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**I-PAN**

INNOVATIVE POPLAR LOW DENSITY STRUCTURAL PANEL

Project type: Collaborative Project

Start date of project: 1st October 2012 Duration: 36 months

# D9.7 - IPR Management and Exploitation plan (Final)

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| WP n° and title | WP9 – Impact analyses, dissemination and exploitation |
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| **Dissemination Level** | | |
|---|---|---|
| PU | Public | **X** |
| PP | Restricted to other programme participants (including the Commission Services) | |
| RE | Restricted to a group specified by the consortium (including the Commission Services) | |
| CO | Confidential, only for members of the consortium (including the Commission Services) | |

**Document information**

**Abstract**

This document describes the definition of the marketable results, background and foreground knowledge, exploitation of the project results and IPR results.

**Keywords**

IPR, results, exploitation, foreground, background, questionnaire

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* Abbreviations of editor/contributor name

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## LIST OF ABBREVIATIONS AND DEFINITIONS

| | |
|---|---|
| **CA** | Consortium Agreement |
| **DM** | Deliverable Manager |
| **DoW** | Description of Work |
| **EC** | European Commission |
| **EC-GA** | European Commission – Grant Agreement |
| **EW** | Engineered Wood |
| **IPR** | Intellectual property Right |
| **LCA** | Life Cycle Analyses |
| **LSB** | Lightweight Strand Board |
| **OSB** | Oriented Strand Board |
| **PM** | Project Manager |
| **PMB** | Project Management Board |
| **PR** | Peer reviewer |
| **QM** | Quality Manager |
| **R&D** | Research and Demonstration |
| **TMB** | Technical Management Board |
| **WP** | Work Package |

**Table 1- List of abbreviations and definitions**

# INTRODUCTION

The purpose of this deliverable is to describe the exploitation strategies of I-PAN consortium. This Exploitation Plan has been created through consultations with the entire consortium in order to develop a strategy that fully accounts for its needs and expected benefits.

In order to reach I-PAN remarkable results, exploitation campaigns have been considered fundamental by the I-PAN consortium. In this context I-PAN partners are in a favourable position in exploiting the outcomes of the project activities and demonstration and they intend to extend their current partnership to future research activities.

The exploitation plan is an important factor for the success of the project and all partners had a specific role according to their core businesses.

The exploitation strategy of each partner was defined regarding the following main points:

- ✓ How to use and receive commercial benefits by the final I-PAN working product, defining who can sell and use it, etc.
- ✓ How to manage the IPR generated in the project. E.g. how all partners could reuse part of the I-PAN results in new product or RTD projects.

The present document, meant to complement pre-existing instruments such as the Grant Agreement and the Consortium Agreement, shows the plan for exploitation of each single partner, the overall exploitation towards external (to the consortium) organizations, and the exploitation agreement among the partners and the management of the Intellectual Property Right.

# 1 EXPLOITATION STRATEGY

I-PAN innovative LSB will have a considerable impact on the EW industry allowing to optimize wood resources and waste allocated to the EW sector.

In order to capitalize all I-PAN project results, dissemination and exploitation campaigns had been considered fundamental by the I-PAN consortium. In this context I-PAN partners are in a favourable position in exploiting the outcomes of the project activities, dissemination and demonstration.

I-PAN exploitation strategy is based on the following two main pillars:

- ✓ **Exploitation Plan**, which defines how each partner is expecting to generate benefits by the project results (Individual Exploitation Plan) and the agreement among partners on commercial revenues by the selling of the I-PAN solution.
- ✓ **IPR Management**, which addresses the ownership of the IPR, and the management of the access rights to such IPR by the project partners;

I-PAN industrial partners will exploit the project outcomes in terms of commercial use, while academic partners will exploit such results in terms of know-how in research activities (research project, educational activities, R&D on behalf of future industrial partners, SMEs in particular) and related intellectual properties.

# 2 OVERALL APPROACH TO CONSORTIUM EXPLOITATION PLAN

## 2.1 GENERAL APPROACH

Specific commercial and process benefits achievable by I-PAN project results at the level of the Exploitation Plan are regulated by:

- ✓ The definition of the **marketable results** and of the individual exploitation strategy**;**
- ✓ The definition of the **access rights** of the partners to the project background and foreground for the internal usage;
- ✓ The management of **IPR generated** in the project; this is mainly the definition on how to treat the foreground generated in the project. In this sense, the classical IPR approach of cooperative project will be applied (namely, the inventor of the IPR remains owner of the IPR generated, when a foreground is result of joint efforts, the partners contributing will be co-owners of the foreground created).

I-PAN partners have different background and core business, being different realities such as one university (UMIL), a research institute (ESCS), industrial manufacturing companies (IMAL, IBL), and SMEs (STELA, IDP, CHIMAR) among which an innovation management consultancy company (CTECH). Thus, the exploitation interests of each partner are different and complementary.

✓ **Industrial partners** will use their significant presence in relevant markets and networks to give weight and exposure to the I-PAN results relevant to exploitation activities, both to generate new customers, collaborations or networks and to reinforce existing links and commercial collaborations.

✓ The **academic partner** is interested in using newly gained foreground knowledge as input to further research, scientific publications and advanced teaching purposes as well as using the project results to initiate further research.

✓ The **research Institute** will also seed to increase its prestige and secure its position within the research community as cutting-edge technological provider. It will use the results to develop partnerships with existing or new contact networks.

✓ The **SMEs** and the **partners innovation management consultancy company** will focus on network building, raising their profile and seeking opportunities for commercial linking and co-exploitation of project results or provision of innovative services in their current area of operation. They will be able to exploit the project activities to leverage company growth through an improved high-tech reputation for the company, new opportunities for collaboration and new service offers that can open new markets.

# 3 DEFINITION OF THE MARKETABLE RESULTS

In order to assess the exploitation potential of the I-PAN final results the consortium created a table to outline the results of the project with highest relevance to future exploitation activities. Aside from the main results of the project which have the potential to be converted into products or services for the market, I-PAN project produced results that improve the competitive potential of the involved partners. These results are described in the table below.

| PARTNER | MARKETABLE RESULTS |
|---|---|
| **IMAL** | The technological choices introduced in I-PAN help IMAL to be able to use this as a showcase pilot plant just to prove the quality of the project in terms of performance and environmental savings and therefore cost. Parts of the plant can be offered to improve existing systems, thus creating a huge flying for business IMAL and partners. The realization of the project and of the innovations introduced in the management strander and the resin allowed offering similar facilities to I-PAN in the world with a lot of interest from potential customers.<br>Due to the achieved experience during thanks to the project , IMAL already sent two plants, exploiting the IBL pilot plant. |
| **IBL** | Income in a new product market that allows to fit IBL market niches production of light furnishings for caravans and special vehicles, production of component for the marine industry and create potential competition in the plywood. This type of product is not present in the market but the customer will feel the need. This new product shows a lower cost than its competitors, and this implies the same performance techniques, plus a high commercial.<br>Both the new OSB panel both the LSB one had a great impact in the market because of their lightness and feature better than plywood. |
| **CTECH** | I-PAN project represents a very valuable twofold opportunity for Ciaotech:<br>- On one side the project will allow Ciaotech and its technicians to gain important and further expertise on LCA on wood processing technologies.<br>- On the other side, the project provided the opportunity for Ciaotech – during the dissemination activities and networking – to get in touch with interesting organizations to offer them its knowhow and services and stimulate and support innovation all over Europe. Among such services, Ciaotech comprised also support to access to EU public funding (and the timing is promising given the new 2014-2020 EC grant programme) and systematic innovation starting from companies' technological needs in order to identify possible "solutions" that will increase industries' competitive advantages on innovation. |
| **STELA** | - Technology of belt drying is not common yet in the OSB industry. I-PAN project has proved that special designed low temperature belt driers are suitable. This opens an immense market worldwide for STELA.<br>- Most panel board and OSB manufacturers have low calorific energy available which is blown unused into the air. This energy is used in the new drying system and reduces not only the production costs immensely but also has the environmental aspect.<br>- Due to the European reach of the project the awareness level is immensely extended for STELA.<br>- Time-to-market for the future OSB panels drying segment can be vastly |

| | |
|---|---|
| | minimized due to more and more streamlined production processes |
| **IDP** | I-PAN project allowed IDP to:<br>- Increase IDP equipment solutions portfolio and mechanical treatment processes particulates etc.<br>- Use this knowledge in other applications related to obtaining products of mining and solid recovered fuels production.<br>- Improve capabilities of differentiation and added value by incorporating cutting-edge technology as a result of collaboration with ECSC and UMIL. |
| **ECSC** | The main result from the point of view of ECSC is the application of our knowledge in image analysis and pattern recognition, to a real industrial problem. Considering we are a research and education institution, this result will be marketed by different means:<br>- Through our educational activities (e.g., as part of our course "Soft Computing for Computer Vision").<br>- It serve as a success case to be shown to potential clients in our industrial environment.<br>- The drafting of scientific publications (an important component of the production of a research center). |
| **UMIL** | UMIL's main result is the development of innovative computer vision techniques that, using computational intelligence, is able to analyze 2D and 3D data. Since UMIL is a public academic institution the results can be marketed in the following ways:<br>- Through educational activities, including the acquired knowledge in BA, MS and PhD programs.<br>- Through dissemination activities: publishing articles in international scientific journals and conferences; organizing tutorials and special sessions in scientific conferences; and editing special issues in scientific journals. |
| **CHIMAR** | Technology for the production of new formaldehyde-based resin & resin system suitable for bonding poplar & recycled wood strands to form light weight OSB panels. |

**Table 2- I-PAN Marketable results**

# 4 SPECIFIC INDIVIDUAL EXPLOITATION

This paragraph contains the description of the final individual exploitation plan of each partner of the consortium.

## 4.1 IMAL

IMAL priority was the creation of an innovative process supported by cutting edge technologies that will positively impact also the internal R&D projects, aimed at developing new business lines of greener plants and machineries. The collaboration with the SMEs involved in the project facilitated the exchange of expertise and competencies as well as industrial and commercial opportunities in different EU countries. Major expectations are on proprietary technologies enhancement, such as new technologies on nozzles, new blades characteristics, new managing software for blending and mat forming.

During the project corners and the knives strander have been modified in order to obtain flakes of a smaller thickness compared to the known state of the art and innovated technology on the nozzles in order to have a lower consumption of glue. The new software allowed us to control better the deviation of strander than the ideal theoretical distribution in the various stages of the process of formation of the mattress of flakes. Moreover the innovations introduced in the phase of drying and management of the pumps in the phase of resin has reduced the consumption of electrical energy .

The adopted and verified solutions with the inclusion in the production line of technical solutions (parts of the pilot line) allowed to transfer the knowledge to other plants on offered to various customers around the world with positive outcomes.

## 4.2 IBL

IBL will make use of the I-PAN outcomes to promote and extend the domain of use of the poplar wood, the I-214 clone in particular. Moreover it will be play an active role in the constitution of the aforementioned product company start-up, as a joint-venture between IMAL, IBL and other R&D performing SMEs which will be based on the I-PAN results on the LSB product. As producer of OSBs, IBL will exploit the advantages derived from the process improvement in terms of energy consumption reduction, process timing and harmful emissions reduction.

IBL and IMAL have created a new start-up IPAN SPA which produces high quality OSB and LSB panel very competitive in the market using the poplar I-214 coming in part from its plantations and part coming from the upper part of the poplar and from the process waste thereby obtaining a poplar's panel, but with recycled material, and so green. Also we tried various types of resins experimented by CHIMAR that allowed to bring almost to zero the value of the residual formaldehyde in the panel. But due to customers' request, we proceeded to use a formaldehyde resin although more expensive than experienced one.

## 4.3 CTECH

CTECH will make use of the know-how and expertise acquired during the I-PAN project, to establish and expand its network of contacts, in particular regarding SMEs, and in sectors like the wood industry. The activities carried out in LCA and the knowledge resulting by applying it in the EW manufacturing process, will allow CTECH to expand the current offer of environmental consulting services.

## 4.4 STELA

Due to the European reach of the project the awareness level was immensely extended for STELA.

Thanks to I-PAN project STELA expects to increase market share of biomass drying technology. The project has been visited of several large and mid-size manufacturing companies. They have been made aware of the potentials of the new technology, which is going to be appreciated in the EW sector.

STELA will make use of the project results to innovate driers technology involved in the panels manufacturing process. Moreover, STELA will use the project final result in the production of still more efficient low-temperature belt driers, especially with regard to the environmental impact of the technology.

## 4.5 IDP

IDP will benefit from the I-PAN project by employing and proposing I-PAN technology in all sectors in which it is involved.

The main objectives of IDP focus on diversifying its industrial business area, with a clear focus on the research and development projects for a "Circular Economy" competitive through environmentally friendly technologies.
The feedback of knowledge and experience with materials such as wood and background in the world of waste, minerals, aggregates etc. represent a new production of equipment for a strategic sector for the company.

The exchange of experiences with new contacts in the EC, and the interesting experience of participating in a European project, are of considerable interest for IDP.

## 4.6 ECSC

ECSC main objectives are the basic and applied research in the Soft Computing area as well as the technology transfer in industrial applications of intelligent systems design for the resolution of real problems. Therefore ECSC will exploit I-PAN solutions by focusing on the new lines of EW research identified in I-PAN and the technology transfer to EU companies. Also, ECSC aims to be a meeting point for worldwide experts.

The main result from the point of view of ECSC is the application of our knowledge in image analysis and pattern recognition, to a real industrial problem. The exploitation of this experience will have several components in the different areas of activity of the centre.

From the point of view of educational activities, the application will serve as a practical industrial example for our researchers in courses about computer vision and its industrial applications.

From a marketing point of view, the projects represents an example of computer vision in a complex industrial environment, representing a show case of our capabilities, and are helping us to convince potential clients and enter into new markets.

Obviously, scientific publications are part of the production of any research institution, and are considered in the evaluation of our activity. The result of this project will also be exploited in a journal articles we are drafting and will send for publication before the end of 2015.

## 4.7 UMIL

UMIL will exploit I-PAN outcomes to strengthen its research by publishing scientific papers, by pursuing research gaps identified during the project and by training new graduates and

undergraduates. UMIL will present outcomes as case studies in BA, MS and PhD programs at UMIL and summer schools and theoretical advancements in PhD courses. UMIL will also publish achievements in international scientific journals and conference proceedings, especially in signal/image processing, vision, pattern analysis, computational intelligence, and industrial informatics, and adaptive systems. In this context, UMIL has already published scientific results in conference proceedings:

- ✓ R. Donida Labati, A. Genovese, V. Piuri, and F. Scotti, "A Virtual Environment for the Simulation of 3D Wood Strands in Multiple View Systems for the Particle Size Measurements", in *2013 IEEE International Conference on Computational Intelligence and Virtual Environments for Measurement Systems and Applications (CIVEMSA 2013),* Milan, Italy, July 15 - 17, 2013.
- ✓ Ruggero Donida Labati, Angelo Genovese, Enrique Muñoz, Vincenzo Piuri, Fabio Scotti, Gianluca Sforza, *Improving OSB wood panel production by vision-based systems for granulometric estimation,* RTSI 2015 - Research and Technologies for Society and Industry. Turin, 16-18 September 2015

Other dissemination activities will consist in the organization of tutorials in scientific conferences. Moreover UMIL will organize special sessions in conferences, workshops, and special issues in journals.

## 4.8 CHIMAR

The participation of CHIMAR in I-PAN is in line with its R&D activities and objectives to develop new technology and products for the resin and wood-panel industries field.

The new knowledge created through I-PAN activities will enhance CHIMAR's technology portfolio and level of services and it will strengthen and improve the company's market position and competitiveness.

CHIMAR will strive to license the innovative technology developed in the framework of I-PAN to interested resin and panel producers all around the world either by extending the existing CHIMAR licensing agreements or by concluding new ones and on the basis of principles laid in the project Consortium Agreement.

# 5 IPR EVALUATION

During the project, specific actions have been undertaken for properly addressing the issues related to ownership, protection and guarantee of knowledge inside I-PAN Consortium. The management of Intellectual Property Rights has been regulated in detail by the Consortium Agreement (CA) which has been focused on the following main points:

- licensing of pre-existing know-how and refinements thereof (Background);
- ownership of the knowledge gained within the project (Foreground);
- confidentiality for dissemination of project results.

According to the Article 9.3 of the CA access Rights to Foreground and Background Needed for the performance of the own work of a Party under the Project shall be granted on a royalty-free basis, unless otherwise agreed for Background excluded.

## 5.1 BACKGROUND:

To enable a trustful and reliable cooperation (i.e avoid disputes on the property of a specific information) the partners of I-PAN consortium defined their project background at the beginning of the project. Pre-existing know-how remains the property of the partner that brings it into the project but pre-existing know-how needed for carrying out the activities of I-PAN project shall be granted on a "royalty-free" basis, unless it is agreed otherwise by the concerned partners before signature of the Contract (especially in the case where the "exchanges" are unbalanced).

According to the Article 9.1.3 of the CA all Background not listed in Attachment 1 shall be explicitly excluded from Access Rights.

This section provides an overview of the background ownership and access rights included and excluded defined in I-PAN Consortium Agreement and updated by each partner.

### 5.1.1 BACKGROUND INCLUDED

| Party short name | Background included |
|---|---|
| **IMAL** | All IMAL Patents and their application on I-PAN project for example but not limited :<br>BUGNION 60 2004 030068.3-08 13/01/2011 12.DE.7E Dispositivo D'iniezione<br>BUGNION 05075983.6 25/04/2005 12.EP.8 Distribuzione Colla Su Flakes<br>BUGNION PCT/IB2012/051397 23/03/2012 12.WO.12 Iniezione Interna Al Flusso |
| **I.B.L.** | n.a. |
| **CTECH** | All background is included. |

| Party short name | Background included |
|---|---|
| **STELA** | General documentation: Advance risk assessment according to DIN EN ISO 12100, Belt drier for sawdust, lubrication chart, sparepartlist, EC Declaration of Confirmation.<br>Materials of the dryer components: product feeding and –discharge stations, drying tunnel , turning device, roof and fresh air cap, hot air generation, fans, wet cleaning device for the drier belt, dry cleaning device for the drier belt, exhaust air silencers (if required).<br>General description of the process: Stela Laxhuber Drying System for Low-Temperature Belt Drying of Saw Dust.<br>General drawings.<br>Sensor list: Electronic parts - 9 Stk. PT 100 temperature sensors, moisture measurement, difference pressure control device dryer, speed control/limit switch, Electronic Vibration monitoring unit for exhaust air fans, Photoelectric sensors, inductive slot sensor . |
| **IDP** | Knowledge of the state of art in dust conveying and mat forming.<br>General principles of dust mat forming.<br>Basic models and drawings of dust conveying for mat forming. |
| **ECSC** | All background is included. |
| **UMIL** | All background is included. |
| **CHIMAR** | Methods of application of resins and additives in the production of oriented strand boards. |

**Table 3- Background included**

### 5.1.2 BACKGROUND EXCLUDED

| Party short name | Background excluded |
|---|---|
| **IMAL** | Innovative wood flake silo extraction system for blender feed<br>Built-in former to optimize the production process by bunker extraction system<br>Innovative system for covering light OSB panels with a thin layer of sawdust by dynasteam<br>Production of specific thickness flake so as to improve the wood panel performance<br>We have registered two news patents :<br>MO2014A000285- OSB PRODCTION PLANT<br>MO2014A000286 -LSB PANNEL |

| Party short name | Background excluded |
|---|---|
| **I.B.L.** | n.a. |
| **CTECH** | None. |
| **STELA** | All information which is not included in the Attachment 1 "Background included" list. |
| **IDP** | Systems for dosage wood dust.<br>All the improvement on materials and mechanical configurations in dust forming system.<br>Automation and control in the regulations of dosage in dust forming system. |
| **ECSC** | Knowledge on state of the art and ECSC's code for soft computing and computer vision, particularly image segmentation and registration methods, and qualitative image description methods, will be made available without royalties to the consortium when needed and only for use in the I-PAN project (IP will remain at ECSC). |
| **UMIL** | Knowledge on state of the art and UMIL's module design for computational intelligence components and artificial vision will be made available without royalties to the consortium only for use in the I-PAN project (IP will remain at UMIL). |
| **CHIMAR** | Methods of preparation/synthesis of resins, syrups and additives dedicated for use in the production of wood-based panels, composite wood panels/products, engineered wood products/panels and impregnated papers.<br>All patents/patent applications/know-how/trade-secrets owned by CHIMAR. |

**Table 4- Background excluded**

## 5.2 FOREGROUND:

The management of I-PAN foregrounds is regulated by the Consortium Agreement, which foresees that knowledge arising from work carried out under I-PAN project shall be the property of the participant carrying out the work leading to that. If, during the activities required by I-PAN project, two or more participants have jointly carried out work generating invention, design or knowledge, and if the features of such joint work are such that their respective share of the work cannot be ascertained, the concerned participants agree that they may jointly apply to obtain and/or maintain the relevant rights and shall strive to set up amongst themselves appropriate agreements in order to do so. As long as any such rights are in force, such participants shall be entitled to use, without owing any financial compensation to or requiring the consent of the other participants, and to license such rights in accordance with the set up agreements.

All Foregrounds developed before the accession of the new Party shall be considered to be Background with regard to said new Party.

Access Rights granted to a Defaulting partner and such Party's right to request Access Rights shall cease immediately upon receipt by the Defaulting Party of the formal notice of the decision of the PMB to terminate its participation in the Consortium. A non-defaulting Party leaving voluntarily and with the other Parties' consent shall have Access Rights to the Foreground developed until the date of the termination of its participation. Any Party leaving the Project shall continue to grant Access Rights pursuant to the EC-GA and this Consortium Agreement as if it had remained a Party for the whole duration of the Project.

Where no joint ownership agreement has yet been concluded:

- ✓ each of the joint owners shall be entitled to Use their jointly owned Foreground on a royalty-free basis, and without requiring the prior consent of the other joint owner(s), and
- ✓ each of the joint owners shall be entitled to grant non-exclusive licenses to third parties, without any right to sub-license, subject to the following conditions:
  - at least 45 days prior notice must be given to the other joint owner(s); and
  - fair and Reasonable compensation must be provided to the other joint owner(s).

The following table provides an overview of the expected foreground to be generated in the project, the ownership and access rights:

| **Party short name** | **Foreground** |
|---|---|
| **IMAL** | *Expected foreground*<br>Ability to perform field tests on a medium-sized facility and to use this information to develop machines suitable for various types of production of panels (OSB, MDF and TRC).<br>*Ownership*<br>The realization of machines resulting from the project I-PAN modified in relation to the type of product to manage allow IMAL promote innovative machine on the market of its design and then to operate directly in the channel distributive B2B<br>*Access right*<br>In relation to the technical choices and the results obtained to manage these issues by enabling Italian/European patents and disseminate the knowledge gained between partners<br>We have registered two news patents during the project:<br>MO2014A000285- OSB PRODCTION PLANT<br>MO2014A000286 -LSB PANNEL |

| **Party short name** | *Foreground* |
|---|---|
| **I.B.L.** | *Expexted foreground*<br>Marketing a product of market niches currently no accommodation<br>*Ownership*<br>Creation of a unique product in Italy and in the world<br>*Access right*<br>no one |
| **CTECH** | The 2 main foreground results for Ciaotech will be:<br>✓ deeper insights about LCA related to wood processing technologies<br>✓ wider network in Europe in the I-PAN domain<br>While for the latter no particular access rights can be foreseen, for the former it is worth saying that after the project end and related to the technologies developed during the I-PAN project, Ciaotech will have priority to be consulted by the project partners: Ciaotech will have the priority right to deliver LCA analyses services to any contractor with regards to the I-PAN project technologies. In case Ciaotech decides to not exercise such right, any other organization will be entitled to perform LCA analyses. |
| **STELA** | Due to the European reach of the project the awareness level was immensely extended for STELA.<br>In the following of the project STELA expects increased market share of biomass drying technology. The project has been visited by now of several large and mid-size manufacturing companies. They have been made aware of the potentials of the new technology. Words have spread out and step-by-step the technology is going to be appreciated.<br>First plans have started to implement the technology in more and more other sites worldwide. |
| **IDP** | Yields and behavioural capabilities of the materials on equipment designed remain the property settings, detail engineering construction, materials used and all those levels of efficiency achieved involving the key competitive final product. |

| Party short name | Foreground |
|---|---|
| **ECSC** | ECSC has worked work on innovative image analysis systems based on computational intelligence techniques. These systems will be latter tailored to adapt for other industrial applications once I-PAN project was completed.<br><br>Results obtained by ECSC on innovative techniques in the field of image analysis were made available without royalties to the consortium only for use in the I-PAN project (IPR will remain at ECSC). |
| **UMIL** | UMIL will study and design innovative computer vision systems based on computational intelligence techniques, two-dimensional and three-dimensional data. These systems should permits to monitor and perform better quality control in the production of wood panels. In particular, the main focus will be on the blending and mat forming steps of the productive process.<br><br>Results obtained by UMIL on innovative techniques in the fields of computational intelligence and artificial vision will be made available without royalties to the consortium only for use in the I-PAN project (IP will remain at UMIL). |
| **CHIMAR** | Technology for the production of new formaldehyde-based resin & resin system suitable for bonding poplar & recycled wood strands to form light weight OSB panels, to be owned by CHIMAR.<br><br>According to the I-PAN Consortium Agreement Access Rights to Foreground if Needed for Use of a Party's own Foreground shall be granted on Fair and Reasonable conditions. |

**Table 5- Foreground**

## 5.3 CONFIDENTIALITY FOR DISSEMINATION OF PROJECT RESULTS

Specific Non-Disclosure Agreement has been undertaken at the beginning of the project among partners (including University) on the confidentiality of the results. This particularly concerns the dissemination phase from the viewpoint of publication (see the section 8 of the Consortium Agreement): specific agreement guarantee on the one hand the right scientific dissemination (and visibility acquisition), in particular for the academic partner; on the other hand that sensitive information are maintained confidential within the consortium.

The rules explained in the above paragraphs was not apply for disclosure or use of Confidential Information, if and in so far as the Recipient can show that:

- ✓ the Confidential Information becomes publicly available by means other than a breach of the Recipient's confidentiality obligations;
- ✓ the Disclosing Party subsequently informs the Recipient that the Confidential Information is no longer confidential;
- ✓ the Confidential Information is communicated to the Recipient without any obligation of confidence by a third party who is in lawful possession thereof and under no obligation of confidence to the Disclosing Party;

- ✓ the disclosure or communication of the Confidential Information is foreseen by provisions of the EC-GA;
- ✓ the Confidential Information, at any time, was developed by the Recipient completely independently of any such disclosure by the Disclosing Party; or
- ✓ the Confidential Information was already known to the Recipient prior to disclosure or
- ✓ the Recipient is required to disclose the Confidential Information in order to comply with applicable laws or regulations or with a court or administrative order.

# 6 FUTURE COMMERCIAL EXPLOITATION OF IPR

I-PAN exploitation strategy already described in D9.5 and D9.6 is confirmed in this deliverables. In the last year I-PAN consortium discussed about exploitation and marketable results during the periodical Conference calls aligning their scientific and technical activities according to the achieved results and little deviations from the DOW.

The Individual Exploitation Strategy of each partner was collected and registered by an individual questionnaire (see Annexes section), distributed among partners. Obtained results confirmed the strategy exposed in this Exploitation Plan.

# 7 ANNEXES

## 7.1 IMAL

Project co-funded by the European Commission within the FP7 (2007–2013)

Grant agreement no.: 308630

**I-PAN**

INNOVATIVE POPLAR LOW DENSITY STRUCTURAL PANEL

| | | | |
|---|---|---|---|
| Project type: | Collaborative Project | | |
| Start date of project: | 1st October 2012 | Duration: | 36 months |

## PARTNERS INDIVIDUAL EXPLOITATION QUESTIONAIRE

### Summary

The Exploitation questionnaires are composed from two parts. The first part, "Basic Data" aims to provide an overview of all partners involved in I-PAN project.
Such part answers to the following questions:

- Who are you?
- Why I-PAN?
- Who will you be? What are your general plans after I-PAN?

The second part, "Outcomes of I-PAN", aims to understand which are the expected outcomes from I-PAN or which could be one, and how they could be exploited. Such part suggests to partners the most important possible results obtainable through I-PAN on which partners describe their opinion about also their possible exploitation. In order to identify the possible I-PAN outcomes, also to possible interests of partners are been considered.

The last part, “Business plan for commercial exploitation”, aims to shortly describe target group, competitors and the commercialization strategy of each single partner.

## 1. Overview of project partner institution and its involvement in I-PAN

**Partner Organisation**: IMAL

**What is the main reason why you are in the I-PAN project?**
*New research and new opportunities.*

**Summarize the future strategy of your company/institution in the field of wood panel**
*IMAL aim to develop ideas for new factories and solutions with low ambiental impact and with a reduction in unit production costs.*

**Licensing rights and royalties**
*None.*

## 2. Exploitation of outcomes of I-PAN project

**Please give Details of what is to be exploited by your organization/institution:**

- describe concisely: What is the product/service/result to be exploited for your organization? *Design and creation of plants orplant section in the wood panel sector.*
- Relevance within I-PAN: What have we achieved in I-PAN with respect to current similar products, with reference to your organization mission? *New green products.*

**List the main Strengths of the I-PAN with regards to I-PAN and also specifically referred to your organization core business**
*Experimentation of solution repeatable in other part of the world.*

**List the main Weaknesses of the I-PAN with regards to I-PAN and also specifically referred to your organization core business**
*None.*

**Which elements of I-PAN need strengthening in order to become more exploitable with regards to I-PAN and also specifically referred to your organization core business?**
*The idea of the panel lsb and control system software of the strand or flakes .*

## 3. Business plan for commercial exploitation

**Subsection for product/service exploited for your organization**

**End–Users and benefits**

Please write a paragraph covering as many of the following points as possible with regards to I-PAN and also specifically referred to your organization core business:

a. Who will it be sold to (end-user)?
b. What are the end-user profile/profiles?
c. What is the benefit at the end-user level?
d. In which countries will it be sold?
e. Are there different approaches for different countries?

*a) makers of wood panel;*
*b) companies which use the panel in their processes;*
*c) New product ligher andcheaper than other similar materials.*
*d) All over the world.*
*e) No*

**Which are the main competitors of the I-PAN with regards to I-PAN and also specifically referred to your organization core business?**

*SIEMPELKAMP AND DIEFFENBACHER*

**Commercialization strategy/business plan**

Please write a paragraph covering as many of the following points as possible:

**Market features (if known)**

What are the Specific country differences?
*No*
Is the market led/dominated by large companies or SMEs?
*Large Company*

**Sales channels**

How will the product be marketed?
By IMAL
How will the product be sold?
By every partner
How/who will collect the royalties?
Partner
Can sales forecasts be made? Initial sales? Growth per year?
*About 10% of income per year*

**Distribution**

How will the product be distributed (partners? Licensing? Franchise?)
*Parteners*

**Pricing and profit (if known)**

Interest/benefit for each partner in the product/project result
*A new business*

**<u>Indirect Exploitation activities</u>**

How else will the product/service be exploited?
Where will the project be promoted – e.g. EU fairs, networks, etc.

*Partners and fairs*

**IPR Management and exploitation**

- **Are you planning / do you wish to file a patent on any of the project results you are working on?** In case you do, please specify.

We have registered two news patents during the prject::

- MO2014A000285- OSB PRODCTION PLANT
- MO2014A000286 -LSB PANNEL

- Alternatively/Independently of the issue of patents, we need you to confirm or let us know if any changes need to be applied to the individual partner exploitation strategy defined in the DoW.

**7.2 IBL**

Project co-funded by the European Commission within the FP7 (2007–2013)

Grant agreement no.: 308630

**I-PAN**

INNOVATIVE POPLAR LOW DENSITY STRUCTURAL PANEL

Project type: Collaborative Project

Start date of project: 1st October 2012 Duration: 36 months

# PARTNERS INDIVIDUAL EXPLOITATION QUESTIONAIRE

## Summary

The Exploitation questionnaires are composed from two parts. The first part, "Basic Data" aims to provide an overview of all partners involved in I-PAN project.
Such part answers to the following questions:

- Who are you?
- Why I-PAN?
- Who will you be? What are your general plans after I-PAN?

The second part, "Outcomes of I-PAN", aims to understand which are the expected outcomes from I-PAN or which could be one, and how they could be exploited. Such part suggests to partners the most important possible results obtainable through I-PAN on which partners describe their opinion about also their possible exploitation. In order to identify the possible I-PAN outcomes, also to possible interests of partners are been considered.

The last part, “Business plan for commercial exploitation”, aims to shortly describe target group, competitors and the commercialization strategy of each single partner.

## 1. Overview of project partner institution and its involvement in I-PAN

**Partner Organisation**: **IBL**

**What is the main reason why you are in the I-PAN project?**
*New product and new opportunities.*

**Summarize the future strategy of your company/institution in the field of wood panel**
*IBL aims to offer a new product in the Italian and European market.*

**Licensing rights and royalties**
*None.*

## 2. Exploitation of outcomes of I-PAN project

**Please give Details of what is to be exploited by your organization/institution:**

- describe concisely: What is the product/service/result to be exploited for your organization? *A new high quality panel using poplar of our own plantations.*
- Relevance within I-PAN: What have we achieved in I-PAN with respect to current similar products, with reference to your organization mission? *New products and green processes.*

**List the main Strengths of the I-PAN with regards to I-PAN and also specifically referred to your organization core business**
The panel is certified and has a big request in the market.

**List the main Weaknesses of the I-PAN with regards to I-PAN and also specifically referred to your organization core business**
*Costs: it is a actual priority to reduce costs to improve the product competitiveness.*

**Which elements of I-PAN need strengthening in order to become more exploitable with regards to I-PAN and also specifically referred to your organization core business?**
*LSB panel.*

## 3. Business plan for commercial exploitation

**Subsection for product/service exploited for your organization**

**End–Users and benefits**

Please write a paragraph covering as many of the following points as possible with regards to I-PAN and also specifically referred to your organization core business:

a. Who will it be sold to (end-user)?
b. What are the end-user profile/profiles?
c. What is the benefit at the end-user level?
d. In which countries will it be sold?
e. Are there different approaches for different countries?

*a) Companies using the panel in their processes*
*b) Buyers of furniture , caravan and boats*
*c) New product lighter and cheaper than other similar materials.*
*d) In Europe and Italy*
*e) No.*

**Which are the main competitors of the I-PAN with regards to I-PAN and also specifically referred to your organization core business?**

All European makers of OSB panels.

**Commercialization strategy/business plan**

Please write a paragraph covering as many of the following points as possible:

**Market features (if known)**

What are the Specific country differences?
*No.*
Is the market led/dominated by large companies or SMEs?
*Large company*

**Sales channels**

How will the product be marketed?
By fair agent and direct contact.
How will the product be sold?
By fair agent and direct contact.
How/who will collect the royalties?
partners
Can sales forecasts be made? Initial sales? Growth per year?
*About 5% income per year.*

**Distribution**

How will the product be distributed (partners? Licensing? Franchise?)
*Agents*

**Pricing and profit (if known)**

Interest/benefit for each partner in the product/project result

*A new business.*

**<u>Indirect Exploitation activities</u>**

How else will the product/service be exploited?
Where will the project be promoted – e.g. EU fairs, networks, etc.

Fair.

**IPR Management and exploitation**

- **Are you planning / do you wish to file a patent on any of the project results you are working on?** In case you do, please specify.
- Alternatively/Independently of the issue of patents, we need you to confirm or let us know if any changes need to be applied to the individual partner exploitation strategy defined in the DoW.

None.

**7.3 CIAOTECH**

Project co-funded by the European Commission within the FP7 (2007–2013)

Grant agreement no.: 308630

**I-PAN**

INNOVATIVE POPLAR LOW DENSITY STRUCTURAL PANEL

Project type: Collaborative Project

Start date of project: 1st October 2012 Duration: 36 months

# PARTNERS INDIVIDUAL EXPLOITATION QUESTIONAIRE

## Summary

The Exploitation questionnaires are composed from two parts. The first part, "Basic Data" aims to provide an overview of all partners involved in I-PAN project.
Such part answers to the following questions:
• Who are you?
• Why I-PAN?
• Who will you be? What are your general plans after I-PAN?

The second part, "Outcomes of I-PAN", aims to understand which are the expected outcomes from I-PAN or which could be one, and how they could be exploited. Such part suggests to partners the most important possible results obtainable through I-PAN on which partners describe their opinion about also their possible exploitation. In order to identify the possible I-PAN outcomes, also to possible interests of partners are been considered.

The last part, “Business plan for commercial exploitation”, aims to shortly describe target group, competitors and the commercialization strategy of each single partner.

## 1. Overview of project partner institution and its involvement in I-PAN

**Partner Organisation**: **CIAOTECH SRL**

**What is the main reason why you are in the I-PAN project?**
*For Ciaotech I-PAN is a great opportunity to gain important and further expertise on LCA on wood processing technologies and to get in touch with interesting organizations to offer them its knowhow and services and stimulate and support innovation all over Europe.*

**Summarize the future strategy of your company/institution in the field of wood panel**
*Ciaotech will use its expertise in LCA on wood processing to get in touch with producer and stakeholder in the EW to offer its services and to support them to access to EU public funding under the new 2014-2020 EC grant programme Horizon 2020.*

**Licensing rights and royalties**
*CIAOTECH results will be made available without royalties to the consortium only for use in IPAN. Concerning LCA analyses, Ciaotech will have priority to be consulted by the project partners: Ciaotech will have the priority right to deliver LCA analyses services to any contractor with regards to the I-PAN project technologies. In case Ciaotech decides to not exercise such right, any other organization will be entitled to perform LCA analyses.*

## 2. Exploitation of outcomes of I-PAN project

**Please give Details of what is to be exploited by your organization/institution:**

- describe concisely: What is the product/service/result to be exploited for your organization?
  *LCA Analyse*
  *Dissemination activities*

- Relevance within I-PAN: What have we achieved in I-PAN with respect to current similar products, with reference to your organization mission?
  *I-PAN allows Ciaotech to improve its network in EW sector and to gain expertise on LCA in wood sector.*

**List the main Strengths of the I-PAN with regards to I-PAN and also specifically referred to your organization core business**
*Ciaotech improved its network in wood sector and gain expertise in LCA analyses. This was facilitated thanks to the strong collaboration between the consortium.*

**List the main Weaknesses of the I-PAN with regards to I-PAN and also specifically referred to your organization core business**
*No weakness have been identified.*

**Which elements of I-PAN need strengthening in order to become more exploitable with regards to I-PAN and also specifically referred to your organization core business?**
*None.*

## 3. Business plan for commercial exploitation

**Subsection for product/service exploited for your organization**

**End–Users and benefits**

Please write a paragraph covering as many of the following points as possible with regards to I-PAN and also specifically referred to your organization core business:

Who will it be sold to (end-user)?
What are the end-user profile/profiles?
What is the benefit at the end-user level?
In which countries will it be sold?
Are there different approaches for different countries?

*Na.*

**Which are the main competitors of the I-PAN with regards to I-PAN and also specifically referred to your organization core business?**

*Independent grants and innovation consultancy.*

**Commercialization strategy/business plan**

Please write a paragraph covering as many of the following points as possible:

**Market features (if known)**

What are the Specific country differences?
Is the market led/dominated by large companies or SMEs?

**Sales channels**

How will the product be marketed?
How will the product be sold?
How/who will collect the royalties?
Can sales forecasts be made? Initial sales? Growth per year?

**Distribution**

How will the product be distributed (partners? Licensing? Franchise?)

**Pricing and profit (if known)**

Interest/benefit for each partner in the product/project result

**Indirect Exploitation activities**

How else will the product/service be exploited?
Where will the project be promoted – e.g. EU fairs, networks, etc.

*Ciaotech promoted I-PAN project activities and results in fairs, conference and through its channel (Innovation Place platform and Ricerce&Innovazione website) and network. All details aredescribed in D9.4.*

**IPR Management and exploitation**

- **Are you planning / do you wish to file a patent on any of the project results you are working on?** In case you do, please specify.
- Alternatively/Independently of the issue of patents, we need you to confirm or let us know if any changes need to be applied to the individual partner exploitation strategy defined in the DoW.

*No activities planned.*

## 7.4 STELA

Project co-funded by the European Commission within the FP7 (2007–2013)

Grant agreement no.: 308630

**I-PAN**

INNOVATIVE POPLAR LOW DENSITY STRUCTURAL PANEL

Project type: Collaborative Project

Start date of project: 1st October 2012 Duration: 36 months

# PARTNERS INDIVIDUAL EXPLOITATION QUESTIONAIRE

## Summary

The Exploitation questionnaires are composed from two parts. The first part, "Basic Data" aims to provide an overview of all partners involved in I-PAN project.
Such part answers to the following questions:

- Who are you?
- Why I-PAN?
- Who will you be? What are your general plans after I-PAN?

The second part, "Outcomes of I-PAN", aims to understand which are the expected outcomes from I-PAN or which could be one, and how they could be exploited. Such part suggests to partners the most important possible results obtainable through I-PAN on which partners describe their opinion about also their possible exploitation. In order to identify the possible I-PAN outcomes, also to possible interests of partners are been considered.

The last part, “Business plan for commercial exploitation”, aims to shortly describe target group, competitors and the commercialization strategy of each single partner.

## 1. Overview of project partner institution and its involvement in I-PAN

**Partner Organisation**: **Stela Laxhuber GmbH**

**What is the main reason why you are in the I-PAN project?**
*To be a part of a real development in the wood industry and to continue in developing new markets*

**Summarize the future strategy of your company/institution in the field of wood panel**
*Fix and extend our market by customer orientated, product specific technical products*

**Licensing rights and royalties**
*All licensing rights and royalties are at STELA Laxhuber GmbH*

## 2. Exploitation of outcomes of I-PAN project

**Please give Details of what is to be exploited by your organization/institution:**

- describe concisely: What is the product/service/result to be exploited for your organization?

*Big potential for further optimization of strand drying plants.*

- Relevance within I-PAN: What have we achieved in I-PAN with respect to current similar products, with reference to your organization mission?

*Analyze of the process risks and development of possible solutions.*

**List the main Strengths of the I-PAN with regards to I-PAN and also specifically referred to your organization core business**

- *continuous tags to be handled leads to continuous development of the complete project (technics, financials, exploitations)*
- *the possibility to develop a product and by this business area orientated solution in concern of the requirements of the OSB business division*

**List the main Weaknesses of the I-PAN with regards to I-PAN and also specifically referred to your organization core business**

- *most WP´s doesn´t meet the core business of STELA Laxhuber GmbH (f.e. strand blending, use of resin, …)*
- *generally complicated procedures, especially to fill in the date at the project Website.*

**Which elements of I-PAN need strengthening in order to become more exploitable with regards to I-PAN and also specifically referred to your organization core business?**
*Generally a more uncomplicated process would make it more practical.*

## 3. Business plan for commercial exploitation

**Subsection for product/service exploited for your organization**

**End–Users and benefits**

Please write a paragraph covering as many of the following points as possible with regards to I-PAN and also specifically referred to your organization core business:

Who will it be sold to (end-user)?
What are the end-user profile/profiles?
What is the benefit at the end-user level?
In which countries will it be sold?
Are there different approaches for different countries?

*Beneficiary of the project results are the end users. In case of Stela Laxhuber GmbH this are OSB-producers in general and especially the ones using poplar wood as raw material. Benefit for the end users is that all problems, small and big ones, arising especially just after hundreds or thousands of operation hours are already known and solved. So the end user gets a product which is sophisticated enough to fullfill the requirements in the industry. There are no special countries in which the products should be sold, moreover is there the possibility that new markets will develop. Basically the requirements are more or less the same in every country, differences will be in the used raw material (kind of wood), it´s specific properties and drying behaviour and of course in the specific regulations and laws to operate the dryers (emissions like dust, exhaust air amount, water consumption*

**Which are the main competitors of the I-PAN with regards to I-PAN and also specifically referred to your organization core business?**

Main competitors to I-PAN I can not say but I expect the other well known OSB-producers like Kronspan, Kronotex…

For Stela the main competitors in this business area are generally the producers of drum dryers as it is still state of the art of drying in the OSB-panel industry and also in other kinds of wood boards.

**Commercialization strategy/business plan**

Please write a paragraph covering as many of the following points as possible:

**Market features (if known)**

What are the Specific country differences?
Is the market led/dominated by large companies or SMEs?

**Sales channels**

How will the product be marketed?
How will the product be sold?
How/who will collect the royalties?
Can sales forecasts be made? Initial sales? Growth per year?

**Distribution**

How will the product be distributed (partners? Licensing? Franchise?)

**Pricing and profit (if known)**

Interest/benefit for each partner in the product/project result

*The market is dominated by big companies.*

*The dryer is promoted via our website, fairies like LIGNA and advertisements in trade publication.*

*We sell our dryers directly from our headquarter or through our partner IMAL. In some countries we have agents who has good contacts to the wood panel industry to promote our product.*
*We can't do a serious sale forecast for dryers but in consideration of the inquiries for this dryer we expect a growing market for this product.*
*The dryer will be distributed directly from Stela and through our partner IMAL.*

**Indirect Exploitation activities**

How else will the product/service be exploited?
Where will the project be promoted – e.g. EU fairs, networks, etc.

*We took part on LIGNA fairy and promote our belt dryers.*

**IPR Management and exploitation**

- **Are you planning / do you wish to file a patent on any of the project results you are working on?** In case you do, please specify.
- Alternatively/Independently of the issue of patents, we need you to confirm or let us know if any changes need to be applied to the individual partner exploitation strategy defined in the DoW.

*No, actually nothing in this direction is planned.*

**7.5 IDP**

Project co-funded by the European Commission within the FP7 (2007–2013)

Grant agreement no.: 308630

**I-PAN**

INNOVATIVE POPLAR LOW DENSITY STRUCTURAL PANEL

Project type: Collaborative Project

Start date of project: 1st October 2012 Duration: 36 months

# PARTNERS INDIVIDUAL EXPLOITATION QUESTIONAIRE

## Summary

The Exploitation questionnaires are composed from two parts. The first part, "Basic Data" aims to provide an overview of all partners involved in I-PAN project.
Such part answers to the following questions:

- Who are you?
- Why I-PAN?
- Who will you be? What are your general plans after I-PAN?

The second part, "Outcomes of I-PAN", aims to understand which are the expected outcomes from I-PAN or which could be one, and how they could be exploited. Such part suggests to partners the most important possible results obtainable through I-PAN on which partners describe their opinion about also their possible exploitation. In order to identify the possible I-PAN outcomes, also to possible interests of partners are been considered.

The last part, “Business plan for commercial exploitation”, aims to shortly describe target group, competitors and the commercialization strategy of each single partner.

## 1. Overview of project partner institution and its involvement in I-PAN

**Partner Organisation**: **IDP**

**What is the main reason why you are in the I-PAN project?**
*As with many projects, you engage in the project for motivation, because the partners are potential and trustworthy and that the objectives of the project are a step in the company and the product is a competitor in the market , a fact that helps maintain leading position*

**Summarize the future strategy of your company/institution in the field of wood panel**
*Consolidate and promote the use of wood based panels in both our industrial projects (design and marketing of equipment) and the application of these products in our engineering projects, environment, architecture etc.*
*We are a multidisciplinary company and can participate with this product in many work environments.*

**Licensing rights and royalties**
*All licensing rights and royalties are at IDP*

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## 2. Exploitation of outcomes of I-PAN project

**Please give Details of what is to be exploited by your organization/institution:**

- Describe concisely: What is the product/service/result to be exploited for your organization?

*Great opportunities in the use of wood dust , better knowledge than other companies in the powder handling and application layers for the formation of wood-based panels for a wide industry*

- Relevance within I-PAN: What have we achieved in I-PAN with respect to current similar products, with reference to your organization mission?

*Prioritize the material recovery of wood dust on energy recovery obtaining a significant positive impact on reducing emissions into the atmosphere and significantly reducing production costs .*
*Similar products have some finishing and quality IPAN therefore considered that the maturity of our product is higher .*

**List the main Strengths of the I-PAN with regards to I-PAN and also specifically referred to your organization core business**

*We have increased the knowledge in equipment for handling dust and flakes (bunkers and spreaders) may thus develop projects and products that we facilitate the implementation of these processes.*
*We have increased the knowledge in performance, set up and fine tuning of this equipment in a large specifications and different conditions.*
*We have a real potential product for implement in our industrial and architecture projects.*
*We have more and deep knowledge around the products developed by our partners and be can collaborate with them for a specific projects.*

**List the main Weaknesses of the I-PAN with regards to I-PAN and also specifically referred to your organization core business**

*It's a very changing industry and develops very quickly, so that Asia can perform very similar projects at lower costs but hardly can get the same quality .*

**Which elements of I-PAN need strengthening in order to become more exploitable with regards to I-PAN and also specifically referred to your organization core business?**

*The market consume as much top quality OSB panels for example through regulations or mandatory where it is required that the quality and sustainability of the panel must be better and not accept other panels that cause a strong impact to the environment.*
*It would be interesting to do a project where many countries involved to find multiple applications of this wood panel , in our case we are studying in Spain for the railway industry.*

## 3. Business plan for commercial exploitation

**Subsection for product/service exploited for your organization**
**End–Users and benefits**

Please write a paragraph covering as many of the following points as possible with regards to I-PAN and also specifically referred to your organization core business:

Who will it be sold to (end-user)?
What are the end-user profile/profiles?
What is the benefit at the end-user level?
In which countries will it be sold?
Are there different approaches for different countries?

*The product will be sold to companies that manufacture and market equipment for the manufacture of OSB panels, there is interest and of course the application is exactly the same in all countries where OSB is produced.*
*These machines can be adapted on site according to characteristics of the panel to produce but the operating principles and applications will be the same.*

**Which are the main competitors of the I-PAN with regards to I-PAN and also specifically referred to your organization core business?**

*The main competitors are the same industries that manufacture equipment that could achieve similar designs or similar functions but would not be a big risk for IDP because we have possibilities to develop these projects for multiple customers and applications sectors, positioning the front . We are studying applications for mining etc.*

**Commercialization strategy/business plan**
Please write a paragraph covering as many of the following points as possible:
**Market features (if known)**
What are the Specific country differences?
Is the market led/dominated by large companies or SMEs?
**Sales channels**
How will the product be marketed?
How will the product be sold?
How/who will collect the royalties?
Can sales forecasts be made? Initial sales? Growth per year?
**Distribution**
How will the product be distributed (partners? Licensing? Franchise?)
**Pricing and profit (if known)**
Interest/benefit for each partner in the product/project result

**Not available yet.**

**Indirect Exploitation activities**
How else will the product/service be exploited?
Where will the project be promoted – e.g. EU fairs, networks, etc.
The project is promoted in EU fairs, networks in professional associations, specific tests in-company costumers.
Sometimes we have customers who are " fans " of the improvements and know that it is spoken in the sector, where marketing is a good test results sometimes perform for free at home influencing some customers .

**IPR Management and exploitation**

- **Are you planning / do you wish to file a patent on any of the project results you are working on?** In case you do, please specify.
- Alternatively/Independently of the issue of patents, we need you to confirm or let us know if any changes need to be applied to the individual partner exploitation strategy defined in the DoW.

*No changes are specified in this regard.*

## 7.6 ECSC

Project co-funded by the European Commission within the FP7 (2007–2013)

Grant agreement no.: 308630

**I-PAN**

INNOVATIVE POPLAR LOW DENSITY STRUCTURAL PANEL

Project type: Collaborative Project

Start date of project: 1st October 2012 Duration: 36 months

# PARTNERS INDIVIDUAL EXPLOITATION QUESTIONAIRE

## Summary

The Exploitation questionnaires are composed from two parts. The first part, "Basic Data" aims to provide an overview of all partners involved in I-PAN project.
Such part answers to the following questions:

- Who are you?
- Why I-PAN?
- Who will you be? What are your general plans after I-PAN?

The second part, "Outcomes of I-PAN", aims to understand which are the expected outcomes from I-PAN or which could be one, and how they could be exploited. Such part suggests to partners the most important possible results obtainable through I-PAN on which partners describe their opinion about also their possible exploitation. In order to identify the possible I-PAN outcomes, also to possible interests of partners are been considered.

The last part, “Business plan for commercial exploitation”, aims to shortly describe target group, competitors and the commercialization strategy of each single partner.

## 1. Overview of project partner institution and its involvement in I-PAN

**Partner Organisation**: **ECSC**

**What is the main reason why you are in the I-PAN project?**
*The ECSC participation in I-PAN project aims at applying our knowledge in advanced computer vision techniques to a real-world industrial problem with very positive environmental impact. In particular, we have developed intelligent computer vision tools to monitor the production of OSB panels.*

---

**Summarize the future strategy of your company/institution in the field of wood panel**

*The ECSC is leveraging the prestige of participating in this project to offer cutting-edge technologies to the industry. We are using the results of the project in the area of automatic production monitoring using vision systems to develop partnerships with existing and new contacts.*

**Licensing rights and royalties**
*UMIL's results will be made available without royalties to the consortium only for use in IPAN. The ECSC has adapted and improved computational techniques that are difficult to protect using intellectual property rights.*

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## 1. Exploitation of outcomes of I-PAN project

**Please give Details of what is to be exploited by your organization/institution:**
*The ECSC has developed algorithms and tools using advanced computer vision techniques to solve real world problems of the industry. The know-how acquired is very useful for future projects and is being exploited by the ECSC.*

**List the main Strengths of the I-PAN with regards to I-PAN and also specifically referred to your organization core business**
*The main strength of the I-PAN project for our research centre is the opportunity to solve real-world problems of the industry and leverage the results and knowledge of our researchers to make positive impacts in society.*

**List the main Weaknesses of the I-PAN with regards to I-PAN and also specifically referred to your organization core business**
*As in every collaborative project involving industrial partners and researchers, they were challenges to coordinate interests. Internally, we had to adjust the trade-off between applied research that have impact to society and the generation of new results that will be published in scientific journals.*

**Which elements of I-PAN need strengthening in order to become more exploitable with regards to I-PAN and also specifically referred to your organization core business?**
*The algorithms and tools developed have to be adapted and integrated in the current systems of the companies. In particular the tools to analyse 2D and 3D data to monitor the production of new OSB panels have to be integrated with the software and hardware solutions used to*

*control the production processes. This requires some software development effort in order to transform the research results validated in a real industrial environment into products and service that could be made available to the market.*

## 2. Business plan for commercial exploitation

**Subsection for product/service exploited for your organization**

**End–Users and benefits**

*The algorithms and computational tools developed plus the knowledge of how to apply them in industrial applications will be used to fulfill the objectives of the ECSC: in training and education activities in order to show the utility of soft computing techniques, in scientific papers with detailed information of the obtained results, and in further collaborations with industry in order to apply the advanced computer vision techniques developed.*

**Which are the main competitors of the I-PAN with regards to I-PAN and also specifically referred to your organization core business?**

*The competition of I-PAN is known by the industrial partners of the project. In our case, the competition are the research groups working in computer vision and its applications to industry. With this project, we have acquired more knowledge and expertise in this area and it will permit us to continue our growth in this area.*

**Commercialization strategy/business plan**

*The European Centre for Soft Computing is a non-profit research organization. There are several experienced industrial partners and companies with a capacities and expertise for commercialization of the results. The commercialization and business plans were developed by them and we are support organization in this tasks.*

**Indirect Exploitation activities**

*The results of the project will be promoted in scientific papers and conferences, and in training activities organized by us and our wide network of academic, research and industrial collaborators.*

**IPR Management and exploitation**

*The main developments of this project from the ECSC have been algorithms and computational techniques that cannot be patented in Europe. Therefore, the ECSC is seeking the alternative strategy used by the ICT sector instead of the IP protection. ECSC does not need to apply any changes to the individual partner exploitation strategy defined in the DoW.*

## 7.7 UMIL

Project co-funded by the European Commission within the FP7 (2007–2013)

Grant agreement no.: 308630

**I-PAN**

INNOVATIVE POPLAR LOW DENSITY STRUCTURAL PANEL

Project type: Collaborative Project

Start date of project: 1st October 2012 Duration: 36 months

# PARTNERS INDIVIDUAL EXPLOITATION QUESTIONAIRE

## Summary

The Exploitation questionnaires are composed from two parts. The first part, "Basic Data" aims to provide an overview of all partners involved in I-PAN project.
Such part answers to the following questions:

- Who are you?
- Why I-PAN?
- Who will you be? What are your general plans after I-PAN?

The second part, "Outcomes of I-PAN", aims to understand which are the expected outcomes from I-PAN or which could be one, and how they could be exploited. Such part suggests to partners the most important possible results obtainable through I-PAN on which partners describe their opinion about also their possible exploitation. In order to identify the possible I-PAN outcomes, also to possible interests of partners are been considered.

The last part, “Business plan for commercial exploitation”, aims to shortly describe target group, competitors and the commercialization strategy of each single partner.

## 1. Overview of project partner institution and its involvement in I-PAN

**Partner Organisation**: **Università degli studi di Milano (UMIL)**

**What is the main reason why you are in the I-PAN project?**
*To develop intelligent computer vision systems able to monitor the production of OSB panels.*

**Summarize the future strategy of your company/institution in the field of wood panel**
*Continue the development of solutions for the automatic monitoring of production processes.*

**Licensing rights and royalties**
*UMIL's results will be made available without royalties to the consortium only for use in IPAN.*

## 2. Exploitation of outcomes of I-PAN project

**Please give Details of what is to be exploited by your organization/institution:**

- describe concisely: What is the product/service/result to be exploited for your organization?
- Relevance within I-PAN: What have we achieved in I-PAN with respect to current similar products, with reference to your organization mission?

**List the main Strengths of the I-PAN with regards to I-PAN and also specifically referred to your organization core business**
*UMIL will develop innovative computer vision systems that, using computational intelligence techniques, will be able to analyze 2D and 3D data to monitor the production of OSB panels. The main strength of the developed system is its uniqueness. UMIL has studied the state of the art techniques in this field and has not find any similar approach in the context of wood panel production. However, since UMIL is a public academic institution the outcomes of the project will only be indirectly exploited for scientific publications and dissemination*

**List the main Weaknesses of the I-PAN with regards to I-PAN and also specifically referred to your organization core business**
*No weaknesses have been identified.*

**Which elements of I-PAN need strengthening in order to become more exploitable with regards to I-PAN and also specifically referred to your organization core business?**
*UMIL has not identified elements that need strengthening referred to its core business.*

## 3. Business plan for commercial exploitation

**Subsection for product/service exploited for your organization**

**End–Users and benefits**

Please write a paragraph covering as many of the following points as possible with regards to I-PAN and also specifically referred to your organization core business:

Who will it be sold to (end-user)?
What are the end-user profile/profiles?
What is the benefit at the end-user level?
In which countries will it be sold?
Are there different approaches for different countries?

*UMIL is an Italian public education and research institution. As such its main aim is not commercial. IPAN's outcomes will be indirectly exploited by UMIL through their dissemination in scientific and educational forums and courses.*

**Which are the main competitors of the I-PAN with regards to I-PAN and also specifically referred to your organization core business?**

No direct competitors have been identified

**Commercialization strategy/business plan**

Please write a paragraph covering as many of the following points as possible:

**Market features (if known)**

What are the Specific country differences?
Is the market led/dominated by large companies or SMEs?

**Sales channels**

How will the product be marketed?
How will the product be sold?
How/who will collect the royalties?
Can sales forecasts be made? Initial sales? Growth per year?

**Distribution**

How will the product be distributed (partners? Licensing? Franchise?)

**Pricing and profit (if known)**

Interest/benefit for each partner in the product/project result

*UMIL does not contemplate to carry out any commercialization or marketing plan for the obtained results. However, they will be disseminated in the following ways: publishing articles in international scientific journals and conferences; organizing tutorials and special sessions in scientific conferences; and editing special issues in scientific journals.*

**<u>Indirect Exploitation activities</u>**

How else will the product/service be exploited?
Where will the project be promoted – e.g. EU fairs, networks, etc.

*In general UMIL will indirectly exploit the knowledge and experience acquired in IPAN by including it in its BA, MS and PhD programs. These programs will train undergraduate and graduate students, both Italian and foreigners, who can benefit from the possibility of studying an important industrial use-case, which demonstrates the possibilities of computer vision and computational intelligence.*

**IPR Management and exploitation**

- **Are you planning / do you wish to file a patent on any of the project results you are working on?** In case you do, please specify.
- Alternatively/Independently of the issue of patents, we need you to confirm or let us know if any changes need to be applied to the individual partner exploitation strategy defined in the DoW.

*UMIL has no plans to file a patent on any of the results obtained in the project.*
*UMIL does not need to apply any changes to the individual partner exploitation strategy defined in the DoW.*

**7.8 CHIMAR**

Project co-funded by the European Commission within the FP7 (2007–2013)

Grant agreement no.: 308630

**I-PAN**

INNOVATIVE POPLAR LOW DENSITY STRUCTURAL PANEL

Project type: Collaborative Project

Start date of project: 1st October 2012 Duration: 36 months

# PARTNERS INDIVIDUAL EXPLOITATION QUESTIONAIRE

## Summary

The Exploitation questionnaires are composed from two parts. The first part, "Basic Data" aims to provide an overview of all partners involved in I-PAN project.
Such part answers to the following questions:
• Who are you?
• Why I-PAN?
• Who will you be? What are your general plans after I-PAN?

The second part, "Outcomes of I-PAN", aims to understand which are the expected outcomes from I-PAN or which could be one, and how they could be exploited. Such part suggests to partners the most important possible results obtainable through I-PAN on which partners describe their opinion about also their possible exploitation. In order to identify the possible I-PAN outcomes, also to possible interests of partners are been considered.

The last part, “Business plan for commercial exploitation”, aims to shortly describe target group, competitors and the commercialization strategy of each single partner.

## 1. Overview of project partner institution and its involvement in I-PAN

**Partner Organisation**: **CHIMAR HELLAS SA**

**What is the main reason why you are in the I-PAN project?**

*The participation of CHIMAR in I-PAN is in line with its R&D activities and objectives to develop new technology and products for the resin and wood-panel industries field.*

*It is expected that the new knowledge to be created through I-PAN activities will enhance CHIMAR's technology portfolio and level of services and it will strengthen and improve the company's market position and competitiveness.*

**Summarize the future strategy of your company/institution in the field of wood panel**

*To provide the global wood-based panel industry with state-of-the-art and new technology for their processes and products, meeting the criteria of eco-efficiency and helping them to achieve sustainable competitive advantage.*

**Licensing rights and royalties**

*CHIMAR develops and licenses competitive technology for the industrial production of adhesives and chemicals and their application in the manufacture of wood-based panels, having an international experience of more than 37 years. CHIMAR will strive to license the innovative technology that will be developed in the framework of I-PAN to interested resin and panel producers all around the world either by extending the existing CHIMAR licensing agreements or by concluding new ones and on the basis of principles laid in the project Consortium Agreement.*

## 2. Exploitation of outcomes of I-PAN project

**Please give Details of what is to be exploited by your organization/institution:**

- describe concisely: What is the product/service/result to be exploited for your organization?

*Technology for the production of new formaldehyde-based resin & resin system suitable for bonding poplar & recycled wood strands to form light weight OSB panels*

- Relevance within I-PAN: What have we achieved in I-PAN with respect to current similar products, with reference to your organization mission?

*A binder resin system of MUPF (Melamine-Urea-Phenol-Formaldehyde) resin with special additives was developed providing laboratory scale light weight OSB-type boards made from poplar strands of I-214 clone, which meet the standard requirements for OSB/3 grade as well as the E1 formaldehyde class. The OSB press temperature was reduced by more than 10% without increasing the press cycle thus providing savings in energy requirements of the OSB production process.*

**List the main Strengths of the I-PAN with regards to I-PAN and also specifically referred to your organization core business**

*Development of binder resin system enabling the production of lab scale light weight OSB made from poplar & recycled wood strands of the OSB/3 grade and E1 formaldehyde class and by using a 10% decreased press temperature for OSB production.*

**List the main Weaknesses of the I-PAN with regards to I-PAN and also specifically referred to your organization core business**

*The performance of the developed binder system may be worse during scale up depending on the IPAN factory production conditions (strands quality, raw materials, production parameters).*

**Which elements of I-PAN need strengthening in order to become more exploitable with regards to I-PAN and also specifically referred to your organization core business?**

*The characteristics/properties of the developed binder and gluing system will need to be adapted to the specific operating conditions and parameters of IPAN factory industrial production. At this phase, it cannot be predicted which characteristics of the gluing system should be modified. Examples are to modify resin reactivity, resin viscosity or resin solid content. CHIMAR is in the position to effect the modifications and adaptation which may be needed during industrial implementation of the IPAN lab results in collaboration with the rest of IPAN partners.*

## 3. Business plan for commercial exploitation

**Subsection for product/service exploited for your organization**

**End–Users and benefits**

Please write a paragraph covering as many of the following points as possible with regards to I-PAN and also specifically referred to your organization core business:

Who will it be sold to (end-user)?
What are the end-user profile/profiles?
What is the benefit at the end-user level?
In which countries will it be sold?
Are there different approaches for different countries?

*The binder system technology developed within IPAN will be licensed to interested producers of (a) adhesive resins and (b) OSB panels. CHIMAR role will be to supply the technology for (a) the production of the adhesive system and (b) the application of such system as binder in the manufacture of OSB panels. Thus the end-users are manufacturers of resins and OSB panels. The benefits for the end users will be:*

*(a) In the case of adhesive manufacturers an enriched palette of resin products for the OSB panel market*
*(b) In the case of OSB manufacturers a new light weight OSB panel product for the furniture and construction markets.*

*The binder system technology developed within IPAN will be sold in the countries having the following combined characteristics:*

- *Countries with resin production factories having the capability to produce MUPF resins*
- *Countries with OSB production factories running or under construction (e.g. in Europe: Belgium, Bulgaria, Czech Republic, France, Germany, Ireland, Italy, Latvia, Luxemburg, Poland, Romania, UK, also in Russia, USA, Canada)*
- *Countries with availability of poplar wood (especially poplar species I-214) as well as of other wood species with same or similar characteristics as poplar.*

**Which are the main competitors of the I-PAN with regards to I-PAN and also specifically referred to your organization core business?**

*Providers/Producers of adhesive binders based on MDI (methylene diphenyl diisocyanate/PMDI(polymeric diphenyl methane diisocyanate)/TDI (toluene diphenyl diisocyanate).*

**Commercialization strategy/business plan**

Please write a paragraph covering as many of the following points as possible:

**Market features (if known)**

What are the Specific country differences?
Is the market led/dominated by large companies or SMEs?

**Sales channels**

How will the product be marketed?
How will the product be sold?
How/who will collect the royalties?
Can sales forecasts be made? Initial sales? Growth per year?

**Distribution**

How will the product be distributed (partners? Licensing? Franchise?)

**Pricing and profit (if known)**

Interest/benefit for each partner in the product/project result

***MARKET***

*Formaldehyde-based resins are used primarily as adhesives (binders) in the production of wood products (with main representatives the wood-based panels such as particleboards, medium density fibreboards (MDF), plywood, oriented strand boards (OSB)). Hence, the market of these resins is driven by the consumption of wood-based panels. The wood-based panel industry (NACE 16.21) is a subsector of the wood & wood products industry. Its products find broad range application both in Europe and worldwide in the building construction industry, the furniture industry, the packaging sector and "do-it-yourself" products. All these industries boost Europe's economic growth while they provide millions of working positions. According to FAOSTAT (http://faostat3.fao.org/faostat-gateway/go/to/browse/F/FO/E) over 300 million $m^3$ of wood-based panels were produced globally in 2012 and the share of European production was ~25%. European exports of wood-based panels are the highest in the world (FAOSTAT) and the overall value of EU exports of woodworking products amounted to €23.5 billion in 2012 (EPF annual report 2013-14).*

*Despite the crisis, the total production value of the woodworking industries in the EU reached almost €206 billion in 2012, while the total number of employees in the EU-28 wood industry was more than 2.1 million in 2012 (EPF annual report 2013-14). Given the SME structure of the woodworking industries and the fact that some countries do not take into account firms with less than 20 employees, the actual total number of employees should be estimated at substantially higher figures.*

*According to EPF annual report 2013-14, the European production of OSB rose by 6% in 2013 and exceeded 3.7 million $m^3$ while the European production capacity exceeded 5.5 million $m^3$. Germany and Romania have the largest European OSB production capacities and new investments are announced for Bulgaria and Romania so that European production capacity could exceed 6 million $m^3$ in 2014. Currently OSB production capacity in Europe is in the following countries:*

*Belgium, Bulgaria, Czech Republic, France, Germany, Ireland, Italy, Latvia, Luxemburg, Poland, Romania, UK.*

*OSB/3 panels (load-bearing panels suitable for structural use in humid conditions) accounted for 89% of the 2013 European OSB output, while 8% of the European OSB production was devoted to OSB/4 category (heavy duty load-bearing panels suitable for heavy duty structural use in dry and humid conditions) and a 3% to OSB/2 panels (suitable for structural and non-structural use in dry conditions). The building industry bought ~54% of the 2013 OSB production, while 8% of the panels went to the do-it-yourself sector, 15% to the flooring industry, 11% to packaging applications and 12% to other uses.*

*In USA the production of OSB in 2013 exceeded 11 million $m^3$, while in Canada it was over 5.5 million $m^3$.*

*Therefore, the new resin technology developed within IPAN will appeal to a large and growing market and is expected to help the resin, wood panel and woodworking sectors remain competitive and profitable, boosting economic growth and employability.*

***SALE & DISTRIBUTION***

*CHIMAR will pursue commercialization of the resin technology via technology licensing to interested resin and panel manufacturers.*

***Indirect Exploitation activities***

*How else will the product/service be exploited?*
*Where will the project be promoted – e.g. EU fairs, networks, etc.*

***CONFERENCES/SYMPOSIUMS***

*International Wood Composites Symposium, USA (every year)*
*European Wood-Based Panel Symposium, Germany (every 2 years)*
*International Conference on Wood Adhesives, USA (every 4 years)*
*World Adhesives Conference, Malaysia (every year)*

***FAIRS***

*XYLEXPO, Milan, Italy*

*LIGNA, Hannover, Germany*

***MAGAZINES***

*Wood-Based Panels International*

*Panels & Furniture Asia*

**IPR Management and exploitation**

- **Are you planning / do you wish to file a patent on any of the project results you are working on?** In case you do, please specify.
- Alternatively/Independently of the issue of patents, we need you to confirm or let us know if any changes need to be applied to the individual partner exploitation strategy defined in the DoW.

*CHIMAR will protect the resin & gluing system technology developed within IPAN as a trade secret (know-how) since:*

- *this does not meet sufficiently enough the patentability criterion of novelty by being part of already applied proprietary know-how and*
- *it will be more beneficial to exploit the technology as a trade secret through licensing to interested resin and panel manufacturers.*

*For the purpose of licensing, CHIMAR wishes to avoid revealing of the technology via the compulsory disclosure of information in patent application and patent publication texts. As long as the technology remains a trade secret and its details are not revealed to the public, it can be of value for exploitation through licensing. CHIMAR has a well-organized internal system for knowledge management to ensure trade secrets protection.*