



**SOUNDCAST**  
**VACUUM-ASSISTED HIGH PRESSURE DIE  
CASTINGS WITH REDUCED POROSITY AT LOW  
COST**

## **D6.2: Interim Plan for use and dissemination of the knowledge**

Instrument	Collaborative Project – Research for the benefit of SME		
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## DISSEMINATION LEVEL

Dissemination Level (choose the suitable option)	
<b>X</b>	<b>PU</b> Public
	<b>PP</b> Restricted to other programme participants (including the Commission Services)
	<b>RE</b> Restricted to a group specified by the consortium (including the Commission Services)
	<b>CO</b> Confidential, only for members of the consortium (including the Commission Services)

## DOCUMENT MODIFICATIONS CONTROL

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## 1. Introduction

The objective of this interim Dissemination Plan is to analyse three aspects within SOUNDCAST project so as to assess its impact onto the market and forecast the potential sales and profits for all partners. This document put on the table three aspects that have been discussed by all partners to ensure a successful exploitation of the project.

Firstly, there is an approach on how it is expected to carry out the exploitation plan and distribution of Intellectual Property Rights and what criteria are to be set the fair and reasonable conditions of use, dissemination and access to background, including the conditions for access to the foreground.

Secondly, it has been designed a dissemination plan which includes internal and external communication, an action plan and the dissemination deployment.

Thirdly, doing a course regarding the technology is essential to ensure its market uptake. RTDs will train SMEs delegates with a commercial purpose and End Users with a practical purpose. Special meetings will be arranged for that purpose at the end of the project; previously it will be necessary to design the courses that will be offered.

## 2. Dissemination plan

### 2.1 Internal communication

Our aim is to identify and organise the activities to be performed during the project in order to promote the benefits of our technology for its commercial exploitation and disseminate the knowledge gained to the market.

Partners agree on the fact that it is necessary to establish internal information conduits to ensure the information flows between all the partners so that everyone can propose new ideas as well as being inform on time of any news about the project as well as facilitate everybody share the same information so as to speak with one voice. The correct accomplishment of an internal communication (IC) procedure will let us focus easily on the dissemination strategy, define the tasks and set gauges to control the success of our actions.

#### 2.1.1 Objective

SOUNDCAST project will count on a professional communication team that puts its efforts into making public our results as much as possible. The main goals are to divulge the tasks accomplished by all the partners, the advantages of our solution and to boost the stakeholder's interest in the product in order to increase the demand for it.

#### 2.1.2 Building an internal communications infrastructure

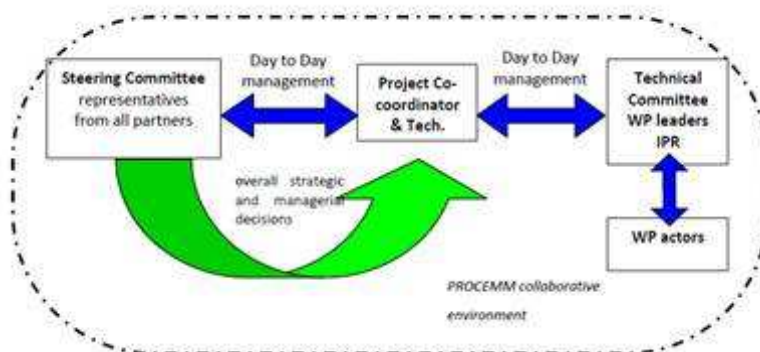
We have established an infrastructure for communications (and therefore dissemination) by building a robust framework in which dialogue and interaction can take place. This applies equally to internal and external communication.

Clear channels of communications between the project partners themselves as well as with the wider community will play a crucial role in the success of the project.

As result, it has been established formal channels of communication for the partnership:

Management structure: we have combined fields of policy and administration to enhance decision-making and supervision necessary to implement the dissemination tasks so as to attain the objectives and achieve stability and success (*Figure 1*).

Successful project management will be a product of the joint commitment from all the consortium members. As the consortium is small, it is agreed to create a simple and direct management structure, allowing for flexibility and easy decision making, without introducing more heavy procedures.



**Figure 1:** Management structure.

The project coordination is carried out by **ALIASA**. A **Technical Committee** has been established in order to take care of technical issues. This Committee consists of key representatives of the RTD Performers and is chaired by the **Scientific & Technical Manager**, a highly qualified representative that was elected from one of the RTD performers, Azterlan, who is responsible for supporting the Project Coordinator in ensuring that the technical objectives and activities of the project are met in a timely manner.

This management structure, depicted on the graph below, is based on a bottom to top structure where final decisions are jointly taken by the **Project Coordinator and the Scientific & Technical Manager**. The Technical Manager and the Project Coordinator will meet regularly to discuss issues regarding the evolution of the Work plan, with a view to analyse potential risks to ensure their early identification. Once a potential risk has been identified, an emergency meeting of the General Steering Committee will be convened (in the event of a serious and pressing risk) or it will be brought up at the next project meeting.

Quality assurance will be independent of the project management in order to build an organizational approach to standard-based product testing. A **Steering Committee**, composed by a mixture of representatives from all partners and lead by the project coordinator, takes over the responsibility for the overall strategic and managerial decisions. Likewise, the work package leaders form a **technical committee** that will assist the coordinator and the S&T manager.

Based on the reports from the Technical Coordination and Technical Committee, the Steering Committee will perform the overall strategic decisions looking always for the consensus. If this is not possible, a simple majority criterion will be used.

Also, an **exploitation committee** is composed of the participants of WP8, and is chaired by the IPR management). Their duty includes the definition of foreground and its protection, the support and guidance regarding dissemination activities in order to

preserve foreground protection and the development of a joint exploitation agreement. This will be done during the implementation of the project.

In order to ensure the right flow of communication between partners with the consortium, the following tools and methods have been established:

Procemm: this is an online collaborative platform with great traceability for project management of R&D, especially when it is required a large flow of information between users (either internal or external entities). Consequently, partners have access to the SOUNDCAST project anywhere, anytime using a secure web browser. It is possible to schedule tasks easily, ensuring a seamless workflow - without interruption or delay - to comply with the deadlines. Users can easily access to tasks, activities, meetings and deadlines from this application. Procemm is a useful tool which can help us detect deviations or critical errors and take the necessary measures.

Meetings: we plan to hold face-to-face meetings regularly. The purpose is to analyse the current status of the project, discuss the solution to current deviations and debate about the next steps to follow. Partners would convene at least every six months (and the exploitation committee would do so as well just before the partners' meeting starts)

Technical Teleconference/Skype meetings: in the sixth-month meeting, it was agreed to hold regular consortium meetings, once a month, by teleconference/Skype for technical discussion. WP leaders for RTD activities are mandatory. Other partners are also invited to take part in these meetings. Commitments and evolution of the project will be transmitted to whole consortium members via e-mail.

## **2.2 External communication**

### **2.2.1 Communication strategy**

Our communication strategy pursues to reach a vision which differentiates us from our competitors in a positive way. It encompasses overall direction as well as the many detailed activities that occur in the project. For this reason we have defined our strategy based on customer needs, determine the customer base we wish to serve, its needs, and then only meet the needs of those customers, foregoing all others.

As a result, the communication strategy includes the following key factors which we can later plan in detail the precise action to reach our goals: (see D6.3 Draft Dissemination plan).

#### **2.2.2 Identifying market needs:**

The aim of SOUNDCAST project is to provide an innovative technology package which allows the production of sound and weldable vacuum-assisted HPDC (VPDC) components at low cost by using secondary alloys with enhanced mechanical properties and to establish a VPDC control system that assures casting quality. Our message aims to make public the benefits of the new process.

Therefore our communication plan focuses on:

- Positioning our solution in the market as something innovative and creative.
- Divulging its economical benefits and technical advantages.
- Promoting the product to our clients (national and European).

- Publishing the R+D results in scientific media in order to gain stakeholders support.
- Promotional material will make reference to the EU support.

### 2.2.3 Project duration

No one strategy can last forever and any corporative strategy needs to be reviewed on a regular basis, not only to ensure it is still relevant but to also ensure that the original strategy has not become blurred by misconceived operational responses to threats and opportunities that are not in keeping with the original strategy. So our message will focus on the technological advantages of the new process in order to create a lasting impressing on the industry during this two-year project.

### 2.2.4 Focus group

It is necessary to that our message reaches the stakeholders in order to accomplish with our commercial goals:

- Industry: it refers to the European casting sector of non-ferrous alloys.
- Public Administration: until now its financial support has been vital. Once the product is commercialised, it is necessary to obtain previously the mandatory certifications of the CE.
- Scientific community: they are who will assess our technology and improvements and, as opinion makers, they can influence the market.
- Media: efforts should be mainly focus on specialised media because our client is the industry so that we have to identify which media is more effective in order to bear our message to our potential clients. It is not discarded it to use other media to reach the public.

### 2.2.5 Message

The communication plan is designed to deliver our message with commercial connotations (its purpose is to sell the product) and technical references (its purpose is to spread the technological benefits of our product). This message should include the following:

*“SOUNDCAST technology allows the manufacture of sound and weldable vacuum-assisted HPDC (VPDC) components at low cost by using secondary alloys with enhanced mechanical properties and to establish a VPDC control system that assures casting quality”.*

#### **Main benefits:**

- a) Metallurgical benefits:
  - Improved ductibility, impact and fatigue resistance
  - Reduced casting defects (porosity, shrinkage, oxide inclusions)
  - HPDC components suitable for heat treatment and welding process
  - Production of large thin-walled and complex components
  - New recycled aluminium alloys for VPDC process
- b) Economic benefits:
  - High mechanical properties at low cost



- Raw material cost reduction (recycled alloys)
  - Reduced die solder (reduced die cost)
  - Lower rejection rates
  - Cost saving due to heat treatments with intrinsic reduced energy consumption
- c) Environmental benefits
- Energy saving (95% less energy is required than for primary alloys)
  - Reducing CO2 emission
  - Valorisation of aluminium scrap
  - Reduce protection
  - Reduced energy consumption related to both: improved process efficiency by reducing rejection rates; heat treatments with less energy consumption requirements
  - Elimination of toxic release agents
  - Less residues from release agents
- d) Health and safety benefits:
- Healthier industrial environment due to the selection and utilisation of no toxic release agents

(New contents should be included in the communication plan as far as it is required).

## 2.2.6 Geographical area

The potential consumption of this technology encourages us to sell this product in the European foundry industry as the main market.

## 2.2.7 Communication Plan

The action plan, the detail of making the strategy happen, will complement the strategy and be subordinate to meeting the strategy and not become an end in itself.

- Corporate image: we have designed a logo that must be used in any dissemination content.



**Figure 2: Logo of Soundcast project.**



The image is available to all partners or users.

- **PRESS:**
  - o At least, we will publish two articles a year.
  - o We will identify and select printed and digital media (press, magazine, associations, trade fairs and so on) to bear our message to our target groups.
  - o It is planned to produce, edit and distribute a documentary based on our technology according to digital press and the requirements of specialised blogs.
  - o We will organise demos to journalist, opinion makers and potential clients.
- **WEB:** today a website is a strong tool to divulge one's message and, inform about the novelties and answers users questions. Please, visit our website: <http://www.soundcastproject.eu>
- **Using scientific media:**
  - o Writing an article or more in scientific community media.
  - o Writing an article for specialised press.
  - o Participation in, at least, one scientific congress a year.
- **Promotional material:** brochures, leaflets and other materials.
- **Training:** this task is considered as part of the dissemination activity of the project and it is crucial in order to reach potential clients and stakeholders (see section 4 Training).

## 2.3 Dissemination deployment

### ***The Project Web Site***

The project web site is available since the beginning of SOUNDCAST project. It is accessible at: <http://www.soundcastproject.eu/>

Once the project is ended, the website is to be available at least one year.

### ***Partners Web Sites:***

To increase visibility of SOUNDCAST project, the partners are to implement within their own website a link to project website.

<http://www.ascamm.com/2013/03/20/ascamm-desenvolupa-tecnologia-per-al-proces-de-fosa-de-metalls/>

### ***Newsletters and publications:***

Two articles have been published in 2013. The one was published on 1<sup>st</sup> April, 2013 in Empresa XXI, a sectoral newspaper addressed to Basque Country industries that circulates an average of 8,418 copies per issue. Then, on 4<sup>th</sup> June, 2013 a newsletter addressed to IK4 research alliance community. The publication circulated between 1,200 researchers and technicians.



Figure 3: Article printed at Empresa XXI newspaper.

### Conference:

On 13<sup>rd</sup> March, 2013 AZTERLAN delivered a Technical conference at Tabira Institute, Durango (Spain) where 82 delegates from France, Sweden and Spain attended the event. Most of them work for HPDC aluminium foundries and supply chain.



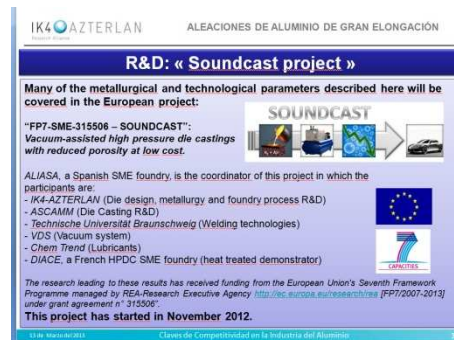
DUCTILE HPDC ALLOYS

Author: Michel Garat, IK4-Azterlan advisor  
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IK4-AZTERLAN, 13th of March, 2013



ALEACIONES DE ALUMINIO DE GRAN ELONGACIÓN PARA INYECCIÓN A ALTA PRESIÓN (HPDC)

Autor: Michel Garat, asesor de IK4-Azterlan  
Andrea Niklas, IK4-Azterlan  
IK4 AZTERLAN, 13 de marzo del 2013



### English version



### Spanish version

Figure 4: IK4-AZTERLAN presentation at Tabira Institute.

## **3. Exploitation plan**

### **3.1 Foreground and access to background**

#### **3.1.1 Project results and management of intellectual property**

Right from the project outset, the consortium has been implemented a robust strategy for the effective management of this knowledge to pave the way for the use and dissemination of the foreground and facilitate fearless knowledge-sharing/transfer and ensure fair benefit distribution between the innovators and society, resulting in enhanced trade and societal advancement.

#### **3.1.2 Definition of Background IPR & Access Rights**

First of all, we have considered two types of background: on the one hand third party background (hereafter, External background) and on the other hand background held inside the consortium (hereafter, Background).

In terms of the former, awareness of the state-of-the-art is imperative to ensuring that intended research efforts are not trespassing into the owned knowledge space of a third party. If confronted with infringement claims, results could be expensive and disastrous. To this end, a comprehensive review of existing state-of-the-art was to be done.

In terms of the existing knowledge held within the consortium, the project participants defined the Background needed for the purposes of the SOUNDCAST project in a Consortium Agreement that was signed prior to entry into force of the Grant Agreement and, when appropriate. During the preparation of the proposal, partners in the consortium communicated each other any existing Background that would be needed for the project.

#### **3.1.3 Protection of the Foreground**

If the results of the research are not properly protected dissemination and exploitation actions will only lead to a situation whereby imitation will flourish and reduce the rewards accruing to this EC funded research and development effort. Given that the results of this project are intended to be launched onto the market where they will be taken up by foundry SMEs from across EU, protection procedures will need to be as effective as possible, so as to allow competitors access to this new knowledge and its application. Therefore, once the foreground has been identified and defined, appropriate protection procedures can then be taken.

Although this is a Research for SME project, it is likely that new foreground will arise and must be protected by patents, given that this IPR tool protects inventions that are novel, non-obvious and useful. Furthermore, the new brand and logo that will be designed to distinguish the future industrial system in the course of trade will be protected by Trademark™ and/or Service Mark®. The need for any Industrial Design Registration is to be evaluated in order to protection any novel non-functional features of shape, configuration, pattern, ornamentation or composition of lines or colours, which might be applied.

All publications, patent applications filed by or on behalf of a participant, or any other dissemination relating to foreground, shall include a statement that the Foreground concerned was generated with the assistance of financial support from the Community.

Finally, note that SME participants will be the direct beneficiaries of the project results (foreground). RTD are subcontracted to carry out most of the research and demonstration activities and receive in return the technological know-how that is needed to develop SOUNDCAST technology.

**Table 1:** Distribution of IPRs between partners according to the new arrangements

TABLE WITH EXPLOITABLE FOREGROUND					
Exploitable product(s) or measure(s)	Exploitable Foreground (description)	Sector(s) of application	Timetable, commercial use	Patents or other IPR exploitation (licences)	Owner & Other Beneficiary(s) involved
(1) SOUNDCAST technology package	Innovative process to produce sound and weldable vacuum-assisted HPDC (VPDC) components.	HPDC Industry, Automotive	2016	WPO or European Patent	Ownership: VDS Internal use (*): Azterlan, TU-BS, Ascamm
(2) Know-how based on the development of SOUNDCAST Technology	Know-how applied to sound and weldable vacuum-assisted HPDC (VPDC) components	HPDC Industry, Automotive	2016	Not possible	Ownership: VDS Internal use (*): Azterlan, TU-BS, Ascamm
(3) New recycled alloy	New recycled alloy(s) for structural applications in the automotive industry	HPDC Industry, Automotive	2016	WPO or European Patent	Ownership: ALIASA Internal use (*): Azterlan
(4) Quality control system	Control software that guarantees mechanical properties	HPDC Industry	2016	Legal protection: Copyright	Ownership: DIACE Internal use(*): Ascamm, Azterlan
(5) New welding process	Innovative welding process suitable for components	HPDC Industry, Automotive	2016	WPO or European Patent	Ownership: ALIASA & DIACE Internal use(*): TU-BS
(6) Know-how based on the development of new welding process	Know-how applied to welding process suitable for VPDCcomponents	HPDC Industry, Automotive	2016	Not possible	Ownership: ALIASA & DIACE Internal use(*): TU-BS

(\*) *The RTD Performers:* The RTD Performers shall be granted by the SME Partners Access Rights to Foreground on royalty-free conditions to conduct further research (Article 50.5 RfP). Access Rights for internal research and for research in areas other than those targeted by the Project, as well as for teaching purposes, shall be granted royalty-free on request



### 3.1.4 IPR Sharing and Access Rights

The consortium already has a clear idea on how they will organise IPR ownership and user rights (e.g. licences, royalties) among themselves. First of all, this project will follow the default regime in terms of Intellectual Property rules for Research for SMEs projects, whereby the SME participants will receive full ownership and exploitation rights of all the Foreground results generated by the project.

Hence, to ensure a successful exploitation of SOUNDCAST project results, SME partners will exploit their results according to their corporate strategy and dedication, because each and every member within the consortium has a clear economic interest. The consortium aim is that the agreement described below shall last as long as it is legally possible.

**Table 2: Distribution of IPRs between partners and commercial alliances**

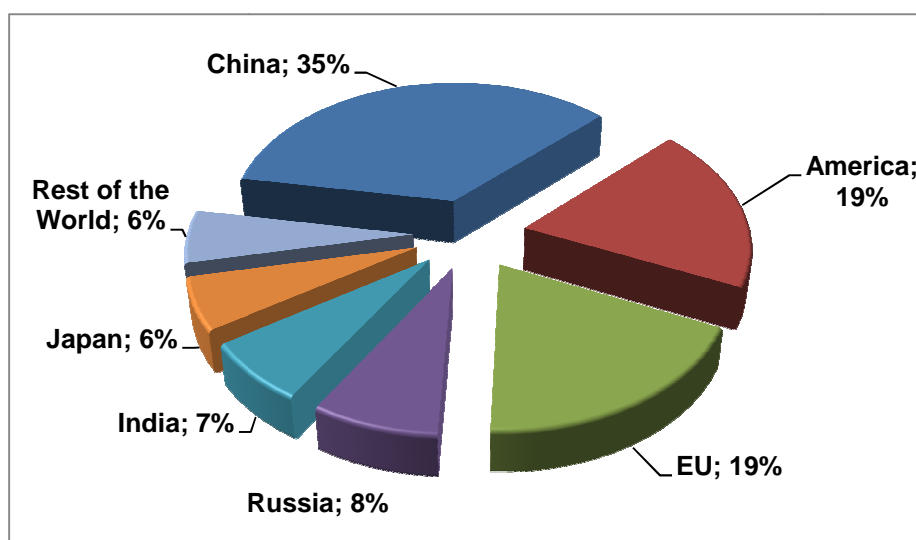
PARTNERS		Rights	Obligations
SME	VDS	<ul style="list-style-type: none"> <li>* Ownership of SOUNDCAST technology package for manufacturing and commercializing worldwide.</li> <li>* Special market conditions for the acquisition of the results 3, 4 &amp; 5.</li> </ul>	Payment of a licence as a usage of quality control system to DIACE. A Manufacturing Supply Agreement to ALIASA and DIACE will be established. Responsible for support and maintenance of its result.
	DIACE	<ul style="list-style-type: none"> <li>* Manufacturing Supply Agreement of the SOUNDCAST Technology Package.</li> <li>* Ownership of quality control system for manufacturing and commercializing worldwide.</li> <li>* Co-ownership of New welding process. Right of exploitation worldwide</li> <li>* Special market conditions for the acquisition of the results 1 &amp; 3.</li> </ul>	Non-disclosure agreement.  Responsible for support and maintenance of its result.
	ALIASA	<ul style="list-style-type: none"> <li>* Manufacturing Supply Agreement of the SOUNDCAST Technology Package.</li> <li>* Ownership of new recycled alloy for manufacturing and commercializing worldwide.</li> <li>* Co-ownership of New welding process. Right of exploitation worldwide.</li> <li>* Special market conditions for the acquisition of the results 1 &amp; 4</li> </ul>	Non-disclosure agreement.  Responsible for support and maintenance of its result.
RTD	AZTERLAN	<ul style="list-style-type: none"> <li>* Technical collaboration.</li> <li>* Technical support.</li> <li>* Improvement contract:               <ul style="list-style-type: none"> <li>a) Own improvements to others</li> <li>b) Others improvements to own use</li> </ul> </li> </ul>	Non-disclosure agreement. Usage of technology at internal level of the entity in question.
	TU-BS	<ul style="list-style-type: none"> <li>* Technical collaboration.</li> <li>* Technical support.</li> <li>* Improvement contract:               <ul style="list-style-type: none"> <li>a) Own improvements to others</li> <li>b) Others improvements to own use</li> </ul> </li> </ul>	Non-disclosure agreement. Usage of technology at internal level of the entity in question.
	ASCAMM	<ul style="list-style-type: none"> <li>* Technical collaboration.</li> <li>* Technical support.</li> <li>* Improvement contract:               <ul style="list-style-type: none"> <li>a) Own improvements to others</li> <li>b) Others improvements to own use</li> </ul> </li> </ul>	Non-disclosure agreement. Usage of technology at internal level of the entity in question.

### Summary of results:

1. SOUNDCAST technology package
2. Know-how based on the development of SOUNCAST Technology
3. New recycled alloy
4. Quality control system
5. New welding process
6. Know-how based on the development of new welding process

## **3.2 Market research**

In a globalised world the foundry industry is mainly spread around 3 continents: America, Asia and Europe. In the following graph it's shown the casting production divided into the main productive countries, America and the EU with its 20 most representative countries in terms of casting production.



**Figure 5:** World casting production

As seen, Europe produces nearly the 20% of the global casting in the world. This gives us an idea of how important will be the SOUNDCAST impact in the European continent.

The activity of the casting of metals (NACE Group 27.5) was carried out by 6.7 thousand enterprises across the EU-27 in 2006. From a turnover of EUR 37.6 billion, these enterprises generated EUR 11.8 billion of added value in 2006, which was the smallest contribution (4.8 %) to the value added of the metals and metal products manufacturing (NACE Subsection DJ) sector. The casting of metals sector employed an estimated 270.0 thousand persons in the Member States in 2006, about one in every twenty (5.3 %) of the EU-27's metals and metal products manufacturing workforce which was a slightly higher share than that recorded for basic precious and non-ferrous metals (NACE Group 27.4).

The casting of iron (NACE Class 27.51) and the casting of light metals (NACE Class 27.53) were the two largest activities within the casting of metal, together providing about three quarters (73.3 %) of the EU-27's value added in 2006.



**Table 3: World non-ferrous metal casting**

Countries	Non-ferrous metal casting			
	Number of foundries (Production units)	Employment in the foundry industry	Total Production (in 1000 t)	Production value (in Mio. €)
Austria	39	3920	149,1	911,5
Belgium	7	276 <sup>2</sup>	1,2	-
Czech Rep.	40	5500	87,5	-
Denmark	11	357	4,7	-
Finland	16	464	7,8	68,9
France	311	13079	371,8	2693
Germany	344	32146 <sup>3</sup>	974,8	5444
Hungary	92	3520	105,2	210
Italy	914	15000	978,3	-
Norway	9	432	7,0	67
Poland	245 <sup>1</sup>	-	279,2 <sup>1</sup>	-
Portugal	39	-	24,4	305,6
Slovenia	52	1800	34,9	-
Spain	53	4602	132,4	778,4
Sweden	78	2750	57,2	-
Switzerland	41 <sup>1</sup>	-	24,4	-
Turkey	395	7500	170,5	298,8
United Kingdom	210	9500	135,1	-
<b>Total</b>	<b>2896</b>	<b>68710</b>	<b>3266,3</b>	<b>10777,2</b>

<sup>1</sup> Estimated      <sup>2</sup> only workmen      <sup>3</sup> foundries > 50 empl.

Source: Fonts: The European Foundry Association  
<http://www.caef.org/downloads/kategorie.asp?kat=9>

The European foundry industry ranks third in the world in the casting of ferrous and the second in non-ferrous metals, being the three largest producers Germany, France and Italy with a total annual production of over two million tons with a market share of 36.8%, 16.2%, 10.6% respectively. In recent years Spain has overtaken Britain in the fourth position, both with an annual production of one million tons. Together, these 5 countries accounts for more than 80% of the total European production.

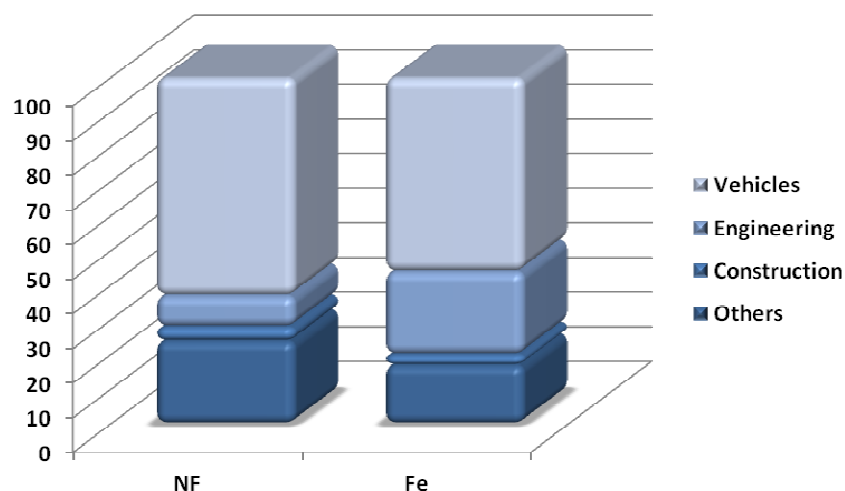
However, in a context where performance, mechanical resistance, and complex geometry are increasingly required in a sort of products, the investment on RTD efforts on innovative processes may represent a critical competition factor.

The HPDC Industry will get important benefits from the SOUNDCAST project in terms of:

- Technological excellence: Thanks to the highly innovative SOUNDCAST procedures for the fabrication of high quality parts by VPDC process, the HPDC industry will be able to open new markets (upper range vehicle manufacturers)
- Low cost: The cost of the VPDC parts will be reduced as not expensive high vacuum die casting processes and primary alloys will be used. This will be an

important added value to the industry as they will be able to produce high mechanical property parts at low cost.

In the next graph the customer structure (in %) for castings in Europe is shown, is divided into NF (non-ferrous) and Fe (Ferrous) castings (Source: CAEF-The European Foundry Industry Association):



**Figure 6:** European customer structure

The automotive industry, with a total of 63 % of the NF castings and 56% of the Fe castings, is by far the most important customer of the European Foundry industry.

### 3.3 Expected impact of the technology on the market

To evaluate the impact of our technology in the European market, we must reckon the penetration rate of SOUNDCAST. As a result, we gauge the impact by utilizing the Bass Diffusion model.

This method will help us analyze the number of foundries which will integrate our revolutionary technology or similar as a result of the success of SOUNDCAST. We assume that in case of success other manufacturers will copy it as it used to happen in other markets. The latter allow us to assess the level of adoption of SOUNDCAST or similar one according to the number of foundries that use it.

$$\text{Formulation: } n_t = n_{t-1} + (p \cdot (m - n_{t-1})) + (q \cdot (n_{t-1}/m) \cdot (m - n_{t-1}))$$

**Table 4:** Bass diffusion model

BASS DIFFUSION MODEL	
Number of adopters today (n)=	1
Potential market (m)=	2,896
Innovation rate (p)=	0.004
Imitation rate (q)=	0.46

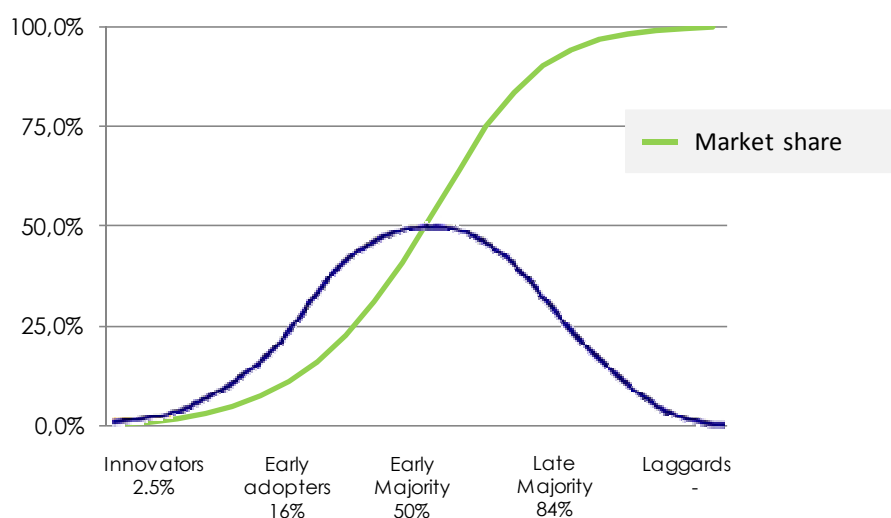
The introduction of SOUNDCAST during the initial stages will be slow and no direct competitors are expected yet. The main objective of the business plan is to consolidate the technology among the scientific community and opinion makers. Their support will be essential to take the plunge for most innovators (the first individuals to adopt an innovation).

**Table 5: Business plan**

Year	New adopters	Imitators	Total	Market share
2016	12	0	13	0,5%
2017	12	6	31	1,1%
2018	11	14	56	1,9%
2019	11	25	92	3,2%
2020	11	41	145	5,0%

The business plan envisages a five-year strategy reaching at 2020 a market share of 5%. Then the use of SOUNDCAST technology in Europe foundries may become a real alternative and new similar technologies may come up. It is expected to reach the Early Adopters stage in year four (2019).

### Innovation adoption curve of Rogers



**Figure 7: Innovation adoption curve of Rogers**

## 3.4 Business model

The exploitation plan will seek to attain results that can bring real change at the European foundry industry, especially SMEs, dedicated in the non-ferrous alloy field. All beneficiaries agree that due to the good fit of VDS's technical capabilities and expertise; it is the most adequate partner to manufacture the development of the new SOUNDCAST package as well as its commercialization.

To achieve broad adoption, the right mechanism would be through a commercialization plan to persuade foundry SMEs, publishers or other commercial concerns to take up the new technology. It is important to keep the results visible and available, especially through websites, thus target audience can access the information, and adapt them to their own needs.

VDS SA (Vacuum Die-casting Service) is located near Montreux on the Lake of Geneva, Switzerland. For more than 25 years the firm has manufactured and marketed a complete range of high-speed vacuum shut-off valves and associated control systems with very high performance and excellent reliability, as well as high quality chill vents for lower-cost no-maintenance operation. The ProVac® vacuum system is designed on a modular basis and it is used throughout the world.

VDS aims to produce hi-tech vacuum systems with ever improving performance, and towards that end makes extensive use in development of numerical simulation backed up by testing and measurement. Furthermore, it not only profits from its own many years of experience in the practice of vacuum pressure die-casting, but also takes account of the feedback from its customers and other commercial users of this technology.

VDS has the products to satisfy every need in vacuum technology and offers a full range of technical support. Moreover VDS is the holder and inventor of unique advanced technologies such as the VAMP and international patented inventions such as Actuated high-speed vacuum shut-off valves, One-sided ProVac® Ultra EASY and Ultra SONIC vacuum valve with unequalled aspiration capacity, Typhoon valve and new system of quick-change bushes in order to reduce the costs of overhauling the valves.

VDS distributes its equipments through its sales department. However, it was representatives in Europe, Asia and North America from which it commercialise its products. The following describes the geographical coverage:

- Europe: Deutschland, Spain, Portugal, Italy, Norway, Denmark, Finland, Sweden, Hungary, Taiwan, Croatia, Bosnia, Serbia, Slovenia, Turkey, Russia
- Asia: China, India, Japan
- North America: USA, Canada

**Price:** The estimated cost for the SOUNDCAST technology is EUR 9,000. We reckon that the production cost is EUR 6,300 per equipment

**Distribution:** Our prediction is to launch the SOUNDCAST equipment on the foundry industry by 2016. At an initial stage, sales force will focus on the European foundry market. The point is to reach a minimum rate of introduction. VDS will put its efforts in reaching economies of scale in its production plant located in Switzerland to sell across Europe. In a second stage, once technology is consolidated, it is expected to commercialise the technology worldwide.

**Promotion:** Our promotion scheme is to be developed in accordance with our target group that includes potential clients and stakeholders. Thus it has been previously drawn up a roadmap to ensure that our message will reach them accurately. Logically, any action or distribution of promotional material must be focus on the accomplishment of the strategic goals as it is outlined below:

- Scientific press: any innovative result has to be published in specialised magazines and reviews.

- Distribution of catalogues and brochures to potential clients.
- Demo workshops: this activity will be presented in three different formats according to the characteristics of the assistants (press, clients and scientific groups) who will be invited.
- Trade fairs: Attending international exhibitions such as (METEF International aluminium exhibition, Aluminium (Germany) and Euroguss International Trade Fair for Die Casting) may boost sales.

**Table 6: Financial plan - VDS**

FINANCIAL PLAN - VDS FORECAST: INCOME STATEMENT AND ANALYSIS OF RETURN					
in EUR	2016	2017	2018	2019	2020
<b>Income</b>					
<b>Sales</b>	<b>117.000</b>	<b>272.700</b>	<b>519.120</b>	<b>852.840</b>	<b>1.344.150</b>
Machine	117.000	270.000	504.000	828.000	1.305.000
Services	-	2.700	15.120	24.840	39.150
<b>Cost of goods sold</b>	<b>81.900</b>	<b>189.000</b>	<b>352.800</b>	<b>579.600</b>	<b>913.500</b>
<b>Gross profit</b>	<b>35.100</b>	<b>83.700</b>	<b>166.320</b>	<b>273.240</b>	<b>430.650</b>
Selling expenses	23.400	23.400	23.400	23.400	23.400
Administrative expenses	8.000	8.000	8.000	8.000	8.000
Other operating results	21.060	21.060	21.060	21.060	21.060
<b>Total Operating Expenses</b>	<b>52.460</b>	<b>52.460</b>	<b>52.460</b>	<b>52.460</b>	<b>52.460</b>
<b>Operating Income</b>	<b>- 17.360</b>	<b>31.240</b>	<b>113.860</b>	<b>220.780</b>	<b>378.190</b>
Interest Revenues	-	-	-	-	-
Interest Expense	3.000	3.000	3.000	3.000	3.000
<b>Total Non-Operating Expenses</b>	<b>3.000</b>	<b>3.000</b>	<b>3.000</b>	<b>3.000</b>	<b>3.000</b>
<b>Profit/loss before tax</b>	<b>- 20.360</b>	<b>28.240</b>	<b>110.860</b>	<b>217.780</b>	<b>375.190</b>
<b>Return rates</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>
Return On Investment (R.O.I.)	- 0,06	0,02	0,36	1,01	2,13
Return On Sales (R.O.S.)	- 0,17	- 0,07	0,14	0,40	0,68
<b>Packback</b>	Year 4				
<b>Investment</b>	334.447				

## **ALIASA**

ALIASA GROUP comprises several companies: ALIASA, INALCAST and INTEC. From its beginning, ALIASA GROUP has devoted its activity to aluminium pressure die-casting. Its current surface area covers more than 66,000 m<sup>2</sup>, and its facilities totaling 8,000 m<sup>2</sup>, with a staff of 120.

**Table 7: Financial plan - Aliasa**

ALIASA	2016	2017	2018	2019	2020
Revenues	85.000 €	185.000 €	380.000 €	511.667 €	659.167 €

## **DIACE**

DIACE is one of the leading players of the aluminum foundry industry for nearly 30 years. It has now about 80 employees with a turnover of €8 million. DIACE is present through its many clients in all sectors. Many prestigious partners and suppliers have contributed to their business growth.

**Table 8: Financial plan - Diace**

DIACE	2016	2017	2018	2019	2020
Revenues	55.000 €	115.000 €	235.000 €	315.000 €	405.000 €

## **4. Training**

The aim of this task is to put together training materials and workshops on the topic of SOUNDCAST technology:

The workshops will be an opportunity for organizations from the European foundry industry, in particular for the casting of non-ferrous, to increase their knowledge base and measure the potentiality of our technology.

The training materials will ensure that the results of the project will be wide-spread and then transferred to as many organizations as possible.

### ***Workshops:***

VDS will lead this section of the project and organize at least, one commercial and one technical with support of RTD partners. The workshops will be held from Month 20 onwards and will be an interactive session for companies to learn how to consider their operations and processes in the context of SOUNDCAST technology usage.

The workshops are likely to be held in different countries and VDS will work with the beneficiaries to decide on the best venues, countries and dates for them to be held.

Delegates will also be encouraged to participate in the demo tasks try the technology for themselves. Delegates will be provided with materials to take back to their organizations to encourage them to pass on their knowledge to work colleagues. Satisfaction surveys will be distributed to all the participants to assess the success of the workshops and the relevance to the industry.

Feedback from the first workshop will be used to adopt the content (if necessary) for the subsequent workshop.

### ***Training material***

VDS will lead the beneficiaries in the development of training materials to help with the technology transfer and full exploitation of the results.

Focused training packages for workshops, seminars and training courses will be tested at the workshops mentioned above. Materials, available in English and beneficiaries' national languages, will be continue to be used at training events organized by the beneficiaries when the project has ended.

