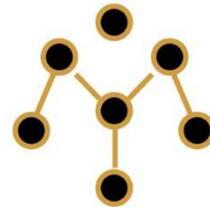


Deliverable D9.1

Project website



MASTRO

Intelligent bulk **MA**terials for
Smart **TR**ansp**OR**t industries

Lead Beneficiary	Axia Innovation UG
Delivery Date	28 February 2018
Dissemination Level	PU
Version	1.0



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Deliverable No.	9.1
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Due date of deliverable	M2

Document history			
Version	Date	Beneficiary	Author
v01	27/02/2018	AXIA	Alex Zoikis-Karathanasis, Andreas Gondikas

¹ PU = PUBLIC

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)

Summary

This deliverable report outlines actions that took place as part of Task 9.2 “Dissemination and communication activities” of the MASTRO grant agreement. Possibly the most far-reaching (in terms of geography and group diversity) dissemination tool is a webpage. Thus, a web-portal has been developed, which serves a dual purpose. On the one hand, project results are made public in a timely manner and communicated to a wide audience and on the other hand, project partners can acquire and share confidential information related to the project.

The publicly accessible areas of the webpage include basic information about the MASTRO project, such as the scope, objectives, work plan towards reaching those objectives, and their expected impacts. In addition, the consortium team is presented, along with the advisory board and the project committees (general assembly, scientific & technical committee, and the innovation & exploitation committee). Furthermore, viewers have the option to read about news and events related to the project, receive the newsletter, contact the project administrator, and express interest to participate in the advisory board. The news section currently includes a short description of the project kick off meeting and more items will be added as project related events take place. The restricted area of the website (intranet) is accessible only by entering a valid username and password. Project partners will be asked to create a profile on the webpage, which will need to be approved by the webpage administrator before the user gains access to the secure area.

Through dissemination activities, technological advancements are communicated to potential investors, customers, and end-users. The dissemination activities are therefore critical for achieving the desired project impact and their success depends on the extent as well as the form of the material that is circulated. Partners participating in dissemination activities are able to enter details of these activities in a matrix that is available online.

Table of Contents

Summary	3
Table of Contents	4
1. Introduction	6
2. Project website	7
2.1 Homepage	7
2.2 What we do	11
2.3 How we do it.....	12
2.4 Our team.....	14
2.5 News – events.....	16
2.6 Dissemination plan matrix	17
2.7 Cookies policy	17
2.8 Intranet (restricted area)	18
3. Social media platforms.....	19
3.1 LinkedIn profile.....	19
3.2 Facebook profile	19
3.3 Twitter account.....	20
4. Future work.....	21
5. Conclusions	21
Annex I Website Documents.....	22

List of Tables

Table 1. This table shows the information that may be entered by partners, according to their dissemination activities.	6
Table 2. This table shows the information that may be entered by partners, according to their dissemination activities.	17

List of Figures

Figure 1. Mastro website main menu.....	8
Figure 2. Mastro website: application to join the advisory board.....	8
Figure 3. Mastro website: relevant industrial sectors and scientific rationale	9
Figure 4. Mastro website: project progress.....	9
Figure 5. Mastro website: contact form.....	10
Figure 6. Mastro website: rolling logos and subscription to newsletter	10
Figure 7. Mastro website: bottom legend	11
Figure 8. Mastro website: project objectives in the “what we do” section.....	11
Figure 9. Mastro website: project impact in the “what we do” section.....	12
Figure 10. Mastro website: impact.....	13
Figure 11. Mastro website: impact.....	13
Figure 12. Mastro website: project committees.....	14
Figure 13. Mastro website: project partners	15
Figure 14. Mastro website: advisory board	15
Figure 15. Mastro website: news and events.....	16
Figure 16. Mastro website: intranet toolbar.....	18
Figure 17. The Mastro LinkedIn profile	19
Figure 18. The Mastro Facebook profile	20
Figure 19. The Mastro Twitter account	20

Abbreviations and acronyms

PC	Project coordinator
STC	Scientific and technical committee
IEC	Innovation and exploitation committee
AB	Advisory board

1. Introduction

Dissemination activities transfer knowledge and results to selected audiences (Table 1), maximizing the impact of this research. Current project dissemination activities involve launching of the project website, creating an online dissemination plan matrix, and developing project profiles in social media. The website structure consists of five main items, namely the **homepage**, **what we do**, **how we do it**, **our team**, and **news-event sections**. The homepage provides basic information about the project and offers the ability for visitors to contact the project coordinator and express interest to join the project advisory board. The “what we do” section displays a description of the project objectives and expected impacts. The “how we do it” section outlines the work plan and the planned demonstrators. The “our team” section shows the project committees, partners, and advisory board. News and events related to the project are compiled in the last section “news-events” and the most recent are displayed at the bottom section of the homepage. This section is supported by the dissemination plan matrix that can be accessed online by all partners. Here, details of publications and other dissemination activities (e.g. conferences, workshops, etc.) are entered by the respective partners. Information from these tables will be used to create popular news bulletins and published on the website. The website hosts the intranet platform, where project partners can securely share data and information.

In addition to the webpage, information about the project and related activities are made public through social media. Project platforms in LinkedIn, Facebook, and Twitter have been developed. Social media facilitate access to information for large audiences from diverse backgrounds. Evaluation of the webpage and social media performance will be made using performance metrics such as number of visitors, followers, and public interaction.

Table 1. This table shows the information that may be entered by partners, according to their dissemination activities.

Category	Target groups
Transport industry	Manufacturers in the aerospace, automotive, mechanical parts, and computerized control systems industries
General public	Individuals, pilots, flight crew, professional drivers, car owners, public transport passengers, security personnel
Regulatory authorities	Ministries of transportation and public works, automotive and aerospace organizations, standards associations, regulatory authorities, NGOs, non-profit organizations, public initiatives
Research & education communities	Materials, infrastructure, engineering, and ICT universities and research centers, participants in related EU projects, research societies interested in infrastructure quality, prevention of fatalities, or computer based modelling and simulation tool technologies

2. Project website

The website is the project's showcase and aims to increase public awareness of the project by providing visual and easy to comprehend information about the MASTRO technologies. The website has been developed using *WordPress* software and template. Its structure comprises of the following sections:

- (i) The homepage, where basic information about the website is presented in a popular science style. Practical information, such as project number, contact information, and funding acknowledgement are also shown here.
- (ii) The "what we do" section, where details about the projects objectives and expected impacts are listed.
- (iii) The "how we do it" section, where a public description of the work plan and demonstrators are presented.
- (iv) The "our team" section, where project committees, partners, and advisory board are listed.
- (v) The "news-events" section, where news of dissemination activities and planned events with MASTRO participation are presented
- (vi) An intranet platform offers the means for project partners to securely exchange data and share information.

Evaluation of the webpage accessibility and efficiency to disseminate information will be made on the basis of performance metrics, such as number of visits, contacts to the webpage administrator, and so on. A detailed description of each section is given in the following chapter.

2.1 Homepage

This is the first information that a new visitor acquires and thus plays an important role in their overall impression of the project. A simple menu format has been selected, with exciting images, and short documents in popular science format. The first items on the homepage are the menu and an alternating text linked with a picture (Figure 1). The project logo is placed on the top left corner, so that viewers quickly associate the project with it.

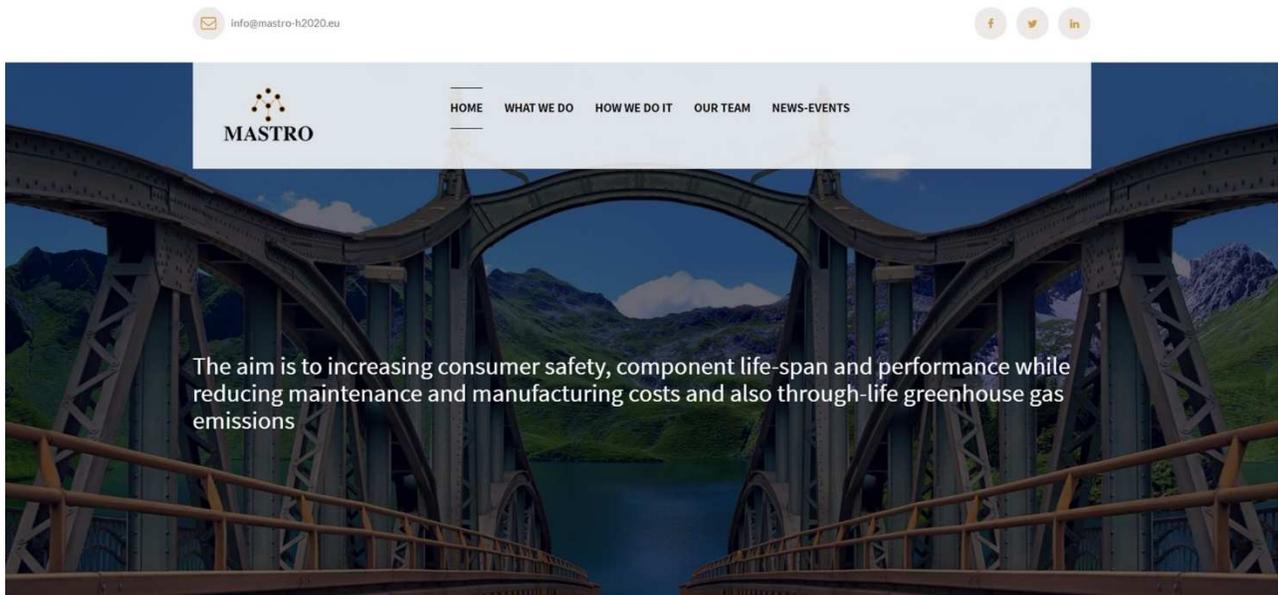


Figure 1. Mastro website main menu

Next, the website visitor is presented with the opportunity to participate in the advisory board (Fig. 2). The button “MASTRO ADVISORY BOARD” opens an e-mail composer to the webpage administrator, through which interested individuals may request to join the board. This option is presented early on in the webpage, so that visitors have in mind this possibility while they browse through the description of the project.

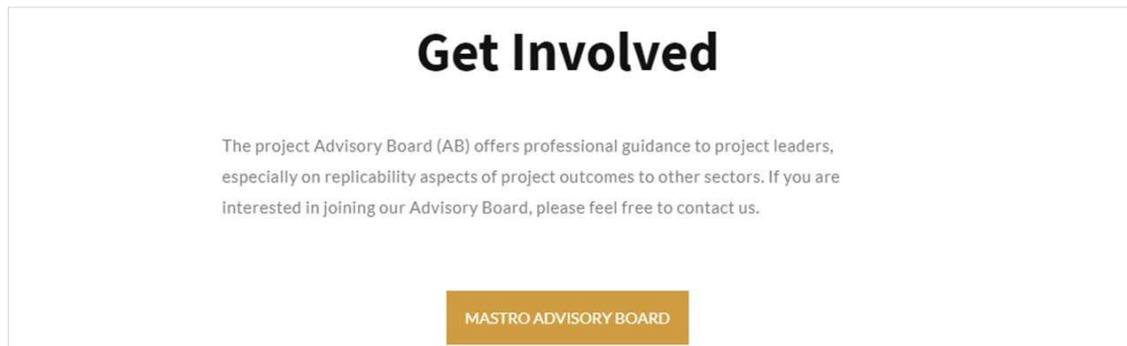


Figure 2. Mastro website: application to join the advisory board

A few sections with the general scope and theoretical background of the MASTRO project follow (Fig. 3). The three main sectors of applications are described, followed by a popular description of the key scientific principles of operation that underline the MASTRO technologies.

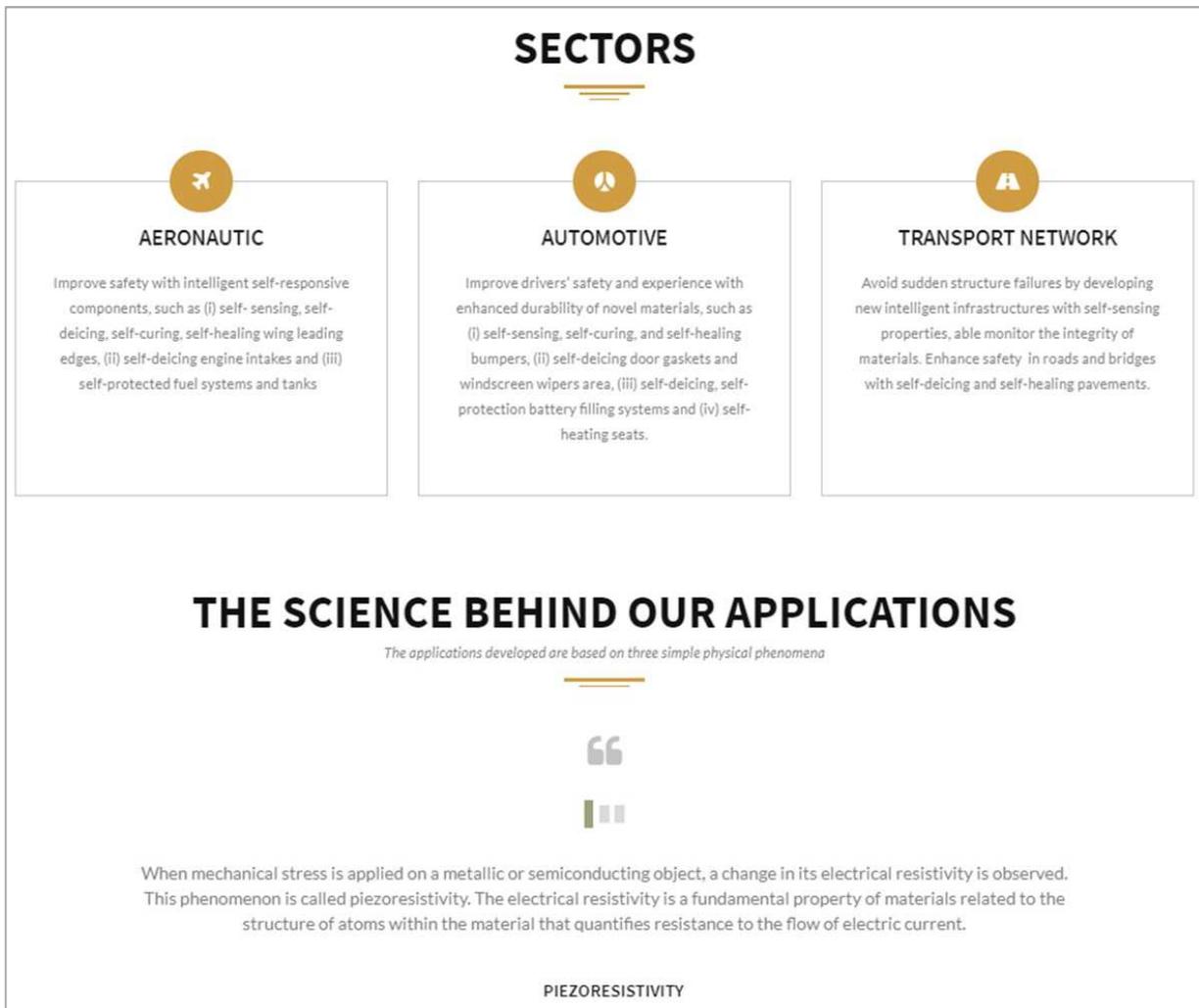


Figure 3. Mastro website: relevant industrial sectors and scientific rationale



Figure 4. Mastro website: project progress

A set of indicators of project progress are shown (Fig. 4) and the visitor is then given the possibility to address questions or remarks to the project members, through a contact form (Fig. 5). Once the required fields are completed, the information is sent to the webpage administrator.

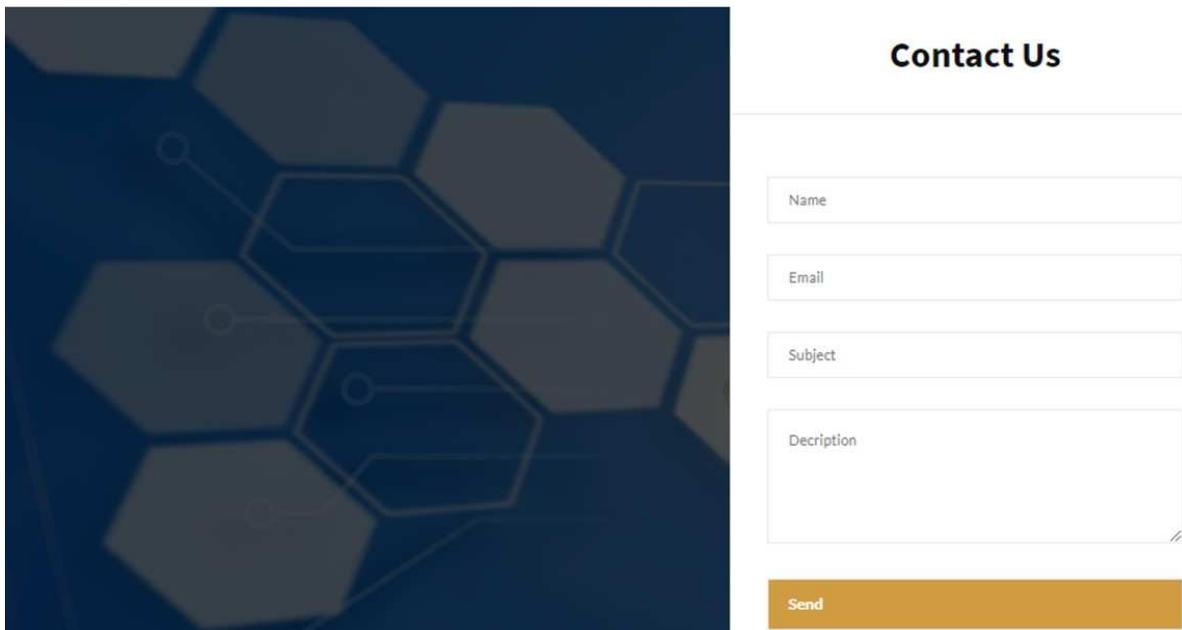


Figure 5. Mastro website: contact form

At the end of the homepage, the logos of all partners are displayed in a rotating fashion and subscription to the MASTRO newsletter is possible (Fig. 6).



Figure 6. Mastro website: rolling logos and subscription to newsletter

The bottom banner of the webpage includes information about the project (Fig. 7). A short description of the project's scope is followed by contact information of the project coordinator and links to social media (Facebook, Twitter, and LinkedIn). Funding from the European Union is acknowledged and details of the funding scheme and grant agreement are displayed. Space is reserved for displaying recent news, which will be updated as soon as there are more than three items to disseminate (technical limit set by the webpage template designer).



Figure 7. Mastro website: bottom legend

2.2 What we do

The next item on the webpage main menu is the “what we do” section, which lists the project objectives and expected impacts.

2.2.1 Objectives

The projects objectives are displayed here in a short text that outlines the major expected achievements of the MASTRO project (Fig. 8).



The MASTRO project overall objective is to develop intelligent bulk materials for smart applications in the transport sector incorporating several self-responsiveness properties. The aim is to increase consumer safety, component life-span, and performance, while reducing maintenance and manufacturing costs and through-life greenhouse gas emissions. Self-responsiveness functionalities will be achieved by incorporating electrical conductive nanomaterials like multi walled carbon nanotubes (MWCNTs) and graphite-based nanomaterials into smart lightweight polymer composites together with asphalt and concrete formulations. These self-responsive functionalities are based on three physical phenomena: piezoresistivity (variation of the electrical resistivity of a material when mechanical strain is applied), Joule's first law effect (the relationship between heat generated in a conductor and electrical current flow, resistance, and time), and electrostatic dissipation (to protect a material from electrostatic discharge).

The functionality of the intelligent bulk materials will be incorporated in various critical transport sector components, such as aircraft wing leading edges, car bumpers, and pavements. These components will be demonstrated under relevant conditions at prototype level for the aerospace, automotive, and transport infrastructure sectors. These developments will be supported by theoretical predictive modelling, material modelling, and an ICT platform for smart monitoring and control. The outputs of the project will consist of numerous applications in the mentioned sectors. Thus, nanotechnologies and advanced materials will be the basis for next generation of high added value products, boosting EU market opportunities.

Figure 8. Mastro website: project objectives in the “what we do” section

2.2.2 Impact

A list of expected impacts is shown, where visitors can click on one of the titles and read details about how MASTRO technologies will provide solutions or advancements to current practices in the targeted transport sectors.

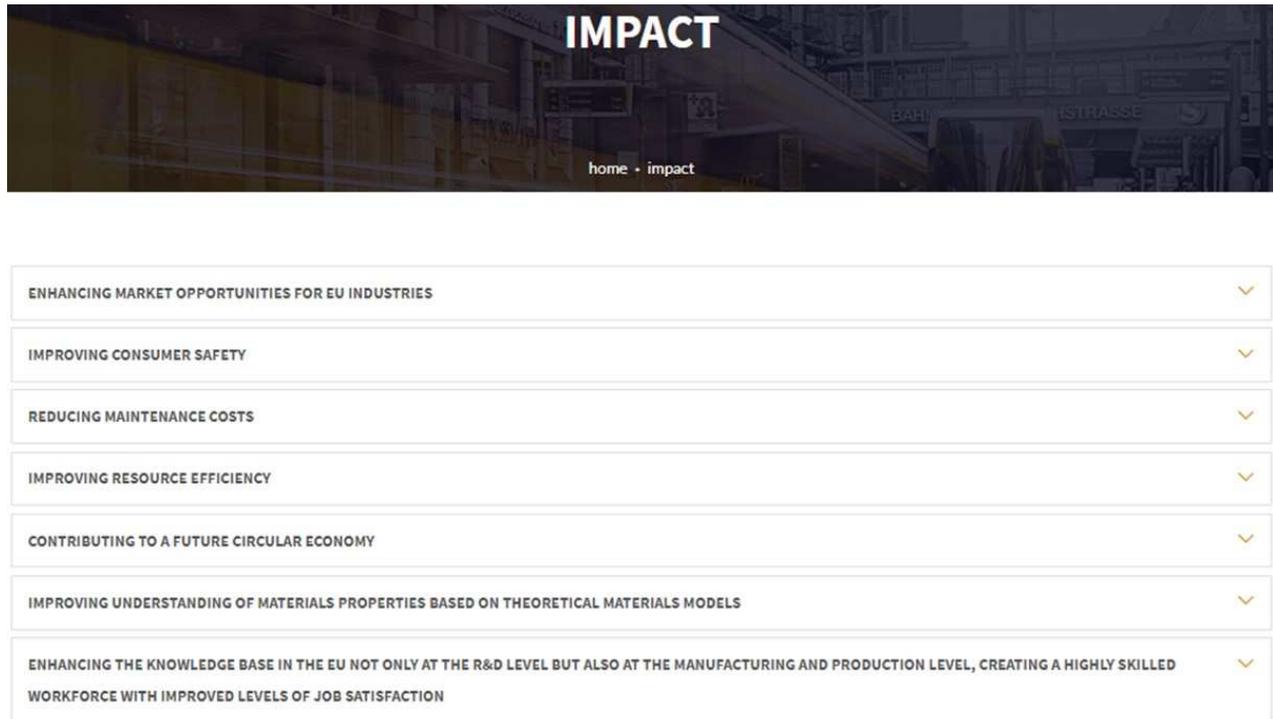


Figure 9. Mastro website: project impact in the “what we do” section

2.3 How we do it

Section “how we do it” describes the planned work for reaching the objectives of the project and achieving the expected impacts.

2.3.1 Work plan

A short list of the projects work packages is presented here (Fig. 10). At this stage, the information provided is limited, in order to avoid disclosing proprietary information. More information will become public as the project progresses.

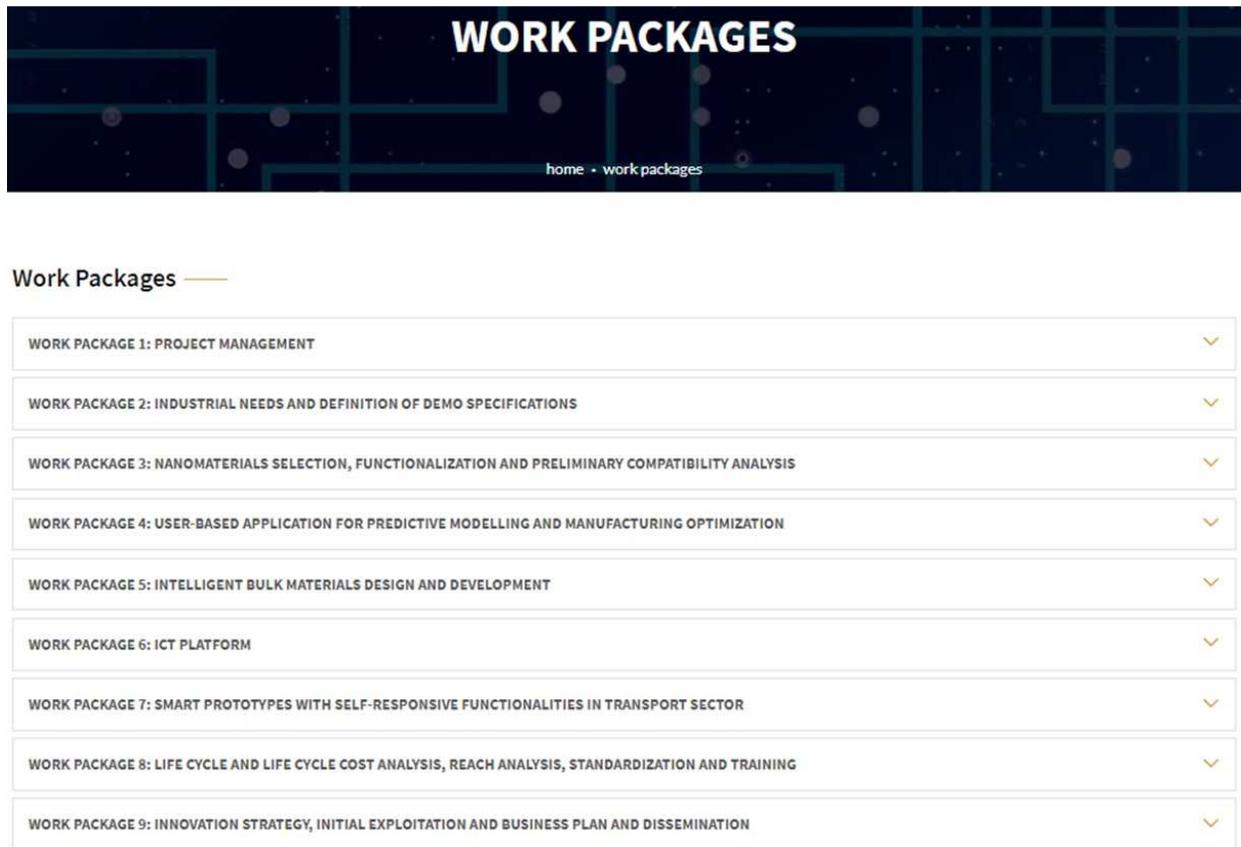


Figure 10. Mastro website: impact

2.3.2 Demonstrators

Demonstrators that will be used to validate MASTRO technologies in industrial settings are outlined in this section. As with the work package list, the information provided here is limited and will be enriched as technology details become public.

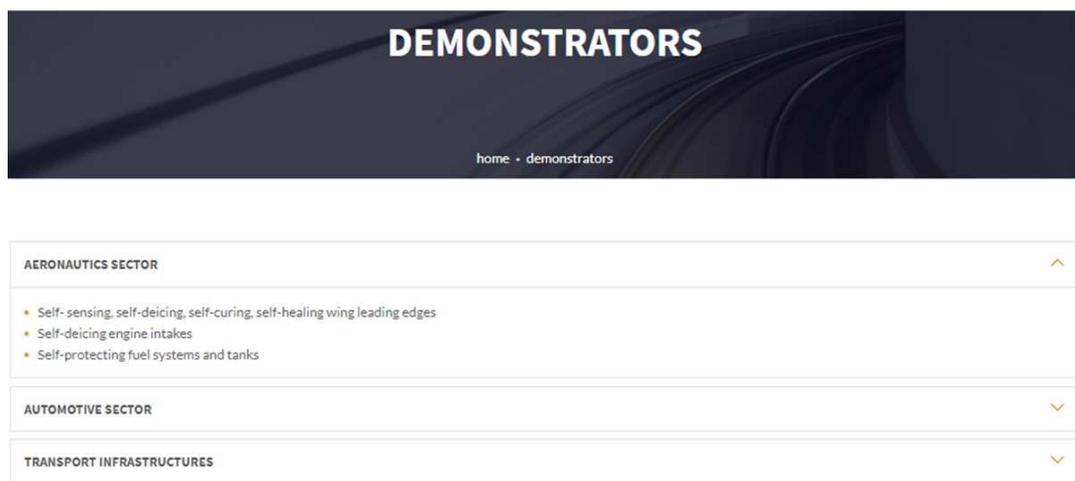


Figure 11. Mastro website: impact

2.4 Our team

This section is dedicated to presenting the composition of the MASTRO team and associated groups.

2.4.1 Project committees

A description of the composition and duties of the project committees (general assembly, scientific & technical committee, and the innovation & exploitation committee) are presented first (Fig. 12).

PROJECT COMMITTEES

home - project committees

GENERAL ASSEMBLY



The GA is the highest level management body of MASTRO and is responsible for ultimate decision making and approval of any management structure or project direction suggestion. It is led by Dr. Silvia Hernández (ACCIONA) and all partners of the project consortium will be represented. The GA assumes responsibility for liaison among the parties, analyzing, administrating and implementing the results and provisions according to the project consortium agreement.

SCIENTIFIC & TECHNICAL COMMITTEE



STC is led by Mr. Ignacio Martín Gullón from APPLYNANO (leader of WP3), who has extensive expertise coordinating and managing research activities. The STC will monitor the technical progress of the project, the quality and technical contents of deliverables, and the project reports. Moreover, the STC will analyze incidents on the work progress and any relevant changes in the work plan considering technical risks and proposed mitigation measures.

INNOVATION & EXPLOITATION COMMITTEE



IEC is led by Dr. Alex Zoikis-Karathanasis (AXIA) as the MASTRO's partner expert on exploitation and dissemination activities in the project. Dr. Zoikis-Karathanasis has a deep business understanding, along with a strong technical background in the field of nanomaterials for ensuring that creative ideas are anchored to the appropriate market, regulatory, and performance requirements. He has experience in the exploitation of research results and innovation management and under his guidance 3 start-up & spin off companies have been founded in the field of nano-materials. In MASTRO project he will have close cooperation with Giuseppina Barra from UNISA (training activities leader, Task 8.5) and ACCIONA (coordinator of the project). The IEC will monitor the data management plan that will be developed in WP9 and which will ensure relevant project's information transferability and will take into account the restrictions established by the consortium agreement. In this sense, the plan will set the basis both the exploitation and the dissemination plan (WP9).

Figure 12. Mastro website: project committees

2.4.2 Partners

Logos of the project partners are grouped at the top of this section and a short description of each partner along with their website link is displayed below (Fig. 13). Webpage visitors may click on the logo of a partner and will be directed to the corresponding description below.

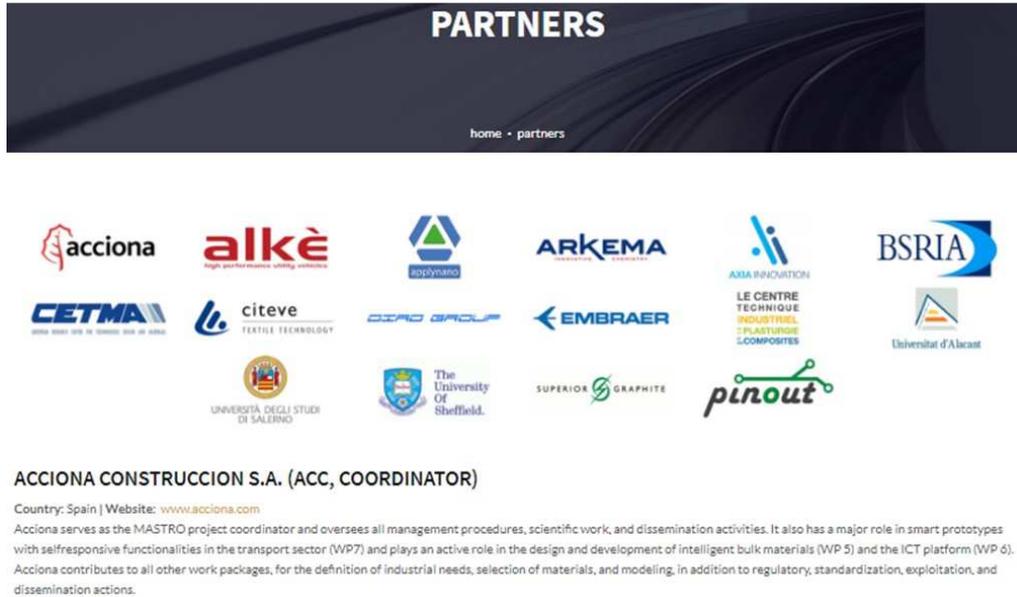


Figure 13. Mastro website: project partners

2.4.3 Advisory board

Last in the team presentation is the advisory board. A short description of the board’s role is followed by short CVs of its members (Fig. 14). The advisory board members will be enriched with additional professionals that may express interest through the webpage.

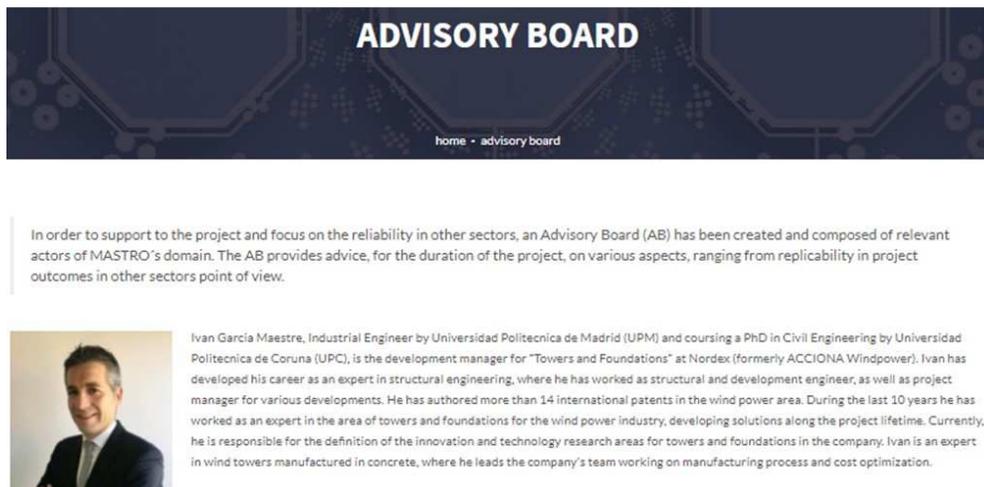


Figure 14. Mastro website: advisory board

2.5 News – events

Dissemination activities, such as publications in peer-reviewed scientific journals, presentations in conferences, workshops, etc. will be presented in the “news-events” section. A public description of the venue, type of dissemination, and context will be compiled and made public. The section will also include project events, such as project meetings, organization of workshops, training activities, etc. Details about upcoming events and summaries of past events will be made public in this section. Currently, the project kick-off meeting is displayed in the section and more events and news will be uploaded as they take place (Fig. 15).

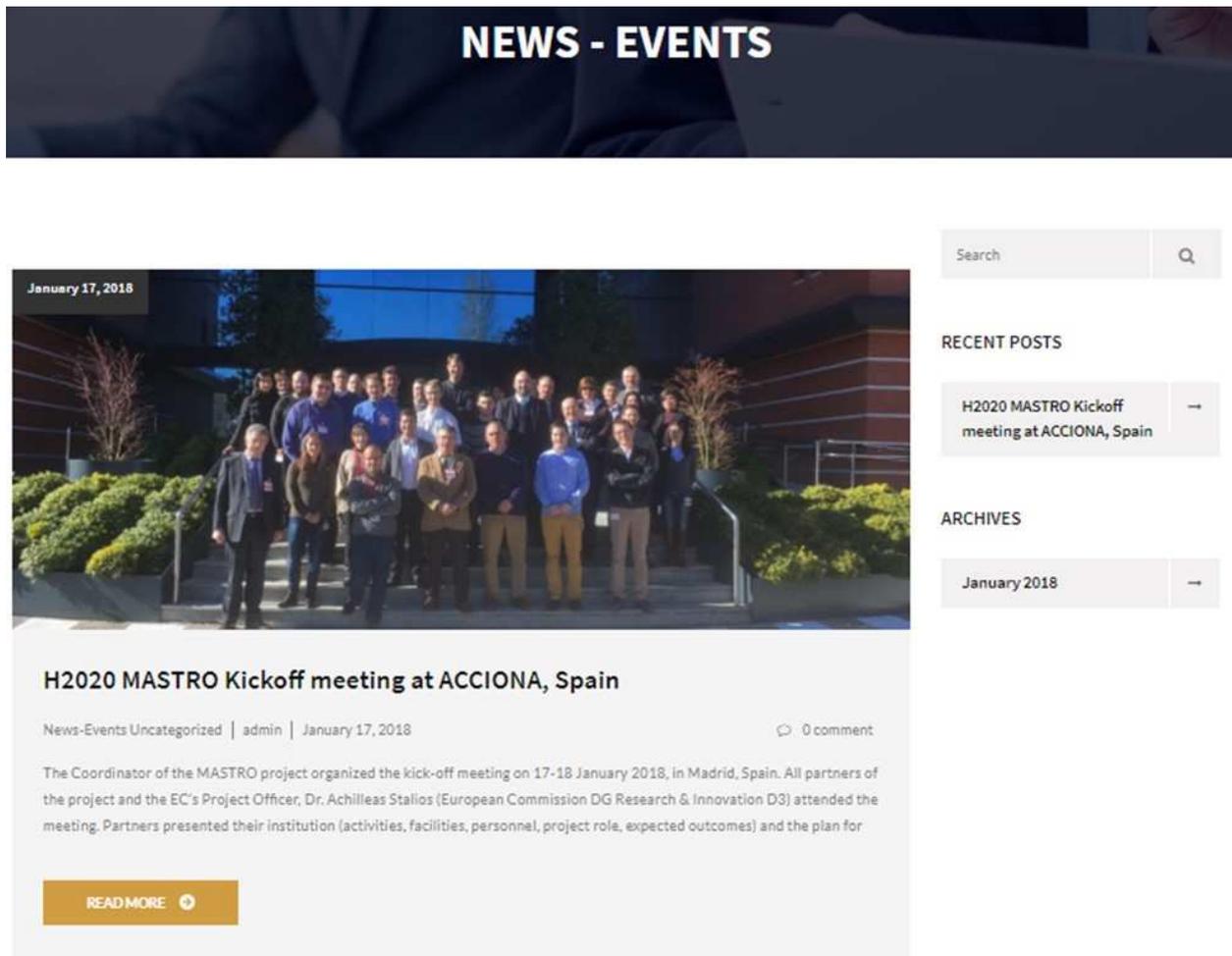


Figure 15. Mastro website: news and events

2.6 Dissemination plan matrix

Partners will participate in dissemination activities, such as publications in peer-reviewed scientific journals, participations in scientific conferences, workshops, press releases, distribution of flyers, production of public videos, participations in exhibitions, interviews, thesis compilation, etc. These activities will be gathered in a matrix that was created and distributed by AXIA to all technical personnel of the partners under the following link:

https://docs.google.com/spreadsheets/d/1tCntWkfn10GOuMOI4KA6OnqcZB-S4zyHq_L-6AP4tQU/edit#gid=1381981534

The matrix is accessible online from everyone that has received the link and will be completed as technological achievements are made and disseminated. A list of information that can be entered by partners to describe their dissemination activities is shown in Table 1.

Table 2. This table shows the information that may be entered by partners, according to their dissemination activities.

Publications	Dissemination activities
Status	Status
Partner	Partner
Title	Type of activities
Main author	Leading author
Title of the periodical or the series	Title
Number, date or frequency	Date/Period
Publisher	Place
Place of publication	Website
Year of publication	Type of audience
Relevant pages	Size of audience
Permanent identifiers	Countries addressed
Is/Will open access be provided to this publication?	

2.7 Cookies policy

Cookies have several applications, such as tracking users as they navigate the website, automatic logins for project partners, and website security. The website cookies policy was also implemented for the MASTRO website.

2.8 Intranet (restricted area)

Intranet is an area accessible only by authorized users and designed specifically to facilitate communication within the consortium. The MASTRO intranet was designed and set up using the *File Manager Plugin For Wordpress*. It is dedicated to data sharing and project management, including reporting and information which is not available to the general public. Project partners can enter the restricted area with a login password after completing the registration process, which requires information such as user name, e-mail, and name of organization. EU officers and the AB may also be given access. For the time being, only the consortium has access to the intranet. However, it is possible to grant access to associated partners after submitting an application to the website administrator.

Project partners will be able to use the intranet for sharing project related information. An option to login or create a new account will be available on the website for that purpose. Partners will submit an application to create an account, which will be granted by the webpage administrator. After this process, partners will be able to login and access the restricted are of the webpage, where they will be able to upload documents not exceeding a certain size limit. Folders in the intranet are organized with a Windows Style graphical user interface, with the most common actions available on the toolbar (Fig. 16). Searching for a specific file name is convenient, by using the search bar. Each **work package has a dedicated folder** where participants can share information and documents related to their tasks including drafts of the deliverables, scientific articles, reports, etc. Access to each work package folder is given to partners that are involved in the relevant work plan. Project partners also have access to the **General Section** where minutes of meetings, contact details of project partners, dissemination material, templates, etc. are available. Finally, all the project members have access to the **Administrative Section** with legal documentation such as the Grant Agreement and its annexes and templates for project reporting or presentations.

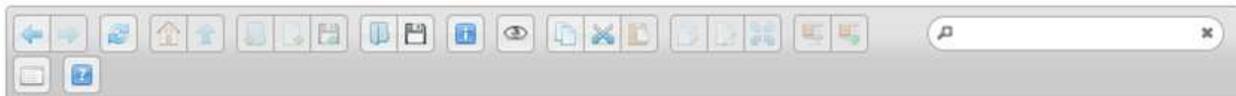


Figure 16. Mastro website: intranet toolbar

3. Social media platforms

In addition to the webpage, three social media platforms have been developed for the MASTRO project, in Facebook, Twitter, and LinkedIn. These media have been selected to maximize dissemination of the project results to a wide public audience, such as professionals whose work is related to the transport sector as well as people that may be interested in obtaining information about current technological and scientific projects. These social media are expected to achieve this goal.

Project partners are encouraged to visit these links and disseminate them to their professional and private networks. Access to the social media is also supported on the project webpage. Evaluation of the accessibility and efficiency of these social media platforms to disseminate information and engage the public will be made on the basis of performance metrics, such as number of visits, followers, comments, etc.

3.1 LinkedIn profile

Link: <https://www.linkedin.com/company/mastroproject/>

LinkedIn is promoted as a professional network platform. The MASTRO LinkedIn profile has been created to disseminate the project results to professionals through creating a network of connections from the aerospace, automotive, materials, and infrastructure sectors, academia, the media, the general public, as well as investors and relevant stakeholders.



Figure 17. The Mastro LinkedIn profile

3.2 Facebook profile

Link: <https://www.facebook.com/mastroproject/>

Facebook is the most popular social network and has been developed on creating personal networks. The MASTRO profile on Facebook targets the wider public that is interested in technological advancements, research, transportation safety, manufacturing of smart materials, and so on.



Figure 18. The Mastro Facebook profile

3.3 Twitter account

Link: <https://twitter.com/mastroproject>

Twitter is an online news and social networking service, where short news are made public to a wide range of subscribers and from a variety of backgrounds. Followers of the MASTRO Twitter account will be able read posts of MASTRO activities and interact with messages.

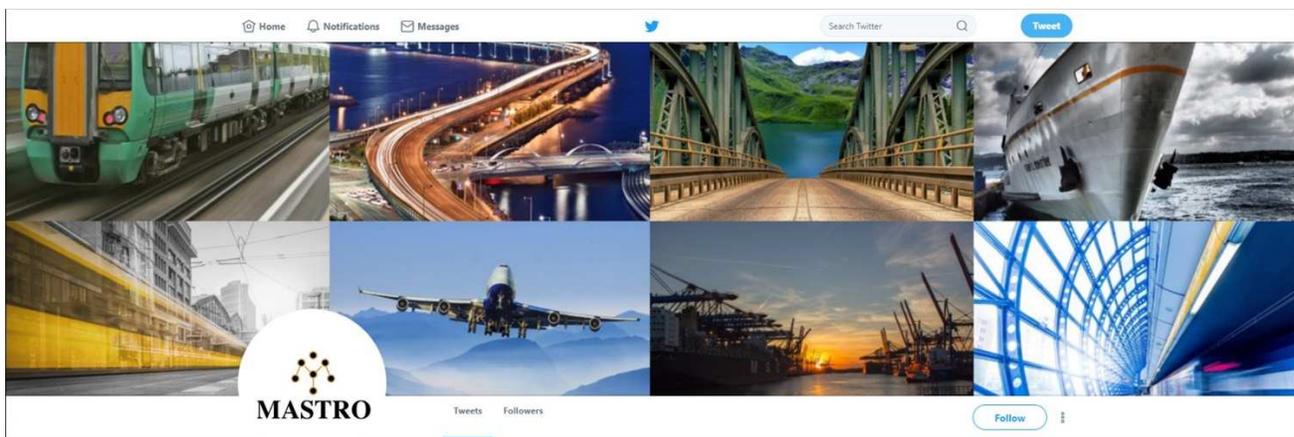


Figure 19. The Mastro Twitter account

4. Future work

Future work will include improvements of the website and addition of technical and visual material that will be received from partners. The website, social media, and dissemination plan will be updated on a weekly basis.

5. Conclusions

Overall, the dissemination plan of the MASTRO project is fully operational, although some technical issues caused delays in launching the website. The project webpage has been launched in addition to social media platforms. The dissemination plan matrix has been distributed to the partners and their participation will be further encouraged by the IEC and the PC.

Annex I Website Documents

The website contains the following documents:

OBJECTIVES

The MASTRO project overall objective is to develop intelligent bulk materials for smart applications in the transport sector incorporating several self-responsiveness properties. The aim is to increase consumer safety, component life-span, and performance, while reducing maintenance and manufacturing costs and through-life greenhouse gas emissions. Self-responsiveness functionalities will be achieved by incorporating electrical conductive nanomaterials like multi walled carbon nanotubes (MWCNTs) and graphite-based nanomaterials into smart lightweight polymer composites together with asphalt and concrete formulations. These self-responsive functionalities are based on three physical phenomena: piezoresistivity (variation of the electrical resistivity of a material when mechanical strain is applied), Joule's first law effect (the relationship between heat generated in a conductor and electrical current flow, resistance, and time), and electrostatic dissipation (to protect a material from electrostatic discharge).

The functionality of the intelligent bulk materials will be incorporated in various critical transport sector components, such as aircraft wing leading edges, car bumpers, and pavements. These components will be demonstrated under relevant conditions at prototype level for the aerospace, automotive, and transport infrastructure sectors. These developments will be supported by theoretical predictive modelling, material modelling, and an ICT platform for smart monitoring and control. The outputs of the project will consist of numerous applications in the mentioned sectors. Thus, nanotechnologies and advanced materials will be the basis for next generation of high added value products, boosting EU market opportunities.

IMPACT

Enhancing market opportunities for EU industries

- *AERONAUTIC*. MASTRO technologies that demonstrate improved performance or efficiency than current practices will be introduced in aircraft production processes. The potential for incorporation of new technologies in this sector is immense and it is expected that MASTRO technologies will achieve wide acceptance.
- *AUTOMOTIVE*. New products will be introduced at the level of original equipment manufacturer (OEM) and in the large sector of aftermarket sales. It is expected that an increase of market opportunities up to 15%, with the possibility of a widespread distribution will be achieved through MASTRO technologies.
- *TRANSPORT NETWORK*. New structural health monitoring technology applying self-sensing concepts will result in the reduction of maintenance requirements and the early detection of damages. These features will create a new demand by public and private clients. Public authorities, construction companies and road operators, will be interested in self-healing asphalt pavements once they prove to decrease maintenance costs. Moreover, the demand for de-icing pavements will be especially high in northern countries by public (black spots) and private (garage ramps) clients.

Improving consumer safety

- *AERONAUTIC*. Self-deicing, self-sensing, and self-curing technologies will have a strong impact (estimated around 10%) on consumer safety, contributing to mitigate the associated risks of accidents. A fivefold reduction of accidents is expected in the aeronautic industry by 2050.
- *AUTOMOTIVE*. Increasing the visibility of cars by self-heating critical parts of the vehicle, such as external side mirrors, windshield wipers, and hood will significantly increase consumer safety. As a result, a reduction of casualties due to accidents and repair costs of damaged vehicles is expected. A deeper impact on society will be achieved, with a reduction of healthcare costs.
- *TRANSPORT NETWORK*. MASTRO technologies for self-deicing asphalt will reduce related accidents in blackspots due to freezing by 20%. On the other hand, as 10% of accidents are due to deteriorated road conditions, the application of MASTRO self-healing asphalt technologies will reduce blackspots by 10%, thus improving road conditions and reducing fatalities and injuries.

Reducing maintenance costs

- *AERONAUTIC*. Materials with self-sensing properties facilitate the detection of damages without halting operation for disassembly and inspection, thus reducing maintenance costs. In addition, crucial information is provided to the design and manufacturing engineers, which can be used to validate numerical simulations, eventually reviewing the overall properties of composite components.
- *AUTOMOTIVE*. An overall reduction of 5% to 8% for maintenance costs in the automotive sector (especially in northern regions) is expected. Specifically, cost reductions will be achieved by managing the reparation of items damaged by cold weather conditions (wipers, locks, control units, battery filling system, body, etc.) or by the misuse of devices or control units (indirect damages, accidents, etc.). MASTRO technologies may result in savings that amount to 30% of total costs, because components will be operating under improved conditions, with less temperature induced stresses and lower fatigue. Cracks caused by excessive loading of the parts under a more fragile structural condition due to the temperature will be avoided.
- *TRANSPORT NETWORK*. All roads require maintenance activities before they come to the end of their service life. Current practices for asphalt require three times maintenance activities throughout the lifetime of the road (approximately 30 years). The costs for such maintenance operations may range from 19.000 to 42.000 €/km per year. Applying MASTRO self-healing technology, regular activities can be reduced from three to one, saving 2/3 of the regular maintenance cost.

Improving resource efficiency

- *AERONAUTIC*. MASTRO electric de-icing technology will enable manufacturers to use bleedless engines and the “More Electric Aircraft” architecture, which could help them to meet the emissions requirements set forth by ACARE. MASTRO proposition of developing self-curing components can lead up to 90% energy reduction and up to 60% of the total manufacturing time.
- *AUTOMOTIVE*. Conventional manufacturing of automotive components often require temperatures of 140-180 °C, which is achieved by expensive and highly energy intensive autoclaves. By providing the required temperature in a homogeneous manner, the energy efficiency will be higher. Thus, MASTRO will contribute to resource efficiency by eliminating the need for large infrastructures and vacuum pumps, while reducing energy losses during heating, curing, etc. as there is no need to place the components inside an oven.

- *TRANSPORT NETWORK*. Savings of 2/3 of the aggregates and bitumen would be possible. Currently, regular maintenance of 1km road consumes 4500 tn of asphalt concrete. MASTRO is expected to reduce this amount to 1500tn/km.

Contributing to a future circular economy

- *AERONAUTIC*. The combination of novel materials introduced in MASTRO and new designs will contribute to a further reduction of fuel consumption per passenger by more than 5%.
- *AUTOMOTIVE*. MASTRO aims to develop new composite materials, which will have direct impact on resource utilization and lifespan of automotive parts, thus contributing to the circular economy.
- *TRANSPORT NETWORK*. MASTRO project will utilize construction and demolition solid wastes, thus providing great opportunities for creating closed loop materials in a circular economy. Moreover, carbon fibers may be recycled and used as conductive filler in MASTRO smart components.

Improving our understanding of materials properties based on theoretical materials models

New material models will allow numerical screening of properties thus improving our understanding in material sciences. By advancing nano- and micro-scale material models and utilizing them in industrial design is expected to result in a decrease of development time of 20% on products based on the piezoresistivity effect. Moreover, piezoresistivity will lead to a reduction on the structure's cost by reducing the GRC oversizing design for preventive purposes (up to 10%) due to the improvement of the structure members design. This will be achieved through the application of models and controlled tests enabling the accurate prediction of failure in case of incidental stresses. Moreover, simulation software with embedded sensors will provide real-time simulation data, allowing predictive monitoring of field equipment and identifying anomalies or recommending preventive maintenance.

Enhancing the knowledge base in the EU not only at the R&D level but also at the manufacturing and production level, creating a highly skilled workforce with improved levels of job satisfaction

The maturity of MASTRO technologies is expected to reach TRL 6 from TRL4 and will make a significant advancement of the relevant knowledge base in the EU, not only at the R&D level but also at pilot demonstration level. Cooperation and training between high skilled and multidisciplinary partners of the MASTRO consortium will focus on various sectors of applications. This interaction will contribute to Open Innovation principles of the EC and will be supported through the enhancement of consortium partner innovation capabilities, sharing research, and development efforts.

WORK PACKAGES

Work Package 1: Project Management

The overall governance structure for an effective project direction and management, performing the financial, legal and administrative co-ordination.

Work Package 2: Industrial needs and definition of demo specifications

The definition and description of the technical and non-technical details of the different use cases to be demonstrated.

Work Package 3: Nanomaterials selection, functionalization and preliminary compatibility analysis

The selection of nanomaterials, their compatibility, supply, and technical information.

Work Package 4: User-based application for predictive modelling and manufacturing optimization

The manufacturing of intelligent products by means of modelling the main expected physical effect.

Work Package 5: Intelligent bulk materials design and development

The development of smart bulk materials with self-responsive functionalities (self-sensing, self-deicing, self-curing, self-healing and self-protection) at component level.

Work Package 6: ICT Platform

The development of an ICT platform that enables intelligent sensing, monitoring and control of the self-responsive functionalities.

Work Package 7: Smart prototypes with self-responsive functionalities in transport sector

The designing, building, testing, and monitoring prototypes consisting on system/subsystem model or prototype demonstration.

Work Package 8: Life cycle and life cycle cost analysis, REACH analysis, standardization and training

The quantification of the environmental and economic impacts of the developed materials.

Work Package 9: Innovation strategy, initial exploitation and business plan and dissemination

The dissemination and exploitation of technology, including the replicability in other industrial sectors, and knowledge generated.

DEMONSTRATORS

Aeronautics sector

- Self- sensing, self-deicing, self-curing, self-healing wing leading edges
- Self-deicing engine intakes
- Self-protecting fuel systems and tanks

Automotive sector

- Self-sensing, self-curing, self-healing bumpers
- Self-deicing door gaskets
- Self-deicing windscreen wiper areas
- Self- deicing, self- protecting battery filling systems
- Self-deicing seats

Transport Infrastructures

- Self-sensing, self-deicing concrete roads
- Self-sensing, self-curing FRP joints
- Self-sensing, self-deicing, self-healing asphalt roads

GENERAL ASSEMBLY

The GA is the highest level management body of MASTRO and is responsible for ultimate decision making and approval of any management structure or project direction suggestion. It will be led by Ms. Silvia Hernández (ACCIONA) and all partners of Project Consortium will be represented. The GA will assume responsibility for liaison among the Parties, analyzing, administrating and implementing the results and provisions according to the Consortium Agreement of the Project.

SCIENTIFIC & TECHNICAL COMMITTEE

STC is led by Mr. Ignacio Martín Gullón from APPLYNANO. APPLYNANO is the leader of WP3 and he has wide expertise coordinating and managing research activities. The STC will monitor the technical progress of the project, the quality and technical contents of deliverables and the reports of the project. Moreover, it will analyze incidents on the work progress and any relevant change in the work plan considering technical risks and proposed mitigation measures.

INNOVATION & EXPLOITATION COMMITTEE

IEC is led by Mr. Alex Zoikis-Karathanasis (AXIA) as the MASTRO's partner expert on exploitation and dissemination activities in the project. Dr. Zoikis-Karathanasis has a deep business understanding, along with a strong technical background in the field of nano-materials for ensuring creative ideas are anchored to the required market, regulatory and performance requirements. He has experience in the exploitation results of research projects and innovation management and under his guidance 3 start-up & spin off companies have been founded in the field of nano-materials. In MASTRO Project he will have close cooperation with Giuseppina Barra from UNISA (training activities leader, Task 8.5) and ACCIONA (Coordinator of the project). The IEC will monitor the Data Management Plan that will be developed and monitored in WP9 and which will enhance and ensure relevant project's information transferability and will take into account the restrictions established by the consortium agreement. In this sense, the Plan will set the basis both Exploitation and Dissemination Plan (WP9).

PARTNERS

1. ACCIONA CONSTRUCCION S.A. (ACC, COORDINATOR)

COUNTRY: Spain

Acciona will serve as the Coordinator in the MASTRO project. It will oversee all the management procedures, scientific work and dissemination activities. It will also have a major role in Smart prototypes with self-responsive functionalities in transport sector (WP7) and will play an active role in the design and development of intelligent bulk materials (WP 5) and the development of the ICT platform (WP 6). Acciona will also contribute to all other work packages, for the definition of industrial needs, selection of materials, and modeling, in addition to regulatory, standardization, exploitation, and dissemination actions.

Website: www.acciona.com

2. ALKE SRL (ALKE)

COUNTRY: Italy

ALKE' is part of the MASTRO project as industrial partner and will cooperate on definition of requirements, design, construction and testing specifications for the target automotive parts will be used to validate the project technologies. ALKE is in charge of developing the ICT platform (WP6) and will contribute its expertise in the development of smart prototypes with self-responsive functionalities in the transport sector (WP 7). ALKE will also contribute to the project management, the definition of specifications, manufacturing optimization, design and development of materials, in addition to regulatory, standardization, exploitation, and dissemination actions.

Website: www.alke.com

3. APPLYNANO SOLUTIONS S.L. (Applynano)

COUNTRY: Spain

Applynano will serve as chair on the scientific and technical committee. It will lead the work on the study of dispersion of nanomaterials in various matrices (WP 3) and contribute to the design and development of intelligent bulk materials and smart prototypes with self-responsive functionalities in the transport sector. Applynano will also contribute to the project management and the definition of specifications, in addition to regulatory, standardization, exploitation, and dissemination actions.

Website: www.applynano.com/en

4. ARKEMA FRANCE (ARKEMA)

COUNTRY: France

ARKEMA has the know-how and R&D capabilities as well as the analytical and characterization tools necessary to develop MW-CNT formulations and dispersions to answer the needs of the various applications targeted in the project. ARKEMA will contribute to the selection and functionalization of nanomaterials and the design and development of intelligent bulk materials. It will also contribute to project management and regulatory, standardization, exploitation, and dissemination actions.

Website: www.arkema.com/en

5. AXIA INNOVATION UG (AXIA Innovation)

COUNTRY: Germany

AXIA Innovation is in charge of the innovation strategy, initial exploitation and business plan, and dissemination (WP9) and Alexandros Zoikis-Karathanasis is the chairman of the Innovation and Exploitation Committee (IEC). In addition, AXIA Innovation will contribute to project management, definition of specifications, the development of smart prototypes with self-responsive functionalities in the transport sector, in addition to life cycle and life cycle cost analysis.

Website: www.axia-innovation.com

6. BSRIA LIMITED (BSRIA)

COUNTRY: United Kingdom

BSRIA is specializing in the built environment, providing independent, objective, and practical support across the design, construction and occupancy phases of both new and refurbishment building projects. BSRIA is in charge of the life cycle and life cycle cost analysis, REACH analysis, standardization, and training (WP 8) against existing materials and techniques. It will also contribute to project management and carry out dissemination activities in the UK construction industry.

Website: www.bsria.co.uk

7. CENTRO DI RICERCHE EUROPEO DI TECNOLOGIE DESIGN E MATERIALI (CETMA)

COUNTRY: Italy

CETMA is a non-profit operating consortium that carries out applied research, supporting the innovation processes for industries. CETMA will design and develop smart thermoplastic materials at component level (WP 5) and contribute in the development of automotive prototypes (WP 7). It will also contribute to project management, nanomaterial selection and functionalization, in addition to regulatory, standardization, exploitation, and dissemination actions.

Website: www.cetma.it

8. CENTRO TECNOLOGICO DAS INDUSTRIAS TEXTIL E DO VESTUARIO DE PORTUGAL (CITEVE)

COUNTRY: Portugal

CITEVE – The Technological Centre for the Textile and Clothing Industry of Portugal, is a private non-profit organization, with facilities in Vila Nova de Famalicão and in Covilhã. CITEVE will design and develop intelligent bulk materials for smart textiles (WP 5) and conduct replicability analysis in other sectors related with textiles and other materials (WP 9). CITEVE will also contribute to the definition of specifications, selection of nanomaterials, the development of the ICT platform, and smart prototypes, in addition to project management, regulatory, standardization, exploitation, and dissemination actions.

Website: www.citeve.pt

9. DIAD GROUP SRL (DIADGROUP)

COUNTRY: Italy

The DIADGROUP is a fast growing company in the sector of advanced technologies, with strong worldwide partnerships. DIADGROUP will lead efforts to define the industrial needs and demo specifications (WP 2) and will contribute to the development of smart prototypes with self-responsive functionalities in the motorsport sector. DIADGROUP will also contribute to the manufacturing optimization, design of intelligent bulk materials with testing of solutions in real scale on laboratory cars in icy conditions, and the ICT platform, in addition to project management and the definition of specifications, life cycle analysis, exploitation, and dissemination actions.

Website: www.diadgroup.com

10. EMBRAER PORTUGAL SA (EMB PT)

COUNTRY: Portugal

EMB PT is a TIER 1 supplier of aero-structures, mainly wings, empennages, and flight control surfaces. EMB PT will be the main advisor in all tasks related to aeronautics, such as definition of requirements (WP 2) and prototype development (WP 7). EMB PT will also contribute to predictive modeling, project management, life cycle analysis, exploitation, and dissemination actions.

Website: embraer.com

11. CENTRE TECHNIQUE INDUSTRIEL DE LA PLASTURGIE ET DES COMPOSITES (IPC)

COUNTRY: France

IPC is the Technical Industrial Centre of the French plastics and composites industry cluster, with more than 3,000 SMEs. IPC is in charge of the user-based application optimization for predictive modelling and manufacturing. IPC will lead research and development on the modelling strategy as well as in the development of an application (WP 4). Focus will be given to bridging nanoscale, microscale, and macroscale modelling. IPC will also contribute to the project management, definition of specifications, and development of smart prototypes, in addition to life cycle analysis, exploitation, and dissemination actions.

Website: ct-ipc.com/

12. UNIVERSIDAD DE ALICANTE (UA)

COUNTRY: Spain

UA will have an active role in the design and development of concrete and asphalt materials (WP 5) and participating actively in the development of prototypes for sensing materials in the transport infrastructure sector (WP 7). UA will also participate in the selection of nanomaterials, predictive modeling, in addition to project management, definition of specifications, regulatory, standardization, exploitation, and dissemination actions.

Website: www.ua.es

13. UNIVERSITA DEGLI STUDI DI SALERNO (UNISA)

COUNTRY: Italy

UNISA is in charge of the design and development of intelligent bulk materials (WP5) and will be involved in the scientific activities of WP4 (software and modelling). Its major contribution to the MASTRO project will be in the development of self-responsiveness thermoset glass fiber reinforced composites. UNISA will also contribute to the definition of specifications, selection of nanomaterials, development of prototypes, in addition to regulatory, standardization, exploitation, and dissemination actions.

Website: www.unisa.it

14. THE UNIVERSITY OF SHEFFIELD (USFD)

COUNTRY: United Kingdom

USFD will contribute to the functionalization and production of nanomaterials (WP 2), the design and development of intelligent bulk materials (WP 5), and the production of smart prototypes (WP 7). Due to its advanced curing, novel materials, processing facilities, and multidisciplinary expertise it will also contribute to all other work packages.

Website: www.sheffield.ac.uk

15. SUPERIOR GRAPHITE DEUTSCHLAND GMBH (SGD)

COUNTRY: Germany

Superior Graphite Deutschland GmbH performs management services for both the Sweden Filial and its parent company, Superior Graphite Co. (Chicago, Illinois, U.S.A.). Due to its expertise in applications and manufacturing of carbon-based nanomaterials, SGD will be actively involved in all work packages, especially in the development of prototypes (WP 7).

Website: www.superiorgraphite.com

15. PINOUT SOLUTIONS SL (PINOUT)

COUNTRY: Spain

PINOUT specialized on the design of installations involving smart sensing and real-time data acquisition systems within the new Internet of Things and Industry 4.0 paradigms. PINOUT will contribute to the development of the ICT platform (WP 6). It will also contribute to the development of prototypes, definition of specifications, design of intelligent bulk materials, and predictive modeling, in addition to project management, regulatory, standardization, exploitation, and dissemination actions.

Website: pinoutsolutions.com

ADVISORY BOARD

In order to give support to the Project, and focus in the reliability in other sectors, an Advisory Board (AB) has been created and composed of relevant actors of MASTRO's domain. The AB gives advice along the whole duration of the project from replicability in project outcomes in other sectors point of view.

Ivan Garcia Maestre, Industrial Engineer by Universidad Politecnica de Madrid (UPM) and coursing a PhD in Civil Engineering by Universidad Politecnica de Coruna (UPC), is the development manager for "Towers and Foundations" at Nordex (formerly ACCIONA Windpower). Ivan has developed his career as an expert in structural engineering, where he has worked as structural and development engineer, as well as project manager for different developments. He is author in more than 14 international patents in the wind power area. During the last 10 years he has worked as an expert in the area of towers and foundations for the wind power industry, developing solutions along the project lifetime. Currently, he is responsible for the definition of the innovation and technology research areas for towers and foundations in the company. Ivan is an expert in wind towers manufactured in concrete, where he leads the company's team working in their manufacturing process and costs optimizations.

Mark Hancock is a chartered Engineer and have held the senior positions of Chief Engineer, Head of Engineering, Head of Business Development and Engineering Director for composite structures and ice protection systems. He recently achieved recognition within Meggitt for his technical standing within his field and was made a Technical Fellow. He is active in European ice protection forums/committees and during 2016 sat on the Clean Sky Governing Board represent the Airframe ITD and participated on the SAE's Aircraft Environmental Systems Committee (AC-9). He has demonstrated a successful track record of working with Universities and other 3rd

parties on technology development projects and has delivered lectures on composites and ice protection including as a guest speaker at the Royal Aeronautical Society.

Head of R&D and Marketing of ACCIONA Industrial. He studied Architecture at the University of Alcala de Henares, and after working at Procter & Gamble, he joined ACCIONA in August 2015. Being the Head of R&D and Marketing departments of ACCIONA Industrial, Ignacio leads international innovation projects in the Solar Thermal sector, Photovoltaic, Energy from Waste (EfW), Oil & Gas and optimization of industrial processes.

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Thomas Sallet has a materials and design education. He graduated as an engineer at INSA of Lyon in 1991, and graduated as product designer after studies at the school of Design of Montreal and a master at the UTC of Compiègne. He has a strong experience in product development and R&D for sporting goods, including thermoplastics or composites products. He combines science, technology with a consumer oriented and design approach, that leads to product innovation.

NEWS – EVENTS

H2020 MASTRO Kickoff meeting at ACCIONA, Spain

The Coordinator of the MASTRO project organized the kick-off meeting on 17-18 January 2018, in Madrid, Spain. All partners of the project and the EC's Project Officer, Dr. Achilleas Stalios (European Commission DG Research & Innovation D3) attended the meeting. Partners presented their institution (activities, facilities, personnel, project role, expected outcomes) and the plan for their activities of the first six months. Financial and administrative issues were also discussed.