results. A preliminary dissemination plan Project Communication Plan (PCP) is also formulated within the PEDR, where specific communication needs of the users are analysed, and the strategy to monitor impacts is foreseen.

PEDR is a live document, whose implementation takes place along the whole project duration to ensure that the project results are taken up by the main stakeholder groups, such as decision-makers to influence policy-making, and by both industry and the scientific community.

The PEDR identifies:

- who will benefit from the work (the stakeholders)
- how they will benefit (the message)
- how to maximise reach to stakeholders (the tools)

The development of the PEDR throughout the lifetime of MOLOKO will consist on three steps:

1) **Identify a result that is ready to be evaluated for release**. This might either be one of the results described as expected results in the proposal stage, or it might even be intermediate results/data, which could be useful for specific users: all partners will discuss the relevance of results both for new as well as for already identified potential 'users of the knowledge'. The WP leaders are responsible to identify results that are ready for evaluation.
2) We will **analyse the value of a result for the potential users** (not limited to financial value), the costs to release it, and possible competition. At the end of the valuation stands a clear recommendation, how to release the result. This would include one of the three options 'use, sell, or publish' and accompanying measures. The latter relates to protection and communication: depending on the competition, we might decide selling a result under patent protection, or we might sell it under trade secret, or we might keep it secret and sell a service based on the result. Depending on the potential users we might have to select different communication tools; reaching the scientific community calls for (open access) publications in relevant peer-reviewed journals, while reaching commercial users might require demonstration cases, data for regulatory validation, or the endorsement of influential opinion-leaders.
3) **Use the results as impacts enablers**. Use of results will follow the provisions described in the Consortium Agreement, where the details on IPR are fixed. The partners who own the result will use, sell, or publish it; at all instances, we will ensure that the other partners retain access rights, if those are needed to either conduct the project or to release own results.

Depending on the potential users we will select different communication tools, which are described in the Project Communication Plan (PCP, chapter 3).

SECTION A: DISSEMINATION PLAN

2 Dissemination Strategy

The objectives of the dissemination are:

i. To deliver MOLOKO's expected results and progress to the defined professional groups using effective communication means and tools;

ii. To raise public awareness about MOLOKO,

iii. To exchange experience with projects and groups working in the food diagnostic and analytical-instrumentation field in order to join efforts, minimize duplication and maximize potential;

iv. To exploit the fundamental knowledge, the methodologies and technologies developed during the project will be exploited also through training activities to new employees and young scientists coming to work at partners institutions and companies, cross-training among partners and training about new technologies stemming from the project.

v. To open the way for future commercial exploitation of the resulting technologies and validated MOLOKO sensor.

The dissemination strategy and activities will follow **principles and best practices** successfully tested by the partners in other projects and in line with the EC Guidelines for successful dissemination:

- All research results/reports will be duly reviewed and a copy will be sent to relevant partners involved in the project before these are published or disseminated. When appropriate, the reports will refer to other research projects and build on the existing results and literature.
- Research will be conducted following sound analysis and scientific practice principles, taking into account as much as possible policy requirements and needs.
- All partners who will contribute to the project activities will be duly informed about the final outcomes and the implications stemming from project results by the use of the Collaborative Platform.
- All public results will be accessible from the project website and usable from all parties who may benefit from them.

The definition of the dissemination strategy is based on the identification of the following milestones, which are described in the following chapters:

a. the subject of dissemination (what will be disseminated),

b. the identification of target audience (who will most benefit from the project results and who would be interested in learning about the project findings),

c. the definition of methods and tools (what is the most effective way to reach the target audience),

d. the timing (when dissemination will take place),

e. the dissemination management and policy (who is responsible of and how dissemination is ruled).

2.1 Subject of dissemination

The following general subjects of dissemination have been identified:

1. MOLOKO project itself (general scope, coverage, goals and milestones and plans to reach them)
2. publishable research results (reached objectives and achievements)
3. developed techniques and methodologies (in view of pre-industrial research impacts)
4. developed tools and technologies (in respect of industrial IPR issues)
5. innovation aspects (in an "open innovation" perspective)

2.2 Target Audience

2.2.1 Dissemination within the MOLOKO partners (Internal dissemination)

Ensuring effective internal communication and dissemination among the Consortium partners represents an important key success element for MOLOKO.

Partners´ organizations are important for dissemination for two reasons. Firstly, they are potential users of MOLOKO project results themselves and secondly, they represent "influencers" because of their huge impact on the associated research community and industrial sectors.

The partners are also widely involved in industrial development activities in the point-of care diagnostics market, in ICT and biotechnology science journals and communication organisations/events. This supports broad dissemination to potential customers and scientific dissemination in high impact journals (with focus on open access), and support the organisation of workshops or dedicated conference sessions on MOLOKO results. The partners in industry will ensure a broad dissemination to industrial organisations and ensure that end-users are directly informed.

The European nature of the MOLOKO partnership will be exploited in full to gain maximum global reach for dissemination. Each international partner's status is made up as either an industry research centre with direct links to the market, regulatory bodies or research centres with strong international stakeholder networks and nationally-recognised reliable and relevant facilities. Partners' extensive international network of collaborators, strong links with a wide variety of stakeholders, and extensive experience in method and data dissemination will be used to reach a large international audience for global dissemination.

Methods of internal dissemination will vary from providing links from partners´ web pages to the MOLOKOs website, to seminars or workshops showcasing, to articles in partners´ internal newsletters and publications etc will be extensively promoted and effectively developed in the project Collaborative Platform. The internal communication strategy also pursues the objective to maintain all partners fully informed about planning, work in progress and existing or potential problems.

Project Collaborative space has been set-up by CNR as described in deliverable D9.4 "Collaborative Platform", with the aim to store and share documents and files in a fast and convenient way, among all Consortium participants.

2.2.2 MOLOKO external Stakeholders

In order to structure the external dissemination activities in the dissemination plan and to be able to analyze the impact of dissemination on a comparable basis a more accurate definition of the stakeholder groups:

- Academic and research community

All research communities interested in the MOLOKO project's developments, results and innovation which can be beneficiary for their own research activities.

- Industrial sector, Professional Associations

A major objective of MOLOKO is to address and trigger the active involvement of industrial and user communities. MOLOKO is of utmost relevance for organizations in various industry sectors, who will be approached individually in the dissemination activities.

- Public health and food safety authorities

The availability of a product which allows low-cost and precise monitoring of food quality is of primary importance to the regulatory bodies and Institutions which have the responsibility to ensure food safety and public health.

- EU technology Clusters

This group refers to activities addressing external task forces that can be relevant to MOLOKO and which will offer a quite big and reusable knowledge base for implementing the Project and solving commonly addressed issues by injecting knowledge and experience on topics such as practices, technologies, platforms, components, standards, etc.

- EU projects working in similar domain

The participation of project partners in other relevant projects offers the opportunity to establish quick links among parties through common participants. A number of national or international research and innovation activities are linked to the project and their outputs feed into the project:

- External advisory panel of experts (EIAP)
- Photonics 21 PPP and EC

MOLOKO partners have interesting and significant links with European and international activities:

- Most of the MOLOKO partners already participated, and currently participate, to EU projects which are related with MOLOKO proposal.
- Some MOLOKO partners are members of international committees/boards of important symposia which can ensure and facilitate the dissemination of MOLOKO results.
- Finally, many MOLOKO partners have consolidated pre-existing collaborations between each other (research or industrial), even in funded EU projects. This will certainly strengthen the cooperation within MOLOKO proposal which is requested to successfully finalize the project.

At national level, MOLOKO Project will be disseminated among:

- all industrial sectors identified
- academia
- relevant local public bodies, since they are important regulators
- relevant professional associations, as they can inform their members and contacts on MOLOKO project and its results, being therefore important local influencers.

2.3 Dissemination activities timing

The dissemination activities will be performed according to the following logical schedule:

1. Initial awareness phase (month 0-6): this especially includes establishment of MOLOKO project website, analysis of relevant information resources, identification of dissemination opportunities and creation of basic dissemination tools including graphical identity of the project (i.e. project logo, project website, templates for project documents and for project presentations), initial drafting of the PEDR and first training activities to foster initial knowledge exchange.
2. Targeted dissemination phase (month 7-24): the consortium will enrich the website, publish a project poster, issue the first press release and attend selected events. Preliminary project results will be presented to the target audiences.

3. Pre-launch phase (month 25-42): this represents the second period of the project, when MOLOKO consortium partners will deliver the majority of project outputs. This phase will be focused on informing the target audience of the exploitable results.

2.4 Dissemination management

2.4.1 Distribution of responsibilities

According to the Article 29.1 of the Grant Agreement: "Each beneficiary must – as soon as possible – 'disseminate' results by disclosing them to the public by appropriate means (other than those resulting from protecting or exploiting the results), including in scientific publications (in any medium)." Therefore, every possible opportunity will be embraced by individual partners or on collective basis through joint appearance by more than one partner to make MOLOKO known among professionals and general public as well.

All partners of the consortium must contribute to the dissemination according to their foreseen role and effort and using all available tools, thus for instance by participating and giving presentations at conferences, publishing papers, holding press conferences, networking and similar activities and will strive to maximize the existing dissemination channels for the purpose of project result adoption and successful future commercialization of MOLOKO outputs.

The WP leaders and individual partners are established figures in their respective areas, with extensive networks and long-standing involvement in ICT. This provides excellent opportunities for communicating scientific, technical as well as market-targeted results from the MOLOKO. The partners are also widely involved in global science journals and communication organisations/events. This supports broad scientific dissemination in high impact journals (with focus on open access) and support the organisation of workshops or dedicated conference sessions on MOLOKO results. The partners in industry will ensure a broad dissemination to industrial organisations, ensure that end-users are directed informed.

In order to manage the external communication and the publication of MOLOKO related text/images/videos in whatever form (magazines, newspapers and papers for conferences, workshops and seminars, etc.) the Consortium avails itself of a Dissemination Manager (DM).

The Dissemination Manager is the central contact point for external communication. Full name and contacts are mentioned on the website and on any document where it appears to be relevant.

The contact details to be currently mentioned are:

Isella Vicini, Dissemination Manager
E-mail: isella.vicini@warrantgroup.it

BeWG and CNR are the central contact point for internal communication.

Each partner has nominated an internal contact point who is responsible for dissemination issues and reporting (Errore. L'origine riferimento non è stata trovata.).

2.4.2 Dissemination policy and rules

Grant agreement article 29 and Consortium Agreement (CA) section 8.4 define specific dissemination policy and rules for MOLOKO.

Dissemination activities in MOLOKO project are deeply wedded with the intellectual property (IP) rights protection which is clearly stated in EC-GA Articles 23a. Practical application of IP rights protection agreed among MOLOKO project partners is adjusted in the Consortium Agreement (CA) in Section 10.

The main aspects of IP rights protection are the following:

- Common agreement on publication of other partner's confidential information or any other information subjected to their IP rights
- Setting up the dissemination rules and procedures to avoid any potential breach of any partner's IP rights, especially rules and procedures for publications of MOLOKO project results.
- Understanding the difference between the interests of academia and industry partners of MOLOKO project. The academia partners tend to publish all information they have at disposal which is caused by academic common motivation systems while the industrial partners'' decisions on whether, when and where to publish depends on commercial considerations.

The basic regulation of the dissemination activities in the CA states that:

Dissemination activities including but not restricted to publications and presentations shall be governed by the procedure of Article 29.1 of the GA subject to the following provisions.

During the Project and for a period of **1 year after the end of the Project**, the dissemination of own Results by one or several Parties including but not restricted to publications and presentations, shall be governed by the procedure of Article 29.1 of the Grant Agreement subject to the following provisions.

Prior notice of any planned publication shall be given to the other Parties at least 21 calendar days before the publication. Any objection to the planned publication shall be made in accordance with the Grant Agreement in writing to the Coordinator and to the Party or Parties proposing the dissemination within 15 calendar days after receipt of the notice. If no objection is made within the time limit stated above, the publication is permitted.

Subsequent articles regulate the justification of raised objection and on ways to agree a satisfactory solution for all the Parties.

For the avoidance of doubt**, no Signatory Party shall have the right to publish or allow the publishing of any data which includes Foreground, Background or Confidential Information of another Signatory Party**,

Where publications relate to jointly-developed results, each Signatory Party involved must be asked for its consent to publish and such consent not to be unreasonably withheld, delayed or conditioned.

Besides:

all draft articles must be sent to the project coordinator and the dissemination manager before publication or production for reporting and archiving purposes. This will allow checking if they fulfil the dissemination requirements or whether they conflict with other existing papers.

All publications based on work funded by EC within the activities of the MOLOKO Project will acknowledge their affiliation to MOLOKO and bear recognition of the EC funding H2020 and Photonics 21 PPP.

This is generally accomplished by adding the following sentence in the acknowledgements section, together with the EU emblem:

"*This project has received funding from the *European Union's Horizon 2020 research and innovation programme* under grant agreement no. 780839.*"

Besides, as MOLOKO project is funded by one of the ICT Programme Calls under the Photonics Public Private Partnership (PPP), it has to be in line with the PPP communication Requirements.

All communication activities related to the project will acknowledge the context of the Photonics PPP, for example by stating that the project is an initiative of the Photonics Public Private Partnership.

Specifically, for workshops, press releases, presentations etc. the EU emblem and Photonics21 logo will be displayed prominently together with the text "Photonics Public Private Partnership" (see image below).

The link:

www.photonics21.org

will also be included. When communicating on Twitter or other social media about project activities or achievements, #Photonics will be included together with @Photonics21 and @PhotonicsEU.

The project will make a press release when the project launches and also when the project has reached a significant milestone.

The project will also provide a **communication kit** about the project (narrative text, photographs, slides and any other suitable communication material, complemented with copyright licences for the European Commission and for Photonics21). The narrative text will target a general audience and focus on the technical achievements as well as on the economical and societal benefits for the EU. This communication kit will be provided to the Commission at the beginning of the project (i.e. end of month 1) with updates at mid-term and at the end.

Project communications such as project press releases, workshop announcements, websites or brochures will respect the principle of fair visibility. If the logo of any individual beneficiary is included, then the logos of all beneficiaries will be included".

2.4.3 Dissemination monitoring and reporting

All consortium partners are encouraged to report the results of each dissemination activity immediately after they are presented. The reports shall include feedback gathered by the respective partner from the target audience (if applicable), eventually gained contacts to be listed in the contact repository used for further dissemination purposes.

This must be done through the MOLOKO Project collaborative platform which contains a specific dissemination section. All partners are invited to upload and share the dissemination material (this can be a paper, a conference presentation or the audio file of an interview for example).

For monitoring purposes, the dissemination activities will be reassessed regularly by the Executive Board during the project progress meetings that will take place every 6 months.

The information gathered during the entire lasting period will be incorporated to the interim PEDR report. This document includes a dissemination report of the first part of MOLOKO in the form of overview of activities performed in this period. The results of the evaluation will be then projected in the dissemination plan for the upcoming period.

The Final Report to be delivered to the EC at the end of the project will include the final PEDR compiled by the Dissemination Manager and the WP9 leader on the basis of the contributions of all partners.

2.4.4 Evaluation

Impact monitoring will be an important part of our communication strategy. The effectiveness of dissemination activities will be reviewed during Executive Board meetings, on the basis of quantitative and qualitative criteria: quality of media references, number and impact factors of scientific publications, video views and comments (neutral, positive, negative), website visits, attendance numbers at workshops, e-newsletter distribution tracking, interactions with related initiatives and projects. These measures will help to achieve the expected impact of the project by addressing the full range of potential users and uses.

2.5 Dissemination basic tools

2.5.1 Graphic Identity logo

A graphic identity logo has been designed, as described in deliverable D7.2.

The logo contains both the acronym and the title of the project. Its graphics intends to capture the attention of the audience, and the second "O" reminds of a glass of milk, recalling the milk value chain.

Figure 1 MOLOKO Logo

2.5.2 Website

To ensure maximum visibility to the MOLOKO objectives and results we have set up a project website registered in the "eu" domain and with an intuitive URLs to increase hit rates. BEWARRANT has been in charge of the development of the website with the assistance and the advice of CNR and QCL.

The website can be found in the following URL:

http://www.moloko-project.eu

The design of the website builds upon the following criteria and considers suggestions given in the EU Project Websites – Best Practice Guidelines (EC, 2010):

I. **Visual communication**: use of colours and/or photos, web pages are easy to browse, information is kept short and links are included to websites, publications, and so on.
II. **Verbal communication**: the website uses simple phrasing, no jargon is used to attract the widest possible audience, e-devices are user friendly.
III. **Visibility**: maximum use of free or affordable methods to increase page ranking on search engines, Webmaster Tools provided by search engines to check indexing status, good cross-linking between the different pages of your site and other sites, adding keywords to the web

page metadata; use of frequently used keyword search phrases both in the metadata and in the contents pages.

IV. **Regular update of contents**: the website is maintained by BEWARRANT and the update will be regularly done by the Webmaster upon inputs of the Project Dissemination Manager and of partners, the use of social media (e.g. social networks such as Twitter and Facebook) has been considered.

V. **Monitoring and feedback tools**: the website includes a counter of visitors or other statistical tools that will be used to measure the number of visits.

The public section of MOLOKO website provides:

- a brief overview of the project and further details about its objectives, contents and structure;
- the composition of the project consortium, the links to the partners' websites and the contacts of the people involved in the project;
- access to the project public deliverables and to the dissemination material prepared (e.g. leaflets, posters, press release and presentations);
- information about MOLOKO events, such as MOLOKO meetings and workshops, as well as conferences and external events where the project will have an active role (e.g. presentation of paper(s), organisation of sessions, stands with demos, etc.).

The public website has several sections and sub sections devoted to present the project to external visitors, all accessible from the home page and described into details in the following paragraphs.

In each section, at the bottom of the pages, you can find:

- ✓ the acknowledgement of the EU co-funding, also by the inclusion of the relevant logo claiming that " This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement n. 780839";
- ✓ the logo of Photonics21 connected to its website: www.photonics21.org. This logo is also displayed on the top of every pages of the website;
- ✓ Some MOLOKO project details.

Details about the website are provided in the previous deliverable D9.3 "MOLOKO Website".

2.5.3 Brochure

As planned, a project brochure will be prepared and released during the first 6 months of the project (D9.4 at M6). The main objective of the project brochure is to provide our audiences with an attractive and written project overview and a summary of the main project objectives and characteristics.

The brochure presents the goals of the project and the main (expected) findings. The text is designed taking into account not only experts, but also an interested non-specialist. It introduces the main mission and the goals of the MOLOKO project. Furthermore, it includes the website address and provides basic information on MOLOKO.

A second version of the brochure will be implemented after month 18. This version will contain an updated content, with an overview of preliminary results, and a new layout for making it more attractive.

To assist the dissemination effort, an attractive and professionally made brochure will be prepared by BeWG and published on the project website. The brochure will also circulated in printed form, e.g. it can be handed out at conferences or other events; on the other hand also an electronic version (e.g. PDF file) can be circulated. The brochure can be also downloaded from the project website.

Some leaflets will be translated into other languages than English by the Partners located in the local pilot sites, based on a master template which will be provided to the partners. The content of the leaflets has to be clear and easily understandable by the target end users.

2.5.4 Poster

A MOLOKO poster will be developed. It would be available for all partners to display at event, as a dissemination tool. The main purpose of the poster is to catch the audience attention, thus it will focus on the visual aspects. The content of the posters has to be clear and easily understandable by the target end users.

From the content point of view, the poster of MOLOKO will illustrate its objectives and include basic information on the project and on the Consortium.

The MOLOKO official poster will be updated one or two times within the MOLOKO lifetime.

2.5.5 Official presentation

A MOLOKO official slides-presentation has been prepared already during the first months of the project and provided to partners. The MOLOKO official presentation will not be published on the website, but it will be used as a tool for partners, who will be able to add further slides to the basic general presentation for their specific dissemination uses.

2.5.6 Video

Promotional animations and videos will be produced. They will be edited, professionally formatted and made available through the project web site and the EC sites, and through widespread channels like YouTube and Facebook.

2.5.7 Social Media

Social media tools such as Facebook, LinkedIn, Twitter accounts will be set up, aiming at reaching the audience of professionals, students and young researchers, constantly updated with the latest news from the project.

2.5.8 Contacts database

The project will create and maintain a list of contacts for dissemination and classify them by target group, type of organization and user profile, to allow targeted communication campaigns and support analysis of dissemination results.

2.5.9 Newsletter

A Newsletter will be published in the public area of website with highlights on the project results, news and forthcoming events. It will also be sent by email through the contacts database comprising possible stakeholders groups.

2.5.10 Press releases

Press releases will be published along the life of the project, starting from the beginning. Activities within this topic has already started in relation to an interview about the Project concept and structure, which the Coordinator released to Photonics21 (that will be published next months).

3 Project Communication Plan

The Project Communication Plan (PCP) outlines the communication activities to be performed, and it is a core component of the PEDR. The approach is based on the identification of specific communication needs of different user groups, addressing how to maximise awareness of project results among users in each of those groups.

This builds on knowledge acquired by partners' participation in other active EU projects of relevance. In order to ensure that our PCP remains appropriate and effective throughout the lifetime of the project, we will monitor communications reach and evaluate it against our communication objectives. Adaptations and refinements will be made to the PCP as and when necessary to ensure that these objectives are achieved.

The new knowledge arising from MOLOKO will have to be effectively communicated to **industry, regulators** and **policy makers** through appropriate channels and in a timely manner. Communication measures, where necessary, specifically target the broader **scientific community** and the **general public**. As such, the planning of the communication activities reflects the needs and preferences of the target user group(s) in terms of the methods used and the language, style and tone adopted.

The strategy of our PCP is summarized in the following table, where we associate the specific type of message to each stakeholder group:

Stakeholders groups	Main message
Academic and research community	All research communities interested in the MOLOKO project's developments, results and innovation which can be beneficiary for their own research activities. Scientific contributions of MOLOKO are particularly interesting for researchers working in the field of biophotonics, hybrid technologies, organic electronics, biotechnologies and food science.
Industrial sector, Professional Associations	A major objective of MOLOKO is to address and trigger the active involvement of industrial and user communities. MOLOKO is of utmost relevance for organizations in various industry sectors, who will be approached individually in the dissemination activities. The main industry sectors which will be interested in MOLOKO results are: ➢ food-chain and milk-production and -processing industry ➢ dairy processors and farmers ➢ suppliers/distributors of bio-diagnostics sensors in food safety market ➢ medical (point-of-care) and environmental diagnostics ➢ pharmaceutical industry MOLOKO will rely on the presence of three industrial companies such as Parmalat, Milkline and QCL in order to attract stakeholders from both milk value chain (both production and distribution) and disposable analytical instrumentation for food security, whose potential for the exploitation of the Project results will be analyzed mainly in the frame of elaboration of the exploitation plan. Examples of industry organisations include the IDF (International Diary Federation). For the UK: the Society of Dairy Technology (SDT) and Campden BRi (food analytical research).

Public health and food safety authorities	EFSA (European Food Safety Authority) is usually interested in data that can be useful for risk assessment (in particular, exposure data on specific contaminants and mixtures. Joint Research Center- European Commission, Community Reference Laboratory ECDC, European Commission DG SANTE and all national food safety and public health authorities and risk assessment bodies will be interested to know about the MOLOKO new tool.
EU technology Clusters	This group refers to activities addressing external task forces that can be relevant to MOLOKO and which will offer a quite big and reusable knowledge base for implementing the Project and solving commonly addressed issues by injecting knowledge and experience on topics such as practices, technologies, platforms, components, standards, etc. Photonics 21 and OE-A (Organic and Printed Electronics Association) have been identified as the most relevant European Technology platform, but also other ones can be reached, such as Food For Life (http://etp.fooddrinkeurope.eu/)
EU projects working in similar domain	The participation of project partners in other relevant projects offers the opportunity to establish quick links among parties through common participants. In section 3.3 we describe some of the main projects which will be interesting for collaboration of MOLOKO dissemination.
Wider public	The need for the consumers to be aware of the quality/safety of milk as a primary food in the adult and children daily diet, addressing the interested audience towards novel good practice in evaluating product placement in the market.

Table 1 MOLOKO main stakeholders groups

During the first year of MOLOKO an important group of external stakeholders will be identified as the external advisory panel of experts (EIAP), which will be selected from the industry with the aim to gain broader external advice on the long-term strategy of the project as well as on the impact of the project itself from the industrial point of view. The members of the panel will be updated about the main results of the project and they will be invited to attend to ad-hoc meetings with the GA, with the aim to provide their point of view on industrial interest about results. The IP protection of results will be ensured by a specific non-disclosure agreement to be signed prior to appointment to the EAIP, and by the right of partners to refuse disclosure of sensible results. The access to project results from EAIP members will be ruled in the CA.

As MOLOKO is a project co-financed through H2020 and Photonics 21, the EU is naturally interested in the project results being disseminated all over Europe, and eventually also globally. Dissemination at European level will require close interaction with the EC and with European initiatives.

3.1 Publication in international peer-reviewed journals and conference proceedings

The partners will individually and in collaboration publish and present scientific advances in technical papers as well as in journals (peer reviewed or not) and magazines. Scientific publications are an effective way to disseminate high-level project information and to attract the interest of representatives of the various target groups. Publications in specialised magazines, papers sent to related events will attract the attention of technicians and researchers as well as to give the opportunity to collaborate within the purposes of MOLOKO.

In order to support this activity, whenever possible, project publications will be archived or linked on the MOLOKO website.

The beneficiaries will encourage **"open access" publications** for all the other types of scientific publications (some of which may not be peer-reviewed) including monographs, books, conference proceedings and grey literature (informally published written material not controlled by scientific publishers). In order to comply with "open access" requirement, the beneficiaries will ensure that their publications can be read online, downloaded and printed. This will be implemented depositing publications into a repository (online archive) and providing open access to it.

The following journals and magazines are especially relevant for the communication strategy of the project, as suggested by all partner of the MOLOKO consortium, and they will be considered for publications:

Kind of publication	**Journal titles**
Scientific/Technical Journals:	• Sensors Biosensors and Bioelectronics • Lab on a Chip • Frontiers in Public Health • Advanced Materials; Advanced Electronic Materials • Nature Biomedical Engineering • The Analyst • ACS Photonics • Organic Electronics • Science Advances • CSEM Scientific Reports (annual) • Studies in Agricultural Economics • Journal of Public Health • Annali Istituto Superiore di Sanità • International Dairy Journal • Journal of Dairy Science • International Journal of Dairy Technology • Analytical and Bioanalytical Chemistry • Analytical Chemistry • Food Control • Advanced Functional Materials • Synthetic Metals
Selected Industry Magazines	• Il Sole 24 ore • The Economist • International Dairy Topics • Informatore Zootecnico • DAIRY INDUSTRIES INTERNATIONAL (DII) • Dairy Industry • Dairy Farming Industry and Market News

Table 2 MOLOKO target publications

3.2 Participation and presentation to conferences

MOLOKO promotes oral and poster presentations at scientific conferences targeting relevant domains for the project. The impact of presentations at this kind of events is very high because of the attendance of scientists and industrial experts. National and international conferences are an excellent opportunity to

share the results with experts in the field and, therefore, to achieve an effective dissemination of the project. Workshops, meetings and other large events (exhibitions, trade fairs, showcases) represent relevant opportunities for dissemination.

Partners will participate to at least 3 international conferences in the field of ICT, Food Security and Safety and Bio-diagnostics. Industrial partners will participate to at least 2 fairs or exhibitions relevant in the field of Food Safety and analytical instrumentation for PoC diagnostics.

The following events are especially relevant for the communication strategy of the project:

	Event titles
Relevant Congresses, Conferences and events	**<u>These first three events are already attended, or are in the MOLOKO schedule:</u>** • PIC International Conference (April 10th 2018) • ASSET 2018 (Belfast May 28th - 31st) • ICT2018 (4-6 December 2018, Vienna (Austria), probably with the organization of a networking session) **<u>Besides, more events will be attended, choosing from the following ones:</u>** • International Symposium on Recent Advances in Food Analysis • Euronanoforum • Industrial Tecnologies • ISO/IDF Analytical Week 2019 • Materials Research Society • European Materials Research Society • Biosensors • SPIE Optic + Photonics • Bioelectronics Winterschool in Kirchberg (annual) • SPIE Photonics West • Micro-Nano-Bio Convergence Systems (MNBS) • Smart Systems Integration (SSI) • EPIC Biophotonics Symposium • EFSA conferences • Rapid Methods Europe • Euro Residue • International Conference on Miniaturized Systems for Chemistry and Life Sciences • European Symposium of the International Association for Food Protection • Annual Meeting of the International Association for Food Protection • International Conference on Miniaturized Systems for Chemistry and Life Sciences • LOPEC • Organic Photonic Materials and Devices XXI (2019)
Relevant fairs	• China International Food Safety& Quality (CIFSQ) Conference and Expo • RME conference series Food Safety Summit • The IDF International Symposium on Sheep Goat and other non-Cow Milk

	Event titles
	• PittCon • Anuga FoodTec 2021 • IDF World Dairy Summit (annual) • Agritechnica

Table 3 MOLOKO target conferences and events

3.3 Networking with other EU-funded projects

MOLOKO is strictly linked to the Italian ALERT project (www.alert2015.it). The ALERT project, which was funded by the Italian Ministry of Economic Development, aimed at real-time monitoring of milk along the entire production chain by validating in field the multichannel platform BEST. The BEST platform invented and patented by ISS (Frazzoli et al. Technological integrated bioelectronic system and relevant control charting for early intervention on food chain and the environment Patent PCT/2009/000293) is an HACCP-like monitoring system that follows the "as whole" approach by integrating different analyses of physical, chemical and biological parameters through sensoristic devices in order to the generate integrated analytical information. More specifically, BEST focuses on identification, control, simultaneous and nonstop monitoring of anomalous variations in milk supply chain throughout agro-zootechnical productions, developed to allow simultaneous collection and analysis of multiple signals. Given the versatility and user-friendliness in hardware and software concept, MOLOKO photonic sensor can be coupled with the automated technological platform BEST, as a further probe.

A number of national or international research and innovation activities are linked to the project and their outputs feed into the project:

- WR was involved as partner in the linked FP7 EU project FOOD IMPRESSOR (http://www.foodimpressor.eu/en/foodimpressor.htm) aiming at developing an affordable, portable, multiplex and flexible biosensor device for fast impression of the quality and safety of the milk.

- QCL was a partner in the FP7 EU project SYMPHONY (http://www.symphony-project.eu/) that aimed at developing by heterogeneous technologies a photonic-based miniaturized smart system for perform low cost label free detection of contaminants in milk and improve safety and quality of dairy products.

MOLOKO will seek opportunities for exchange of scientific knowledge and dissemination activities with other EU-funded projects, such as:

ACRONYM, start-end	Website	Relevance to MOLOKO
FORMILK 2016-01-01 to 2019-12-31	https://cordis.europa.eu/project/rcn/199923_en.html	Development of novel analytical assays and electrochemical sensor applicable in dairy farms and analytical laboratories
PRODAIRYWELFARE 2017-02-01 to 2019-01-31	https://cordis.europa.eu/project/rcn/208128_en.html	Development of a decision-making tool, which enables farmers to produce milk both in a cost-effective and sustainable manner in order to satisfy the increasing global demand for milk

PHASMAFOOD 2017-01-01 to 2019-12-31	http://www.phasmafood.eu/	Development, demonstration and exploitation of a miniaturized smart integrated system that will be able to detect food hazards, spoilage and food fraud through heterogeneous micro-scale photonics.
MILQUAS 2016-05-01 to 2019-03-31	https://cordis.europa.eu/project/rcn/204997_it.html	Development of a novel testing device that meets a major need for reducing the waste of raw milk in the value chain, which aims at analyzing antibiotics in milk before it is loaded onto the truck
RAIS 2015-01-01 to 2018-03-31	http://www.rais-project.eu/	Development of a new point-of-care label-free microarray platform, based on an interferometric lens-less detection scheme, which aims at fast quantification of biomarkers in blood.
POSEIDON 2015-01-01 to 2017-12-31	http://www.poseidonproject.eu/	Development of a based biosensing platform based on Surface Plasmon Resonance for the detection of bacteria, with high sensitivity and high specificity.
SEAFOODTOMORROW 2017 to 2020	http://seafoodtomorrow.eu/	Nutritious, safe and sustainable seafood for consumers

Table 4 EU projects for networking activity with MOLOKO

SECTION B: EXPLOITATION PLAN

4 Exploitation Plan

The Exploitation Plan (EP) has the objective to define the strategy to multiply the impact of the proposed solutions for innovative ICT tools as monitoring analytical instrumentation and prepare the transition towards industrial and commercial uptake in order to fully achieve the expected impact. The EP will describe the activities to be undertaken (how and by whom) in order to ensure the exploitation beyond the project itself.

The exploitation strategy will reflect and will be built-up as a result of sound analysis of the market trends (WP9), potential users, and financial sustainability. The target users will be precisely identified and analysed in terms of specific needs and objectives. The exploitation activities will be coordinated by the Exploitation Manager, Mark Whatton (QCL).

MOLOKO is strongly committed to industrialize the innovative photonic sensor given the presence of industrial partners in the consortium. Indeed, two SMEs (Plasmore and QCL) are key-players in the manufacturing and the commercialization of monitoring equipment. A multinational company in the milk processing and distribution (PARMALAT) and a company in the engineering and realization of milking machines (MILKLINE) are the end-users that are strongly involved in the definition of the sensor capabilities, as demonstrated by the activity of integrating the sensor in milking system produced by MILKLINE. QCL will develop a strong exploitation strategy for evaluating the expected breakthrough of the application of MOLOKO sensor in the monitoring of the milk supply chain.

4.1 Exploitable results

MOLOKO foresees the production of two main types of exploitable results:

1. Research data
2. MOLOKO sensor prototype

The research data will be managed according to the Data Management Plan (D9.2 at M4) prepared under the responsibility of the CNR, and they have been identified as indicated in the following table:

Research data generated and/or collected during the project	**Accessibility Public, Confidential**	**How data will be exploited and/or shared/made accessible for verification and re-use** **Use of standard and or system to preserve data**
Methodological procedure	Public	Internal reports, publications in open access journals
Data and Figures for Economic and Environmental Impact	Confidential	Best Material Selection
Production of technical documents for working procedures	Public	Technical documents will be shared with project partners and stakeholders to allow the results of the research to be applied on similar problems.
Definition of specific technical data sheets for marketing of	Public	Technical data sheet will be shared with the commercial partners for marketing of experimented products

Research data generated and/or collected during the project	Accessibility Public, Confidential	How data will be exploited and/or shared/made accessible for verification and re-use Use of standard and or system to preserve data
sensors in the food diagnostic field		
Reports on progress of exploitation including analysis of drivers and barriers influencing the process	Confidential	Analysis and reporting on exploitation will be performed annually by project partners in order to maximise the use and effect of available results. Not only publishable knowledge will be considered, but also IPR to be protected (e.g. by trademark) will be treated in this context.
Data related to milk diagnostics	Confidential or Public	Data related to milk diagnostics tools and to analytical instrumentations which are considered competitors for MOLOKO sensor

A preliminary business plan was prepared at time of project proposal writing, to give a sound measure of the commitment to first exploitation of MOLOKO sensor. In fact, MOLOKO exploitation strategy is based on a feasible business plan that foresees advancing early stage Nanoplasmonics and Organic Photonics technology to System Prototype demonstration in an operational environment. The outcome includes a MOLOKO sensor composed of a microfluidic optoplasmonic cartridge with the associated reagents and a reusable electronic case and operational e-protocols. An analogy could be drawn with the business model for printer/cartridge system where the printer is practically for free in the first purchase, but the cost is amortized over the consumables.

Description of exploitable foreground	Sectors of application	Patents or other IPR exploitation of form/claims	Owner or beneficiaries of the background and foreground involved	Steps needed for a ready to market outcome
MOLOKO sensor	Beverage and other food processing industries (Dairy, Beer, Wine, etc)	Patent, Software, US patent	All Partners	Debugging, CE Mark, Validation with orthogonal techniques

The preliminary business plan will be updated during the lifetime of the MOLOKO project, in particular in the implementation of Tasks 9.3 and 9.4, under the leadership of the WP9 leader and Exploitation Manager (EM) QCL.

The objective of **Task 9.3** will be **to promote industrial networking and relations**. The aim of this Task is to provide the necessary communication between MOLOKO technology and possible enterprises both at European and International level, to ensure that MOLOKO results are aligned with exploitation activities. The activities include: i) collection of early feedback from potential end-users and technology stakeholders. ii) establishment of communication channels with the main industrial organizations

The objective of **Task 9.4** will be to define a **business plan**, according to defined **exploitation and IPR management**. Successful dissemination and exploitation of project results will require protection of related

IP foreground through patent filing as well as non-disclosure agreements and trade secrets measures where appropriate to protect key knowhow.

This task will consist in studying the market value and patent freedom-to-operate of the MOLOKO concept devices in the food-chain security business and defining the project commercialization targets.

The Exploitation Model that we propose in MOLOKO project is based on (i) an accurate know-how and expertise technological transfer from the Research Institutes towards the manufacturing SME and (ii) a joint program of product-and distribution-development between the two SMEs. The plan includes not only an exchange of key information and know-how but also a detailed agreement of commercial exploitation of the joint results. The development of the exploitation plan will be treated in plenary meetings in order to identify and analyze the exploitation capabilities of the project achievements with regard to the foreground created for all technologies, components, technical activities, and for each individual partner or groups of them.

4.2 Exploitation management

According to "Article 28.1 Obligation to exploit the results" of the Grant Agreement:

Each beneficiary must — up to four years after the period set out in Article 3 — take measures aiming to ensure 'exploitation' of its results (either directly or indirectly, in particular through transfer or licensing; see Article 30) by:

- using them in further research activities (outside the action);
- developing, creating or marketing a product or process;
- creating and providing a service, or
- using them in standardisation activities.

MOLOKO is structured to ensure effective exploitation. All results will be adequately transferred to enable their use beyond the lifetime of the project, using the dissemination and communication tools identified in the dissemination plan. The project is strictly correlated to an exploitation model for enterprise-development of SMEs in Europe. Innovation clusters of high-impact technology are highly sought to bring innovation from excellence research centers to industrial partners and for targeting specific issues related to goods and services production.

MOLOKO avails itself of the EM, as a management figure included in the structure of project management structure.

As an organization that could directly distribute the system, the EM will focus on commercialisation to ensure the project results and exploitation actions are grounded in a realistic enterprise framework with a profitable business plan. QCL have extensive experience launching new products into photonic markets and that experience can be leveraged to ensure the MOLOKO sensor route-to-market process is targeted and efficient.

Thus, the EM will be responsible for the application markets analysis and drawing up the Business Case in order to determine the commercial opportunities within the target market and ensure that technical aims will meet commercial targets. The EM will examine the patent landscape ensuring the project has freedom to operate. EM will also monitor the project's overall achievements and the effect of possible changes on prospective commercialization of results.

5 IPR management

5.1 IPR management of data generated

The management of IPR is strictly ruled by the Consortium Agreement (CA) which includes all provisions related to the management of IPR including ownership, protection and publication of knowledge, access rights to knowledge and pre-existing know-how as well as questions of confidentiality, liability and dispute settlement.

In the CA the Partners have identified the background knowledge included in Attachment 1.

Each partner related to technology generation and implementation (being either Research Centers or SMEs) bring into the project their owned background IP and know-how which is mainly inherent to single-component device (such as optoelectronic, photonic, plasmonic and immunoassay technology). This background IP and know-how assure the development of the project and the fully achievement of MOLOKO.

The CA regulates the ownership of results.

The knowledge acquired in the course of the project shall be considered as a property of the contractor generating it, and in this sense the originator is entitled to use and to license such right without any financial compensation to the other contributors. If the features of a joint invention are such that it is not possible to separate them, the contributors could agree that they may jointly apply to obtain and/or maintain the relevant rights and shall make effort to reach appropriate agreements in order to do so.

The CA also regulates the transfer of results ownership.

Each Signatory Party may transfer ownership of its own Foreground following the procedures of the Grant Agreement Article 30.

Each Signatory Party may identify specific third parties it intends to transfer the ownership of its Foreground to in Attachment (3) to the CA. The other Signatory Parties hereby waive their right to prior notice and their right to object a transfer to listed third parties according to the Grant Agreement Article 30.1

The transferring Party shall, however, at the time of the transfer, inform the other Parties of such transfer and shall ensure that the rights of the other Parties will not be affected by such transfer.

Any addition after the signature of the CA requires a decision of the Executive Board and the General Assembly.

5.2 IPR of the MOLOKO sensor

Also the issues related to the future commercial exploitation of the MOLOKO sensor will be taken into account, as a foreseen activity in Task 9.4.

The expected results of the project include the innovative integration of separate forefront technologies into a miniaturized photonic sensor capable of producing validated results in an industrially relevant environment (milk supply chain). Successful dissemination and exploitation of project results will require protection of related IP foreground through patent filing as well as non-disclosure agreements and trade secrets measures where appropriate to protect key knowhow.

A joint patent on the final integrated sensing platform could be potentially filed by all partners contributing scientifically and technically to the innovative system. The ownership of such a patent by each partner will be proportional to the effort and background knowledge contributed.

The foreground IP generated within the project by each Research Center will be licensed to the enterprise, formed either from within the project or licensed externally, to industrialise and commercialise MOLOKO

device. The license will be exclusive for the vertical application of milk analysis and in the dairy industry sector and will be granted on fair and reasonable conditions to be negotiated during the project.

A **comprehensive patent search** will be undertaken within the **first year of the project** against global databases to establish a comprehensive freedom-to-operate platform against which patent results can be focused to strengthen commercialisation activities and the business case.

Appendix A: MOLOKO Consortium

Coordinator	**Country**
CONSIGLIO NAZIONALE DELLE RICERCHE	Italy
Partecipants	
PLASMORE SRL	Italy
CSEM CENTRE SUISSE D'ELECTRONIQUE ET DE MICROTECHNIQUE SA - RECHERCHE ET DEVELOPPEMENT	Switzerland
ISTITUTO SUPERIORE DI SANITA	Italy
PARMALAT SPA	Italy
FRAUNHOFER GESELLSCHAFT ZUR FOERDERUNG DER ANGEWANDTEN FORSCHUNG E.V.	Germany
Teknologian tutkimuskeskus VTT Oy	Finland
BEWARRANT	Belgium
STICHTING WAGENINGEN RESEARCH	Netherlands
NEMZETI ELELMISZERLANC-BIZTONSAGI HIVATAL	Hungary
QUADRACHEM LABORATORIES LIMITED	United Kingdom
MILKLINE SRL	Italy

Appendix B: Dissemination contact points

- Stefano TOFFANIN

Project Coordinator

stoffanin@bo.ismn.cnr.it

- Isella VICINI

Dissemination Manager

isella.vicini@warrantgroup.it

For more info, please visit our website:

http://www.moloko-project.eu/