Deliverable 8.4: Draft Exploitation and Dissemination Plan

Dissemination Level: Confidential (CO)

Owner

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Declaration: Any work or result described therein is genuinely a result of the Hiperdias project. Any other source will be properly referenced where and when relevant

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1 Version History

Version	Summary of Change	Written by	Approver/s	Date
0.01	Drafting the of the Report	James Clayton	Alison McLeod & Emma Bowden	31.01.17
0.02	Minor corrections	James Clayton		
0.03	Comments from MAA		Marwan Abdou Ahmed	06.02.17
1.00	Approved by all parties	James Clayton / Emma Bowden	Marwan Abdou Ahmed	11.02.17

2 Scope

The aim of the HIPERDIAS Project is to demonstrate high throughput laser-based manufacturing using high-power, high repetition rate sub-1ps laser. Although the bespoke laser system being developed within the project can address a number of material processing applications, the primary focus will be 3D structuring of silicon at high-speed, precision processing of diamond material and fine cutting of metal for watch and the medical industry.

The aims within the project are to demonstrate:

1. 10 times increase of ablation rate and productivity of large area 3D-structuring of silicon.
2. 10 times increase in speed in fine cutting metals.
3. 6-10 times increase of process speed at a low processing tools cost of diamond machining.

The laser parameters, as well as the beam shaping, beam guiding and machine systems will be developed and optimised to fulfil the above manufacturing targets that have currently been established.

3 Introduction

The HIPERDIAS Consortium have drafted an initial Dissemination and Exploitation Plan in order to promote effective communication and to identify the potential exploitation opportunities from the project results. A number of key activities and tasks were completed during this period and have been outlined throughout this report.

This document should not be considered a complete or a final version. It is intended as a "living" document and as such will evolve throughout the duration of the project. Updated versions of the Dissemination and Exploitation Plans will be submitted to the European Commission in M30 and M42.

HIPERDIAS dissemination and exploitation activities will be monitored throughout the project in order to compare outputs against the strategy, identify early potential issues and comply with EC reporting requirements.

This report has been prepared by Kite Innovation (Europe) Ltd (KITE) with the support of the Project Partners. Any feedback on this report should be sent to the following people:

- Marwan Abdou Ahmed – marwan.abdou-ahmed@ifsw.uni-stuttgart.de
- KITE Project Management Team – hiperdias@kiteinnovation.com

4 Dissemination Plan

This section of the report highlights all of the Dissemination tasks that have been worked on during the first 12 months of the Project.

4.1 Multidisciplinary Dissemination:

The HIPERDIAS Project benefits from a strong multidisciplinary platform. Individual consortium partners specialise in various fields and the collaboration of experts in different disciplines is key for the success of the programme. Consequently, we can expect material to be disseminated in many different areas, including but not limited to:

- **Project Specific:** Lasers and Laser Optics, Laser-based Manufacturing and Materials Processing, Fiber beam delivery, Ultra-fast Laser Systems &High-Efficiency grating compressors.
- **USTUTT:** Laser development, Ultrafast lasers, beam shaping and beam delivery, grating compressors, laser process development
- **AMO:** Graphene Nano electronics, Photonics, Sensor technology and Nanofabrication.
- **AMP:** Laser Development, Ultrafast laser development, Manipulation of ultrafast laser beams and industrial laser manufacturing.
- **BOSCH:** Mobility solutions, consumer goods, industrial technology, energy and building technology, Research and Advance Development of enhanced production technologies and Material processing with highly flexible & precise machinery such as USP lasers.
- **C4L:** Laser Processes development, System manufacturing, Manufacturing of laser working heads and vision systems (Optics), Consulting on laser process development and Training and Services.
- **E6:** Diamond materials synthesis and processing/manufacturing of superhard materials.
- **XLIM/GLO:** Fiber and Gas Photonics.
- **KITE:** EU Funded Research – Proposal Development, Project Management, Dissemination and Exploitation.

4.2 Dissemination Outputs:

Considering the work programme and aims of the Project, HIPERDIAS proposes to disseminate the following outputs at various stages in the lifetime of the Project, as demonstrated in the table below:

Initial Phase (M01-M12)	Middle Phase (M13-M30)	End Phase (M31-M48)	Post Project (M48+)
Project Awareness to all Stakeholders (M01-M48+): *Website, Newsletters, Brochures, Flyers, Factsheets, Social Media and Press Releases*			
	Publications and Conference Attendances (M13-M48+): *Manuscripts, Publications, Conference Submissions & Posters Presentations*		

4.3 Principle Stakeholders (Target groups)

This strategy includes the identification and consideration of key project stakeholders and how they are linked to the project. The aim is to target these key stakeholders with effective dissemination activities, which will be listed throughout this report.

As the dissemination strategy evolves between M12 to M48+, the following target groups have been identified as demonstrated below:

- Industry & End Users;
- Scientific/Higher Research Community;
- General Public.

4.4 Acknowledgements and Disclaimers

In order to comply with Horizon 2020 reporting requirements, authors must inform KITE of every publication made in which HIPERDIAS findings are disseminated, either at the time of first publication or during the following quarterly internal technical report.

Each paper **must** contain reference to the funding received by inclusion of the following sentences;

The HIPERDIAS Project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 687880.

The dissemination activities within the HIPERDIAS Project do not represent the opinion of the European Community and only reflects the opinion of the author and/or the Consortium.

The HIPERDIAS Project is an initiative of the Photonics Public Private Partnership.

The publication strategy encourages maximisation of joint co-authored publications involving more than one HIPERDIAS partner.

4.5 Dissemination Tools and Channels

The importance of utilising numerous and varied tools for the dissemination of information is acknowledged and is a key aspect in the development of the dissemination strategy. At this stage in the project the following tools and channels have been identified to form the basis of HIPERDIAS dissemination activities:

Publications:

The HIPERDIAS project is yet to produce any publications in peer reviewed specialist journals, but has every intention to do so. The Consortium aim is to start publishing once the initial results are disseminated and then, throughout the remainder of the Project. The Consortium has established a publication log that corresponds with the H2020 Reporting structure and also looks at assessing the impact of these scientific publications.

Press Releases – http://cordis.europa.eu/news/rcn/134677_en.html

Consortium members are encouraged to disseminate information about the HIPERDIAS project on their own organisation's website. All press releases should include a link to the project website to provide a method of directing members of the target audience to the website and consequently increasing web traffic.

The Consortium completed the initial Press Release at an early stage within the Project and submitted this to CORDIS. KITE are currently in discussion with Matter PR to disseminate a second press release, which will focus on the first 12 months of the project with the aim of building awareness of the project to relevant stakeholders.


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Hiperdias - High throughPut LasER processing of DIamond and Silicon

Contributed by: Kite Innovation (Europe) Ltd

Hiperdias (HIgh throughPut LasER processing of DIamond and Silicon) has successfully answered the call H2020 ICT-27-2015 High-throughput laser-based manufacturing. The project started on 1 February 2016 with a consortium directed by Dr. M Abdou Ahmed, head of the Laser Development and Laser Optics department of the IFSW (University of Stuttgart) and is being conducted in cooperation with a number of expert partners; Amplitude Systems (FR), Gesellschaft fur Angewandte Mikro – und Optoelektron.

There are three main applications of the Hiperdias Project: Fine Cutting of Metal, 3D Silicon Processing and
Diamond Polishing.

The major impacts that Hiperdias will bring is the fact that the cutting processes in the watch/jewellery and medical industry can move from conventional machining to laser machining for high end parts. In terms of 3D Silicon machining, Hiperdias will secure a targeted ablation rate of at least 1mm³/s for the benchmark geometry in this application which is a major leap in performance of this area. Hiperdias will also have a huge impact in the Diamond Polishing industry where it will allow for an improvement of the yield of the diamond leveling process along with a reduction in the number of steps.

Fig. 4.5.1 – CORDIS Press Release

The Project Website

The HIPERDIAS website (www.hiperdias.eu) has a central role in the dissemination strategy. It has the widest target audience of all the dissemination tools. It is not intended to be directed towards a specific type of stakeholder, however, sections of the website will be more applicable to some visitors than to others. KITE will provide the necessary support to allow the content on the project website to be regularly updated. The project website has a useful webpage and an online contact form to engage stakeholders in to the project.

In addition to this, the Project has established a secure members' area that allows participants to access important information about the Project.

Fig. 4.5.2 – Website: A Screen shot of the Members Area

This part of the website includes: Meeting Minutes, Technical and Financial Updates, as well as Deliverables and Contractual Documents (e.g. the Grant Agreement and Consortium Agreement).

Conferences/Events

The HIPERDIAS partners often attend major Photonics conferences and are planning to attend the following events during the life of the Project:

- **Photonics West 2017 in San Francisco, USA:** 28th January to 2nd February 2017.

- **Photonics 21 Annual Meeting in Brussels, Belgium:** 28th and 29th March 2017.
- **CLEO®/Europe-EQEC 2017 in Munich, Germany:** 25th June to 29th June 2017.
- **LiM 2017. Lasers in Manufacturing Conference in Munich, Germany:** 26th June to 29th June 2017.
- **LPM 2017 in Toyama, Japan:** 5th June to 8th June 2017.
- **EMT 2017 in Grand-Saconnex, Switzerland:** 22nd June 2017.

It is our intention for partners to give invited presentations (either oral or poster presentations) at these types of events and would aim for this during the M13 – M48+ of the Project. At these meetings we will acknowledge HIPERDIAS and the European Commission and use these Logos and slide templates where appropriate. Attendances at conferences will also be communicated between partners and be detailed in periodic reports.

Twitter - @hiperdias

Social media platforms have become increasingly popular for Organisations to use as a method of networking and dissemination. Twitter has been one of the fastest growing tools; it is appealing because it allows information to be broadcast very quickly and concisely in "micro-blogs" (tweets) which have a maximum length of 140 characters. A number of Organisations have relevant fields to project subject matter and have an active Twitter account which acts as a supporting factor for the presence of HIPERDIAS on this social network. A Twitter feed for HIPERDIAS (@hiperdias) has been established and has a link on the homepage of the project website for the purpose of alerting site visitors of the account and providing a current and active website. It is currently suggested that HIPERDIAS should be posting "tweets" on a monthly basis starting in M12.

Flyers

As previously mentioned, Flyers/Pamphlets will be used for raising public awareness of the project and the subject matter. Flyers will offer a visually-appealing means of disseminating concise and simplified information to broad audiences. An electronic version of all flyers produced will be displayed on the project website.

Newsletters

The Consortium intends to develop and circulate through partners and their networks, a regular newsletter communicating the results of the project. This newsletter will be created periodically (every 12 months) to provide constant information about the project to

universities and research institutions. The newsletter will also be available on the project website for public access, as well as CORDIS wire.

Project Video – https://www.youtube.com/watch?v=A3FziRpcLB4

The Consortium have produced two Project videos to provide a basic understanding of the HIPERDIAS Project and the Partners involved. The first video demonstrated the completion of Deliverable 8.3. This video was approximately three minutes in length and provided a broad overview of the Project. The second video was completed to provide a short overview of the project and will be disseminated across the social media platforms.

The Consortium are currently developing a Video Strategy to try and disseminate to wider stakeholders outside of the Project.

4.6 Categorisation of Dissemination Activities

Dissemination for Awareness: The most basic level of dissemination relates to creating an awareness of the project in all stakeholder communities; this is particularly relevant for those target audiences that do not require a detailed knowledge of the research activities. Dissemination for awareness involves building an identity and profile for the project and communicating the aims and outcomes publicly.

Dissemination for Understanding: The content of material will be more specialised, and aimed at a smaller target audience. Dissemination for understanding is applicable to stakeholder groups that have the correct skills and expertise to benefit from the results of the scientific activities of the project.

Dissemination for Action: This level of dissemination will be particularly important in the middle and later stages of the project as the focus moves towards the translation of results generated. The target audience will be made up of people who are in positions to influence and bring about change in the relevant sectors. This audience requires a deeper understanding of the purpose and desired outputs of the project.

The matrix below, provides an outline of the Target audiences, the purpose and content, as well as the tools and channels that will used in the duration of the HIPERDIAS Project:

				Publications	Press Releases	Project Website	Conferences	Twitter	Flyers	Newsletters	Video
Dissemination for Awareness	Dissemination for Action	Dissemination for Understanding	**Industry**	Y	Y	Y	Y			Y	Y
			Photonics Scientific Community	Y	Y	Y	Y			Y	Y
			General Public		Y	Y	Y	Y	Y	Y	Y

Table 4.6.1 – Dissemination Awareness

4.7 Monitoring of Dissemination Activities

Dissemination Log:

A dissemination log is maintained to monitor each partner's dissemination activity and to ensure that the project meets Horizon 2020 reporting requirements in this area.

LIST OF DISSEMINATION ACTIVITIES								
No.	Type of Activities	Main Leader	Title	Date/Period	Place	Type of Audience	Size of Audience	Countries addressed
1	Press Releases	KITE	Initial Press Release	M1	CORDIS	Policy Makers	UNKNOWN	Europe
2	Presentations	C4L	SME and Horizon 2020, example of C4L - HIPERDIAS	Jun-16	Geneva	Scientfic Community (H	50	CH - EU
3	Conferences	Xlim - GLOphotonics	7.7 dB/km losses in inhibited coupling hollow-core photonic crystal fibers (Postdeadline)	5-10 june 2016	CLEO US conference San Jose - California - US	Scientfic Community (H	> 10000	All
4	Conferences	Xlim	Hollow core photonic crystal fibre: Novel light guidance and myriad of gas-photonic applications (invited talk)	12-14 september 2016	XXI Rinem conference Parma - Italy	Scientfic Community (H	> 500	Mainly Italy
5	Conferences	Xlim - GLOphotonics	Ultra-low loss (8.5 dB/km @ Yb-laser region) inhibited-coupling Kagome HC-PCF for laser beam delivery applications	28 january - 2 february 2017	Photonic West San Fransisco - California - US	Scientfic Community (H	> 10000	All
6	Conferences	Xlim - GLOphotonics	Kagome fiber based industrial laser beam delivery	28 january - 2 february 2017	Photonic West San Fransisco - California - US	Scientfic Community (H	> 10000	All

Fig. 4.7.1 – Dissemination Log: Information provided up to M12

Each individual partner is responsible for informing KITE of all dissemination activities carried out. To facilitate the collection of data, partners will be requested to report on dissemination activities quarterly as part of the internal technical update procedure. Templates have been provided to partners for this purpose (see **Annex II**). This will be made available to partners on a periodic basis. A total of 10 dissemination activities have taken place within the Project with more planned over the next year.

Site Analytics:

An account with Google Analytics was set up to produce a monthly report displaying the number of Unique Visitors, page views and other such information about the website usage. The HIPERDIAS Google Analytics was set up in July 2016; to date the project website has had 670 visitors.

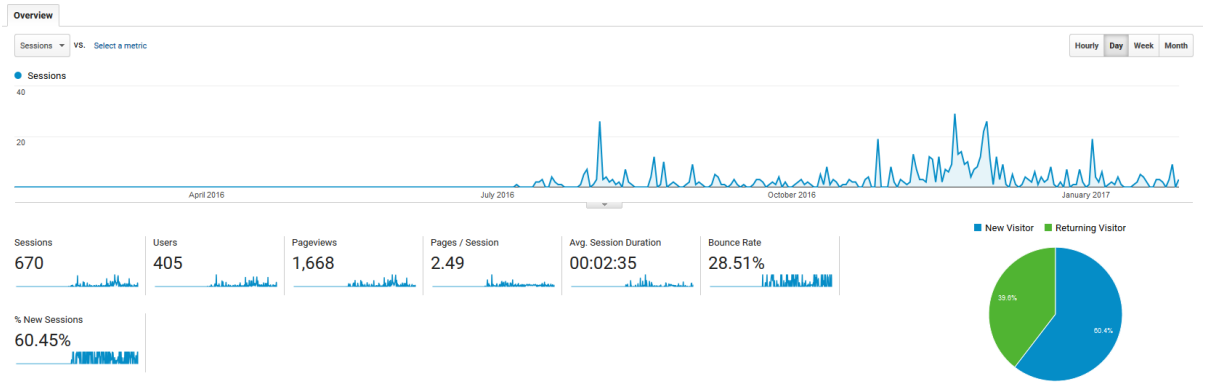

Fig. 4.7.2 – Google Analytics: Visits to the HIPERDIAS Website

The user flow suggests that the majority of visitors to the site are from European countries (400+, particularly the UK with 180), then Russia (150+), followed by USA (with 85).

The Google Analytics also demonstrate user engagement with the site and suggest that the majority of visitors of the site sessions last between 0-10 seconds and 181-600 seconds, as shown in the table below:

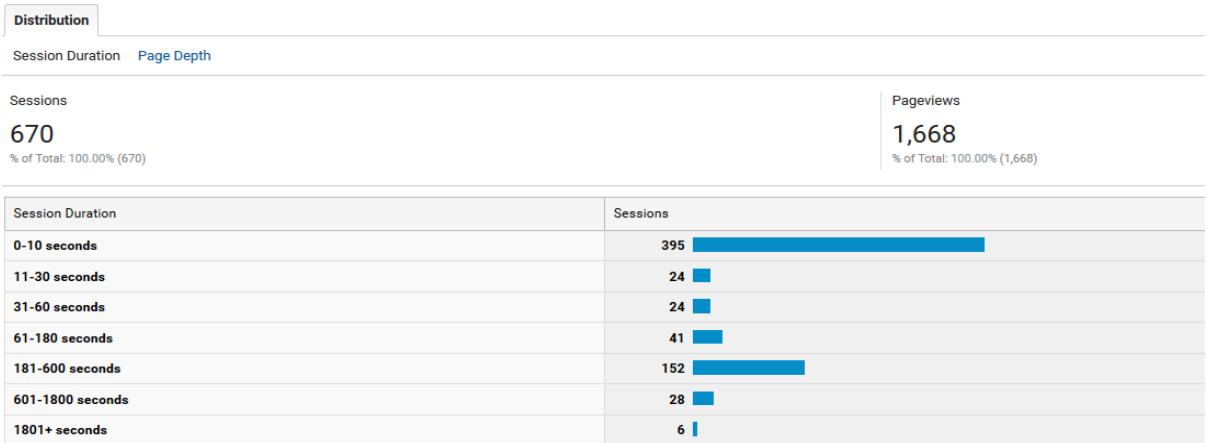

Fig. 4.7.3 – Google Analytics: Engagement and Session Duration on the HIPERDIAS Website

To encourage people to stay on the site for longer the Consortium will develop short videos to make the site more interactive. The videos that are intended to the be completed within the Project, include:

- Work Package Summaries.
- Mid-Point Assessment on the Project – Key Results and Achievements.
- Final Project Video.

A number of these videos will be completed in an interview form with Work Package Leaders, however it still needs to be decided whether or not the Consortium would like any of the aforementioned videos in an animation form and will be discussed in the upcoming Consortium Meetings.

4.8 Publication Strategy

The dissemination of HIPERDIAS results through publications in peer reviewed journals will be essential for effective dissemination to the wider scientific and research community. Participants in Horizon 2020 projects have an obligation to disseminate foreground in a timely manner. Each participant is responsible for disseminating the foreground it owns. A Party shall not publish Foreground or Background of another Party.

Dissemination activities shall be compatible with the protection of intellectual property. The Technology Transfer Panel (TTP) will be responsible for monitoring all intellectual property rights (IPR) issues as they arise and giving advice to the Parties regarding procedures and policies for Dissemination of Foreground from the Project which is not to be protected. For information on the Technology Transfer Panel, refer to Section 6 of this report.

Prior to any dissemination activity, partners should be consulted at least 45 calendar days before the publication in order for them to exercise their right to object in cases where such dissemination could cause great harm to their background/foreground. An objection to the planned publication should be made in writing to the coordinator and all partners concerned within the 30 days following the notice given.

The HIPERDIAS consortium will act upon the belief that researchers have an ethical obligation to ensure that research findings are disseminated to research participants, as well as other individuals and institutions in the communities in which we work. The promotion of open access (OA) is a key element of the HIPERDIAS publication strategy.

Article 29.2 - Open access to scientific publications:

Each beneficiary will aim to promote open access (free of charge online access for any user) to its peer-reviewed scientific publications relating to to the project results. The Consortium recognises that a number of high-impact journals are not open access (for example Optics Letters) and in this situation, each partner will be given the access to a copy of the publication during the lifetime of the project.

In particular, it must:

- As soon as possible and at the latest on publication, deposit a machine-readable electronic copy of the published version or final peer-reviewed manuscript accepted for publication in a repository for scientific publications;
- Moreover, the beneficiary must aim to deposit at the same time the research data needed to validate the results presented in the deposited scientific publications ensure open access to the deposited publication - via the repository - at the latest: on publication, if an electronic version is available for free via the publisher, or
- Within six months of publication (twelve months for publications in the social sciences and humanities) in any other case.
- Ensure open access - via the repository - to the bibliographic metadata that identify the deposited publication.

The bibliographic metadata must be in a standard format and must include all of the following:

- the terms "European Union (EU)" and "Horizon 2020";
- the name of the action, acronym and grant number;
- the publication date, and length of embargo period if applicable, and
- a persistent identifier.

The Project Management Team / Central Project Office will post the publication text on the secure area of the Project Website and notify all partners. This allows any partners who were not involved in the review at Stage 1 to raise issues prior to the actual publication date (normally there is at least 2 months elapsed time between submission and publication).

The HIPERDIAS publication strategy is intended as a “living” document and as such will evolve throughout the duration of the project. Updated versions of the strategy are to be included in each periodic report.

4.9 Plan for future Dissemination activities

The Consortium have established some of the basic processes within the 1st Period of HIPERDIAS, as outlined within this section of the report. It should be noted, that this

document is a 'living report' and will be updated throughout the life of the project. The Consortium will continually develop and add to this Dissemination Plan, and over the coming months and will work on the following activities:

- **Newsletter:** A design template was created at the start of the Project. KITE will work with the Consortium to develop and issue the first newsletter outlining the key results within the first Year of the Project. This work is due to commence from 1st February 2017.
- **Project Brochure:** KITE will also create a Project Brochure and agree on a design concept. This brochure is aimed at providing a more comprehensive overview (than a Flyer/Pamphlet) on what it hopes to achieve. This work is due to commence from 1st February 2017.
- **Press Release:** The Consortium have been working with Matter PR (Marketing and PR Company for Photonics 21) to issue a Press Release to increase public awareness of the Project. This work is due to be finalised before 28th February 2017.
- **Interviews: The** Consortium have agreed to conduct short video interviews, outlining the work within each of the RTD Work Packages. The aim is for these interviews to take place in March 2017, with the eventual aim of publishing them on the project website. These short interviews are to highlight the following areas:
    - A brief overview of the Work Package and what it entails, including its aims and objectives.
    - The challenges that are both anticipated and being faced.
    - Achievements within the Work Package.
    - Potential end-user applications.
- **Website Update:** KITE will update the Website and outline some of the key results within the 1st Period of the Project. In addition to this, the Project will increase its social media image and aim to release at least one item per month.
- **Workshop:** The Consortium will develop a Training Workshop within the next year and aim to have external participants and guest speakers attend this event. The Training workshop will be aimed towards a select group of individuals (for example PhD Students) and be themed around a specific subject area specific to the HIPERDIAS Project. Attendance, Agenda and theme will be agreed over the coming months.

  KITE will present more information on this event at the 1st Review Meeting in May 2017, following the 3rd Consortium Meeting in March 2017.

5 Exploitation Planning

This section of the report outlines the Consortium plan for exploitation. The aim of this report is to provide clear direction of the project and to ensure that all potential opportunities for the HIPERDIAS project are considered, and where appropriate, exploited.

Planning for the exploitation of results is considered an important feature of the HIPERDIAS Project. The HIPERDIAS Project has identified three main areas of exploitation that it will focus on throughout the duration of the project. These areas include:

1. Products, services and other exploitable foregrounds
2. Further research opportunities
3. People

Throughout this report, the Consortium will outline the work that has been completed and the planned activities for the duration of the project. It is important to note, that Exploitation Planning did not commence until M7 of the Project and will evolve further in the next two periods of the project.

5.1 Products, Services and Other Exploitable Foregrounds

The consortium has adopted the SQUADRON™ approach, which is described below, to evaluate, plan and implement decisions with the project that are directly connected to the ultimate exploitation of the results. *(SQUADRON is a trademark of Kite Innovation (Europe) Ltd)*

A) Where are we now? *B) Where are we going?* *C) How do we get there?*

Process Element	1. **S**egmentation – defining market segments for focused development	2. **Q**uality Requirements	3. **A**ttractiveness	4. **D**eliverable	5. **R**anking	6. **O**perationalizing	7. **N**ew Income Stream
H2020 Proposal Element	Concept & Impact	SOA & Beyond	Impact	S & T Method	The proposal document will not be able to contribute		Post Project

Fig 5 – SQUADRON™ Approach

This process is designed to gather the information required from the partners in a structured methodology and assemble it in a form that supports the ability of the consortium to make good decisions. The well-conceived project proposal document yields some of the 'data' required to support the process elements 1-4 but the process will only succeed if it engages the partners in a 'live' debate. In fact, it is the quality of the debate

which dictates whether there will be a positive outcome from investing time in exploitation planning.

Before the SQUADRON™ Approach can be started, it is important to understand what each beneficiary is hoping to achieve from the Project. The Consortium Partners completed a short questionnaire to help establish a basic understanding of expectations. The results of the expected goals are shown in the table below:

Partner:	Expected Goals:
AMO	1. Further development of manufacturing processes 2. Advanced production knowhow 3. Expanding AMOs network of research partners and companies in the field of laser optics
AMP	1. New high power femtosecond laser product 2. New features on flexible laser control for existing and new laser products 3. Established and strengthen collaboration with leading scientific researchers and centres 4. Establish and strengthen partnerships and collaborations with industrial partners on components and system level requirement to the end users/customers.
BOSCH	1. High-level goal: Development and implementation of future enhanced production capabilities in all activity fields 2. Enhancement of laser production systems to beat current industrial KPI's attainable with established processes 3. Build-up of know-how regarding high-performance production methods for 3D-Si processing and other high-precision processes 4. Collaboration with HIPERDIAS partners to develop new processes and identify new fields of research
C4L	1. The goal of C4L is to establish a new system in our portfolio that exceeds the abilities of the current working stations in the fine laser micro machining field. This system should set a new standard for high quality-high throughput fine cutting and for an innovative diamond polishing process that is more reliable than the current traditional processes. This project will also enable us to extend our own production capabilities on these processes.
E6	1. Development of new machining process to gain in competiveness compared to state of the art machining currently implemented in

	production
KITE	1. To achieve successful implementation and maximise the potential impact of the Project 2. To establish and develop good working relationships with Partners and to identify new fields of research.
XLIM / GLO	1. Better performances in hollow-core photonic crystal fiber 2. Industrialisation of hollow-core photonic crystal fiber
USTUTT	1. Higher visibility for the thin-disk laser technology 2. Established and strengthen collaboration with leading industrial partners 3. Publications in highly ranked eer-reviewed journals 4. Expanding the use of thin-disk lasers and of grating waveguide structures (pulse compressors)
LASEA/ USTUTT	None specified

The Consortium also outlined the potential exploitable foregrounds within the project, key stakeholders, along with market size and trends as shown in the table below:

Partner	**Exploitable Foreground**	**Key Stakeholders**	**Market Size/Trends**
AMO	None specified	Laser + Optic Manufacturers Ultrafast Laser Optics	None specified
AMP	The knowledge for the development of new industrial high power femtosecond laser products	Companies, especially those with integrators or end users of femtosecond lasers)	Double to triple digit number of high power femtosecond laser units
BOSCH	• Enhancement of production processes • Enhancement of laser material processing both by upgrading	• Factories (production processes) • Industrial end-users (e.g. sensor, automotive	The market size is huge (e.g. sensor + automotive industry) with a distinct upward trend (autonomous driving)

	machinery and by refining processing strategy	industry) • Small business end-users (e.g. craftspeople) • Private end-users (artisans, hobby mechanics)	
C4L	New innovative products for laser micro processing	Companies: particularly fine machining industry, watch industry, super abrasive industry, ceramic and hard metal industry	Total market for systems in the specific fields of Hiperdias applications: ca 5 Mio€ - higher if one considers other application allowed by the new system.
XLIM / GLO	Further the knowledge on the science and technology of hollow-core photonic crystal fiber for our research group in particular and to the international photonics community worldwide	• GLOphotonics • CNRS - University of Limoges	None specified
E6	• Production throughput • Production yield • Product quality • Knowledge	Companies (SMEs / Industrial Partners)	Production of over 1,000 discs Syndite discs per week
USTUTT	Further development of the thin-disk technology and the beam shaping optica components (licencing)	Laser manufacturers. Research centers (for scientific lasers)	>20 licencies of the thin-disk laser technology
LASEA/ USTUTT	None specified	None specified	None specified

Now that a baseline has been established on the expected outcomes KITE will implement a plan to ensure that Exploitation is structured in way that means completion of the SQUADRON™ Approach within the permitted timeframe of the project. This preliminary plan has been demonstrated below and each of the topics are intended to be discussed during these meetings:

Section	Description	Reviewed at:
1	Segmentation and Quality Requirements	3rd Consortium Meeting in M14
2	Market Attractiveness & Deliverables	4th Consortium Meeting in approx. M20
3	Ranking	5th Consortium Meeting in approx. M26
Deliverable 8.6 – Interim Exploitation and Dissemination Plan		
4	Operationalising	6th Consortium Meeting in approx. M32
5	Income Streams & Licensing of IP between Partners	7th Consortium Meeting in approx. M38
Deliverable 8.7 – Final Exploitation and IP Strategy		

5.2 Further Research

In order to develop future collaborations within a project, it is key to establish both good working relationship and active communication between partners. The interrelations between partners are crucial to help establish new and innovative ideas and concepts for future proposals that will have a positive impact on Europe.

The Consortium were asked for an update on their current Research Funding and their particularly interests going forward. The results from this questionnaire can be seen below:

Partner	Key Areas	Research Opportunities
AMO	Further development of fabrication processes to reduction production costs	AMO have recently submitted an ITN proposal in Horizon 2020
AMP	Further power scaling of femtosecond lasers	AMP have an interest in National Funding and Horizon 2020

	Development of Industrial applications of high power femtosecond lasers	
BOSCH	Future Production Systems (e.g. Industry 4.0).	BOSCH are currently involved in National and International Research Project Looking at future opportunities within Horizon 2020.
C4L	Laser micro machining: process, system and optic development	C4L are looking towards EUROSTAR and CTI Funding. CTI is Swiss National Funding, but would also be happy to take part in more Horizon 2020 Project.
XLIM / GLO	Development of novel fibered sources Plasma Photonics In general, the research group activities in gas-photonics	XLIM have expressed an interest in further research opportunities and have identified the following areas: • ERC – European Research Council • Horizon 2020 • ANR (French National Agency of Research)
USTUTT	Development of grating-based optical componenents for laser applications	USTUTT have recently submitted an ETN proposal in Horizon 2020 with the support of KITE. USTUTT is preparing a new project proposal for H2020 with support of Kite and with potential collaboration with AMP, E6 and C4L
E6	None specified	None specified
LASEA	None specified	None specified

KITE specialise in both Proposal Development and Project Management of Horizon 2020 Funding and have worked with a number of the HIPERDIAS partners on other EU Funded Projects (e.g. USTUTT/C4L – Ultrafast_RAZipol; USTUTT/E6 – TiSa TD & USTUTT – TresClean to name a few). KITE will work with all partners to try and identify potential calls that are relevant to each of the beneficiaries' expertise, as well as providing support and advice wherever possible.

The Consortium will continue to assess and monitor the potential funding opportunities that derive from the HIPERDIAS Project and the potential impact this has to each of the partners.

5.3 People

Throughout the project, researchers will be provided with a number of opportunities to help with Career Development, including:

- **Training Workshop:** The Training Workshop will provide opportunities for researchers to learn about specific areas related to their studies, as well as network with other researchers in their field.
- **Short Stays at other Partners:** At the next Consortium Meeting, the MGT Board will discuss the possibility of the researchers having short secondments at the other partner sites (e.g. Academic to industry and vice versa). These opportunities will provide researchers with an overview of the different working environments
- **Experience:** The experience gained from the Project will help researchers with understanding the requirements of EU Funded Project, which as a result will help with possible career opportunities in the future.

In addition, partners have identified the work that will be completed by the Young Researchers within the Project and highlighted the potential benefits to their careers, as shown in the table below:

Partner:	Young Researcher Activities / Benefits to Career
AMO	None Specified
AMP	An experienced researcher with as yet limited experience in industrial product development will gather useful experience and skills in terms of realising demonstrators and prototypes with a clear perspective towards rapid industrial exploitation. This perspective is taken into account from the early stage of the realisation of the laser demonstrators. On the other hand, experienced researchers with some product development experience will work again on topics that are challenging on the scientific and technical forefront, as e.g. the fast modulation of a high power femtosecond pulse train. This has a high impact on the researcher's continuous training and skills and boosts the motivation.
BOSCH	Establishing a high-end experimental facility for the specific task of 3D-Si processing; carrying out fundamental experimental studies, guiding students towards their final theses (Bachelor's, Master's) Interpreting research results in the context of prior research experience and current developments outlined in the literature, collaboration with partners within HIPERDIAS in order to substantiate research and development results with the objective of implementing them in future production processes
C4L	The researchers should master the process for cutting application with USP laser, and one the other hand take part to the building and

	development of a new system, in particular the development of a new kind of online topography optic and active vision system.
E6	William Scalbert, as scientific coordinator, will also lead PhD thesis. It will allow him access to academic infrastructures and high precision measurement devices which are not available within Element Six Ltd and Class 4 Laser AG facilities. It will enable Element Six to carry out researches on diamond materials behaviour to ultra-short pulses
KITE	KITE Employees will be placed into new learning experiences about subject matters that they might be not be familiar with. This opportunity to work on the HIPERDIAS Project is a great chance to learn more about Photonics industry, as well as continuing to develop project management, dissemination and exploitation skills on large scale academic projects.
XLIM / GLO	One will be recruited soon. Candidate identified (candidate has a strong experience on the topic). Agreement to join the project achieved. He will get a strong experience in the field of the optical fiber, in particular the hollow-core photonic crystal fiber.
LASEA	None specified
USTUTT	Young scientists will be involved in the project and gain skills in high power ultrafast thin-disk lasers as well as in pulse compressor gratings and fiber beam delivery

The Consortium will continue to look other possible ways to help with the personal development of researchers within the project. This item will be reviewed and discussed during each Consortium Meeting.

6 Technology Transfer Panel

In the dissemination strategy, the consideration of the plans for exploitation of the foreground is paramount. Dissemination activities shall be compatible with the protection of intellectual property. Each participant is responsible for disseminating the foreground it owns. A Party shall not publish Foreground or Background of another Party.

Prior to any dissemination activity, partners should be consulted at least 45 calendar days before the publication in order for them to exercise their right to object in cases where such dissemination could cause great harm to their background/foreground. An objection to the planned publication should be made in writing to the coordinator and all partners concerned within the 30 days following the notice given. Depending on the type of dissemination activities (e.g. local seminars, presentations, posters and website updates) these aforementioned deadlines may be modified and shortened, but must be approved by either the Coordinator or Project Management.

For real time communication (e.g. Twitter and other social media platforms), the Consortium will adopt an informal process, whereby the partner will only have to notify the Coordinator and Project Management team of these dissemination activities and not seek formal approval.

The Consortium has established a body that will provide support in matters relating to dissemination and exploitation of Foreground in the HIPERDIAS Project. The TTP Chair is Andrew Whitehead (E6) and will be supported by the Management Team and representatives from each of the beneficiaries.

Partners that have or anticipate possible intellectual property rights (IPR) issues are to report these issues to the Project Management Team (KITE) & the Coordinator (USTUTT) and will look for possible solutions on how to resolve these problems. If no obvious solutions are available, KITE and USTUTT will raise a TTB meeting and discuss the issues with all partners.

The Roles and responsibilities of the TTP have also been clearly outlined below:

- Giving advice to the Parties regarding press releases and joint publications with regard to the Project.
- Giving advice to the Parties regarding procedures and policies for Dissemination of Foreground from the Project which is not to be protected by the Parties.
- Monitoring of and advising in all intellectual property rights (IPR) issues as they arise
- Stipulating and updating confidentiality agreements.
- Advising on procedures for patent and license applications.

- Advising on identifying and liaising with industrial partners for the further exploitation of results.
- Alerting the General Assembly and the Coordinator in case of intellectual property rights (IPR) issues as they arise.

7 Future Development of the Dissemination and Exploitation Strategy

In summary, the Consortium have been involved in a number of key activities within WP8 and all of the activities scheduled in Period 1 have been completed. A plan has been devised for the remainder of the project and key actions have been highlighted from this report.

Partner consultation will occur at several stages during the project as a means to identify potential dissemination and exploitation opportunities that may be emerging within the extended networks of the consortium. The potential of this strategy will be maximised if all consortium members contribute to its development on a regular basis. It is acknowledged that successful implementation of the strategy also hinges on the combined efforts of all consortium members.

The Consortium will update this report in M30 (D8.6 – Interim Exploitation and Dissemination Plan) and again in M42 (D8.7 – Final Plan for Exploitation and IP Strategy).

8 Annexes

8.1 Annex I: Pre-publication Intellectual Property Notification Form

Lead Author		
Partner Name		
Title		
Reference	*<yymmdd>/<1-n>/<partner short name>* e.g. 170101/1/USTUTT	
Submitted to	*<name of journal, conference, etc.>*	
Expected date of publication / conference		
Embargo period before open access (max 12 months)		
Date for open access		
Repository to be used		
I have reviewed the contents of this submission and … *(select one of the options below)*		
a. It does not contain any intellectual property capable of commercial application		
b. It does or may contain intellectual property capable of commercial application which the beneficiaries will seek to protect		
c. It does or may contain intellectual property capable of commercial application but the beneficiaries will not seek to protect		

I understand that by selecting an option other than (b) subject to the agreement of the HIPERDIAS General Assembly, the Coordinator may file the publication with the UK Patent Office to obtain a priority date. This will allow the publication to proceed while providing a period of 12 months for further consideration and review of the IP position.

Signed	
Date	

When signed, e-mail a pdf version of this form to **hiperdias@kiteinnovation.com** along with the draft publication.

8.2 Annex II: Use of Emblems

For dissemination activities (such as press releases, presentations etc., the EU emblem and Photonics21 logo will be displayed prominently together with the text "*Photonics Public Private Partnership*", as shown in the image below:

Along with the acknowledgements, the link www.photonics21.org will also be included and when communicating on Twitter or other social media about project activities, #Photonics will be included together with @Photonics21 and @PhotonicsEU.

In addition to this, the Consortium will follow the guidance on 'the use of the EU Emblem in the context of EU Programmes' for the results that are disseminated within the Project.