D6.2 Plan for the Dissemination, Communication, Networking activities & Exploitation of the project results

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1. Introduction

1.1. Objectives and Scope of this Deliverable

The present deliverable defines concrete strategies and actions for effectively disseminating, promoting and exploiting the foremost UMA3 achievements, activities, progresses and results to all relevant target audiences of the project, based on their distinct interests and via a comprehensible manner. Precisely, it indicates the guiding principles applied and the main communication tools utilized for the implementation of the UMA3 dissemination and exploitation activities. Moreover, dissemination, communication, networking and exploitation activities already developed and implemented, as well as short-term actions already defined and planned for the upcoming months of the project, are presented herein. Appropriate means to monitor, evaluate and assess the performed dissemination and exploitation activities are also defined.

The present document is also intended to act as an internal guideline and a practical framework for the UMA3 consortium, when promoting the project's activities, as well as for the day-to-day communication. Consequently, this Plan for the Dissemination, Communication, Networking activities & Exploitation of the UMA3 results, is to be periodically updated, according to the overall evolution and progress of the project. Lastly, it shall be mentioned that the present deliverable (D6.2) complements D6.4: "Data Management Plan" (submitted), which inter alia describes how to effectively manage and protect the data and knowledge collected, processed and produced within this CSA, while concurrently having due regard to the legitimate interests of the partners concerned. Also, the present deliverable can be seen in conjunction to D6.1: "Public website, and social media groups and initial communication pack" (submitted), which inter alia presents the main communication activities designed and performed in the frame of UMA3 during the initial phase of its lifetime.

The UMA3 Plan for the Dissemination, Communication, Networking activities and Exploitation of the project results, has been created and structured so as to also address the following key questions [European Commission, 2014 "Communicating EU research and innovation guidance for project participants", September 2014]:

1. *What are my key objectives?*
2. *Who is my target audience?*
3. *What is my message? Why should they listen about my message?*
4. *How do I reach this target audience?*

1.2. Importance of Dissemination Activities

Dissemination measures are of paramount importance to twinning activities such as UMA3, in order to maximize their impact and trigger effects across the entire range of targeted stakeholders, potential users and communities. Dissemination is a significant tool used for connecting the consortium members, the stakeholders of the related scientific fields, and the general public, to the achievements and activities performed within the project. By effectively and strategically disseminating the project's activities, achievements and results, greater public awareness is created as well as knowledge sharing, transparency and education are promoted. Also, the potential of market uptake and commercial exploitation of the project results is considerably increased.

As EU-funded activities, initiatives and projects distinctly contribute to the creation of new jobs, novel technologies and improve the citizens' quality of life, public interest for research findings and achievements tends to increasingly grow over time. Moreover, since one of the main financers of such projects is the European taxpayer, it is an imperative precondition to ensure: *i) maximum return on the investment through exploitation, and ii) full openness about the actions financed through the implemented communication measures.* Disseminating new knowledge and results means looking for maximum exploitation, so that as many potential users as possible can/could benefit from the UMA3 produced outcomes. As far as the UMA3 consortium is concerned, proper dissemination of the foremost project results, provides the maximum opportunity for ultimate success and impact. For the target groups, it enables them to be aware and benefit from innovation developed elsewhere, rather than investing a great deal of time and effort in their own innovation projects.

1.3. Principles and Key Objectives of the UMA3 Plan for the Dissemination, Communication, Networking activities and Exploitation of the project results

By fully recognising, as analysed above, the great importance of D&E to a Coordination and Support Action, the UMA3 consortium has defined a dedicated and tailored dissemination, communication, networking and exploitation plan, predominantly aimed at ensuring:

- *The effective and sustainable dissemination of the UMA3 generated knowledge and technologies not only within the entire European Aeronautics Community but also in other industrial sectors (e.g. automotive, railroad, naval, space) through the implementation of suitable and specialised communication activities for each of the project's identified target groups and end users;*

- *The exploitation of the project's results by the European Aeronautics Industry so as to maintain and reinforce technological advantage over the competition from outside Europe;*

- *The interconnection with other industrial sectors (e.g. automotive, railroad, naval, space) to maximize the potential to exploit the findings and outcomes of the project;*

- *The conveyance of new knowledge into the engineering education base provided by the European Mechanical Engineering Schools, to meet the evolving skill needs of the aeronautics sector as well as of other industrial sectors (e.g. automotive, railroad, naval, space).*

The core principle in the UMA3 dissemination and communication strategy is to disseminate UMA3 related information, knowledge and results, in networks of people who are connected through shared objectives, interests and activities. Namely, the UMA3 related dissemination activities aim at four different levels of involvement:

Dissemination for awareness (for the audiences that do not need a detailed analysis and knowledge of the UMA3 work, activities and progress, yet the outcomes of the project could be useful and beneficial to them): General information about the project.

Dissemination for information and understanding (directly targeting audiences that would benefit from the outcomes and progresses of the project, as well as who would themselves benefit the project with their support and feedback): Detailed information about the project. This dissemination level includes transferring key messages to specific stakeholders, enhancing their knowledge and comprehension on the project itself. This activity is constant during the entire project lifecycle so as to ensure that the

UMA3 progresses and achievements are continuously and efficiently promoted.

Dissemination for action ('action' refers to a change of practice resulting from the adoption of results generated by the project. Targeted groups for this type of dissemination are recipients that are capable to 'influence' and 'bring about change' within their organisations. These are the groups/audiences who are equipped with the required skills, knowledge and understanding of the work in order to accomplish real change): Detailed technical information about the project, so as to ultimately achieve a continuous and consolidated exchange of relevant information and foster interaction to encourage active participation.

Dissemination for exploitation: in an effective, timely and constant manner to the: i) relevant scientific community (e.g. Academic Institutions, Research establishments), ii) aviation industry, iii) policy makers, iv) investors, as well as v) the general interested public. Exploitation does not only refer to commercial exploitation but to all types of exploitation that the project's foregrounds may have (e.g. the knowledge advancement incorporated into a university lecture, i.e., this is the way that an academic institution may exploit this foreground). In the long-term, this dissemination level will ensure the impact of the project results on the target audiences. The sustainability of the project results is one of the main purposes of the dissemination activity.

2. UMA3 Dissemination Plan

The UMA3 Dissemination Plan is based on **four main pillars**, each one outlined below: ***Building of the UMA3 Network of relevant stakeholders:*** this is a very important pillar of the project's overall dissemination strategy so as to ensure that, throughout the project evolution, a solid community of relevant stakeholders is built, thus allowing for an ongoing routine of interaction (distribution of project related information and material, requests for consultation input etc.) to be successfully achieved (section 2.1). ***Identification of relevant target audiences:*** the true effectiveness of dissemination lies on the proper identification of all target groups who may be interested in (and benefited by) the project activities, achievements, news and findings (e.g. general public vs. experts; internal audience vs. external audience) (Section 2.2). ***Definition of key messages to disseminate:*** this task deals with the personalization of the dissemination messages (Section 2.3), as well as the ***identification and selection of the proper communication means, tools and channels***, for each type of relevant audience, based on their specific needs and interests (Section 2.4).

2.1. BUILDING THE UMA3 COMMUNITY/NETWORK OF STAKEHOLDERS

One of the main strengths of the UMA3 consortium, is that its members not only represent their own organization/entity, but the European Aeronautics Community as a whole. In particular, the UMA3 consortium is a fully multidisciplinary team with long experience in the aeronautics sector as well as with an outstanding national and international participation in collaborative projects. Moreover, the UMA3 team is composed by leading European research entities reflecting all complementary fields and with a long-time experience and skills in the field of advanced materials and solutions. Thanks to this empowerment, the UMA3 consortium is to a wide extent representative of the European Aeronautics Community as it includes actors from academic research, research establishments, industry and SMEs. It is worth noting that all UMA3 partners contribute towards increasing awareness and maintaining the

UMA3 network thanks to their own established contacts and communities, as well as, if needed, by further developing new strategies in order to support and boost this task. In addition, to maximize the reach of the project's results and achievements to the wider European Community, a dedicated network, namely European Aeronautics Science Network (EASN Association), is exploited though the participation of EASN Technology Innovation Services (EASN). EASN Association is the European Association of academics dealing with Aeronautics related research. Its main goal is to support the development and dissemination of new knowledge, innovation and breakthrough technologies through fundamental research in the aerospace sector. EASN holds extensive experience in developing the dissemination and exploitation strategy in several research projects and acts as a dissemination multiplier spreading project related information and knowledge, influencing the aeronautics community, and finding at the same time further users and uses for the project foregrounds to other industrial sectors (e.g., automotive, railroad, naval, space). EASN provides on a royalty-free basis its tools and network peers towards the effective dissemination of the UMA3 results.

2.2. IDENTIFYING THE UMA3 TARGET AUDIENCES

A significant precondition for ensuring augmented exploitation, high impact and increased likelihood of uptake of the project's outcomes, is to prudently communicate the proper information to the right (relevant and interested) audiences in a concise, well-articulated, understandable and attractively packaged manner. Consequently, a fundamental step towards developing a fruitful, meaningful and efficient dissemination action plan is the proper identification and classification of the groups which need to be targeted, before deciding on the media to be used for transmitting each intended message. Based on the overall concept, objectives and expected results/impacts of UMA3, five main relevant target audiences have been accordingly identified, along with their main interests associated to the project. It is worth noting that the different UMA3 relevant target groups are also defined considering who could be interested in the project progresses, who would be interested in learning about the project findings and who could be directly/indirectly affected by the project outcomes. Furthermore, it is taken into account who could and should make use of the project outputs and who is needed to advocate and implement the action plan. Last but not least, it is also of great importance to identify which target audiences would be needed for providing feedback to the project and thus ultimately assist towards producing meaningful and accurate results. The UMA3 target audiences have been categorised under ***three main clusters***, each of which with a different level of interest in the project topics:

General Public: It is an obligation to ensure that the European tax payers are informed about the technical, environmental and societal impacts of the project's outcomes, as well as of the overall impact of the project to their everyday lives (e.g. advancing the European competitiveness, creating jobs, developing new production methods for aeronautical materials, etc.). This type of audience consists of people or groups of people generally interested in the topic of the project, who recognize the importance of its concept and the benefits that may derive from it, even if they are not principally involved in technical activities related to the topic.

An audience with this level of interest acknowledges the importance of the topics dealt within the project and looks for clear, useful, technical as well as (primarily) non-technical information. Researchers working in other scientific areas, students, general citizens, average European tax payer, etc. are included in this category.

Specialised Audience: this cluster of audience is made up of people directly interested or affected by the project outcomes in their work. Part of this audience concurrently acts as a potential contributor of information and feedback. This target audience can be further broken into several stakeholder groups:

Scientific community (e.g. Academic Institutions, Research agencies/establishments, Researchers, Students, etc.): Dissemination of the developed knowledge and foreground(s) across the related scientific community will constitute the basis for further future scientific work, applications. Also, spreading this knowledge to young scientists will contribute to the preparation of tomorrow's engineers and increase their competence in state-of-the-art research areas and applications;

Industrial stakeholders: this group includes mainly the European aviation and space industry, yet it is not limited in this way, as technology spill-overs with other industries (e.g., automotive, railroads, naval, space) will be pursued. The efficient communication of the project activities and achievements to these groups will significantly contribute to the future exploitation of the current research and the advancement and competitiveness of European industry;

Organizations, Networks & Associations (e.g. EREA, ASD, ACARE, EACP, IMG4, EASN, ESA etc.): These types of organizations are very important target audiences towards ensuring the exploitation of the novel results expected to be generated within the project.

Decision Makers: they are responsible for the aligning of the end users and researchers. This cluster of audience is considered a foremost target audience for the UMA3 project and should be targeted inter alia for evaluating and/or redefining the RIS3 strategies of the involved regions. This target group includes policy makers and regional authorities, company management, representatives of the European Commission, H2020 / Horizon Europe Programme committee (e.g. DG RTD, H2020 Program Committee, ESFRI, Industry or national research programmes funding institutions), representatives of regulators (e.g. EASA, EUROCONTROL, EUROCAE, National Safety Authorities), Aeronautics and Transport Research Associations, etc.

Understandably, these three main categories of relevant audiences are interested in the UMA3 project with different purposes, levels of knowledge and attitudes. In this sense, the dissemination activity and planning shall identify, address and respond to these specific goals by designing the most suitable communication means and contents. Also, for each case, the disseminated/communicated messages will be properly adapted to each of the related target groups, in order to ensure an effective outreach strategy and successfully achieve the corresponding objectives. Moreover, it shall be mentioned that each of these categories of relevant target audiences is expected to make a different use of the UMA3 outcomes, moving from a conceptual use of information, impacting levels of knowledge (interested general public), to an instrumental use of results (specialized audience) up to a strategic use of the UMA3 findings, affecting policies and decisions (decision-makers). Furthermore, one organization may make a different use of the same information, and therefore different means and activities, using different languages, content types and levels of detail for each specific target could be needed to communicate with a stakeholder.

2.3. DEFINING THE MESSAGE

As previously described, the clear understanding of the distinct UMA3 dissemination goals as well as the identification of the project's relevant target audiences, represent

the basis on which the UMA3 dissemination strategy was built. Subsequently, and so as to effectually reach the UMA3 target groups in a beneficial for them manner, the specific type of information to be communicated to each target group had to be defined, based on their distinct needs and interests. This information is the key message ensuring focused dissemination, which can be considered as an essential success factor. The key-message has to be clear, accurate, self-contained and leave no open questions to the recipient. An important aspect is the adaptation of the message to each target group. By recognizing these differences in the early definition of the message phase, a more effective dissemination strategy is ensured. The UMA3 partners peer-review and check texts for leaflets and other such communication material, popularized articles and publications, as well as the textual content of the project official website before printing/publishing in order to combine the required level of quality and non-specialized technical language where possible. Based on the concept, objectives and expected impact of UMA3, the following table summarizes the main groups of interest that have been identified to be approached, as well as the key UMA3 messages that should be delivered to each target group.

TARGET AUDIENCE	KEY-MESSAGE	COMMUNICATION CHANNEL (non-exhaustive list)
Scientific community (Academic Institutions, Research agencies/ establishments, Researchers, Innovators, students, etc.)	Dissemination of technical scientific results (e.g., powder metallurgy process, thermal management and fully 3D investigations) and expected benefits of the project foregrounds	Scientific publications in highly ranked journals and conference proceedings, presentations in conferences and workshops, educational material, newsletters, factsheets, etc.
Industrial stakeholders (aeronautics, automotive, railroad, naval, space)	Dissemination of technical industrial results (e.g., development of new material systems) and expected operational (e.g. increased production efficiency, cost reduction, reduced manufacturing risk by simplification) benefits of the project foregrounds	Exhibitions, brokerage events, trade fairs, pitch events, conferences/ workshops, open days, etc. Targeted communication to industrial groups and Associations and presentation of results in relative industrial forums
Decision & Policy makers, Regional authorities, etc.	Dissemination of the achievements of the project with regard to the European, national and regional (RIS3) strategies	Written research summaries and policy briefs, electronic and web-based outreach tools (e.g. project website, social media, etc.), oral presentations, newsletters, dedicated meetings with representatives from the various bodies
General public	Dissemination of information related to the social (e.g., creation of new jobs, improvement of the citizens' quality of life) and environmental (e.g. material and energy savings, reduced material waste, reduced CO2 emissions) benefits achieved by the project foregrounds	Newspaper, radio, TV, press releases, electronic and web-based outreach tools (e.g., project public website, social media channels, video etc.)

2.4. USING THE APPROPRIATE COMMUNICATION TOOLS AND CHANNELS

The likelihood of success of the planned dissemination strategy increases tremendously when exploring, evaluating and developing a framework of the most suitable channels and tools of communication, which are specifically tailored to the distinct needs of the related identified target audiences of the project. In this context, the UMA3 dissemination plan includes an efficient and effective mix of both interpersonal and mass communication tools which are briefly described below.

Electronic and printed dissemination material: the UMA3 visual identity was developed at the beginning of the project with the goal of making the latter recognizable among other projects and initiatives, as well as for ensuring that the project-related information and outcomes would be distributed (both internally and externally by the consortium) in an "eye-catching" and attractive manner to the intended recipients. In this context, the UMA3 official logo, trifold leaflet, deliverable and presentation templates were created. Additionally, a dedicated communication pack for the project legacy will be created towards the end of the project so as to be used by all partners in events and activities to be held after the end of UMA3, as an advertising tool for both the project's foregrounds and the work performed by each partner within the project. Detailed information regarding the project's initial communication pack can be found in the submitted deliverable report "D6.1: Public website, and social media groups and initial communication pack".

Figure 1: UMA3 official logo

Figure 2: UMA3 trifold leaflet (external side)

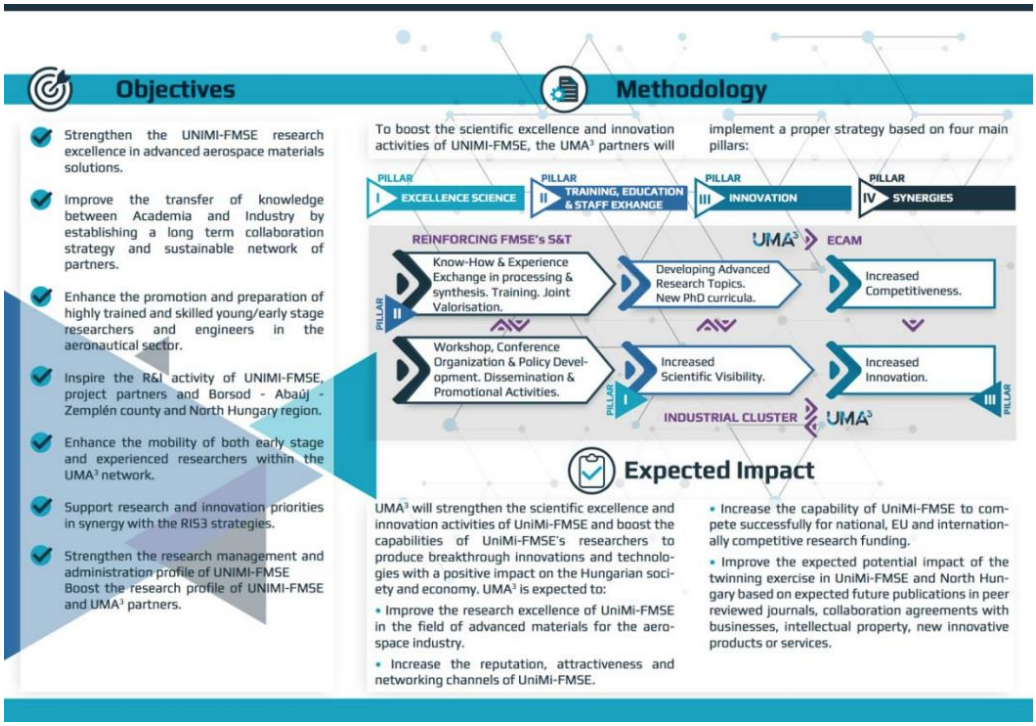

Figure 3: UMA3 trifold leaflet (internal side)

Project website: An official UMA3 public website was developed early on in the project, acting as a foremost tool of the project's external communication strategy and, concurrently, as a major pillar of the UMA3 overall online image. The website provides the visitor detailed and updated information about the UMA3 concept, objectives, methodological approach, progresses, activities, team members, news, events and major outcomes, for different target groups and levels of dissemination. Special care

has been taken to present information in a comprehendible manner, thus allowing grand access to the general public. The produced UMA3 dissemination material have also been made available for viewing and downloading on the project website. The latter will continue to be updated throughout the UMA3 lifetime, providing a constant online reference for the project, as well as will be maintained for a minimum of one additional year after the project comes to an end. EASN-TIS will provide connection between the project website and the EASN portal, the Transport Research and Innovation Portal the EC communication channels, as well as the regional authorities' channels (e.g. CORDIS, Horizon the EU Research and Innovation Magazine, etc.). Lastly it shall be noted that the UMA3 public website follows the best practices for a search engine optimized website, like the use of the "description" and "title" meta tag, improved URLs structure, easy navigation, images with caption text, etc. In this manner, the website will be easily indexed by search engines (i.e. google) and as a result it will be reachable by a wider audience. The project website can be accessed through https://uma3-project.eu/, as well as further information on its design and development is available in D6.1: "Public website, and social media groups and initial communication pack".

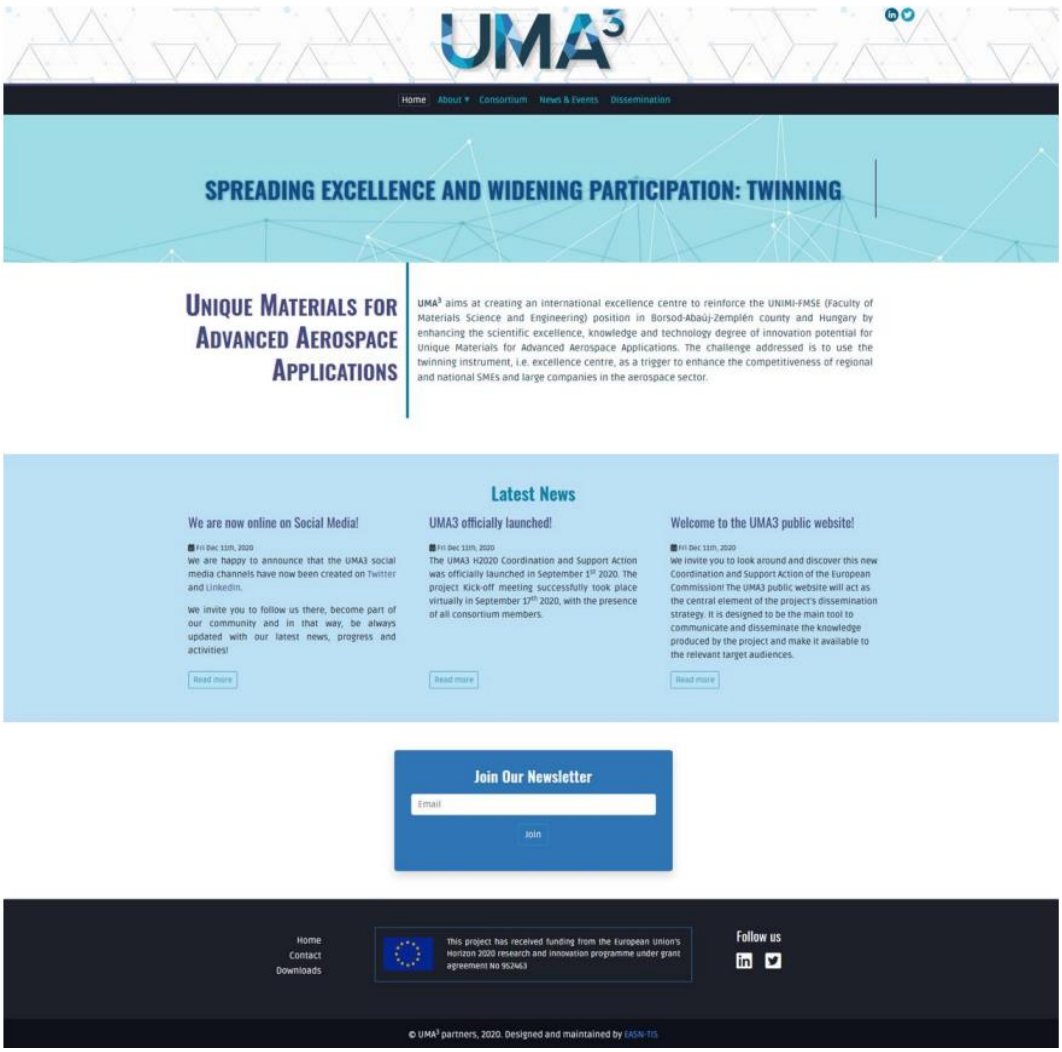

Figure 4: UMA3 website (homepage)

Participation in workshops, conferences and events: Participation and organization of conferences and workshops related to the project's research field is considered essential for obtaining "feedback" on the acceptance of the project outcomes by the academic, industrial and policy making communities, as well as on the economic potential and recommended market-oriented exploitation pathways, the identification of which is considerably important for the UMA3 project. All UMA3 partners are responsible for publishing project results in conferences and workshops. It is also worth stressing that when the UMA3 dissemination and communication strategy was initially shaped, identified, designed and planned, several relevant events had been identified and selected for exploitation purposes in the frame of this project, yet said events were unfortunately postponed or cancelled due to the COVID-19 outbreak. However, other alternatives and solutions were sought and found and the presence of UMA3 was successfully shown during its first reporting period in the frame of the following events, conferences and workshop (predominantly digital participation):

-10th EASN Virtual International Conference on "Innovation in Aviation & Space to the Satisfaction of the European Citizens" (2-4 September 2020, online)

-6th International Virtual Conference of Engineering Against Failure (23-25 June 2021, online)

-11th EASN International Conference on "Innovation in Aviation & Space to the Satisfaction of the European Citizens" (1-4 September 2021, online)

-2nd Workshop on "Sinter-based Additive Manufacturing" (15-16 September 2021, Fraunhofer IFAM, Bremen, Germany)

-17th Miklós Iványi PhD & DLA Symposium (25-26 October 2021, online)

-Formnext 2021 - "International exhibition and conference on additive technologies and tool making" (16-19 November 2021, Frankfurt am Main, Germany)

-Space Tech Expo 2021 (16-18 November 2021, Bremen, Germany).

This effort will continue throughout the entire UMA3 duration.

Scientific Publications, Newsletters and Other Publications: All UMA3 partners are responsible for publishing project results in local and international press (press releases in magazines and newspapers, newsletters, etc.) and in EC communication channels and portals (e.g. Horizon the EU Research and Innovation Magazine, research*eu results magazine, research*eu focus, etc.). These publications could also be in the form of papers in scientific journals and conferences, chapters in books, etc. It is worth noting that special emphasis will be placed on publishing project-related information in Open Access journals which provide access to scientific information, free of charge. It shall also be mentioned that the EASN periodic electronic newsletter has been utilized since the very beginning of the project, for regularly publishing UMA3 related articles and news (January 2021, June 2021, October 2021, February 2022 issues). The EASN Newsletter is widely distributed to more than 10.000 relevant stakeholders, researchers, scientists and professionals of the aerospace sector throughout Europe. Also, UMA3 has been presented and included in the annual report of the Italian national delegate for the International Committee on Aeronautical Fatigue and Structural Integrity (ICAF).

Clustering activities: Contacting related and parallel EU-funded projects and initiatives, contributes in dissemination and exploitation opportunities, while at the same time supports exchanging technology novelty and ensuring maximum complementarity. Such clustering activities may be also linked to the above mentioned workshops and conferences, leading to the organization of cross-conferences and joint events, for maximizing synergies.

Social Media: UMA3 social media profiles have been created on LinkedIn and Twitter with the aim of widening the project's diffusion and further enlarging the UMA3 Community. The UMA3 social media profiled can be accessed directly through the project's public website, as well as via: https://www.linkedin.com/groups/12485629/ and https://twitter.com/ProjectUma3. By exploiting social medias' in-depth user data, the main goals of these profiles have predominantly been to increase our fans base on these networks, engage our target audiences and drive them directly to the UMA3 official website. All UMA3 partners as well as individuals from the targeted audiences were invited to join. At each stage of the project, information related to the project progress and news is posted, discussed and promoted, thus keeping the UMA3 virtual community continuously updated. Thanks to these platforms, we drilled down to target:

• *Users that are interested in aeronautics applications (in research and industrial level)*

• *Users that work in the aerospace industry*

• *Bloggers and journalists*

• *Related EC funded projects & initiatives*

• *Interested General Public*

3. Monitoring and Assessment

Monitoring, keeping track, assessing and evaluating all performed dissemination activities is necessary and critical as part of a continuous quality control process, in order to ensure that the dissemination strategy implemented, achieves the expected impact, as well as that the required technical and societal awareness with regards to the UMA3 activities and outcomes solidly increases. Assessment of the performed activities takes place throughout the entire project duration, yet to a greater extent during the middle and at the end of the project, so as to evaluate potential needs for modifying dissemination and communication strategies, if needed. Several qualitative as well as quantitative key indicators have been identified for this purpose. In particular, qualitative key indicators of dissemination effectiveness refer to the achievement of both project and dissemination strategy goals. Quantitative parameters mean both to concretely measure the actions' effectiveness, as well as to evaluate the effectiveness of a selected communication tool.

A first qualitative parameter is **the level of awareness of the project** and its work to the identified relevant target audiences. The raising awareness reaction may be considered achieved, if a wide audience is interested in the dissemination processes and receives project-related information and material. Website accesses, search engine performance, number of people attending UMA3 related events and presentations, are some of relevant quantitative success parameters. An additional qualitative indicator is the achievement of a **proper understanding of project activities**, in the sense that project key messages are correctly received by the target audiences, thus generating comprehension on the project itself.

The achievement of this communication goal can be measured by follow-up discussions on the communicated contents, requests for further information, downloads of project material (documents, reports or dissemination material). A third success parameter is the **level of use of the project results and findings**. This level can be assessed, for example, through the number of further interaction between stakeholders and UMA3 partners, the number of references of the UMA3 results in the stakeholders' official documents and the referred use of UMA3 outcomes in other research activities. Last but not least, another qualitative assessment indicator to be considered is the level of influence of the UMA3 outcomes in relevant documents regarding future policies or practices, Research and Development Programmes, strategic agenda and roadmaps. Although the achievement of this goal can be measured in a very long period, a first assessment can be done through the level of participation of UMA3 in standard consultation processes. Other general Key Performance Indicators (KPIs) identified for continually monitoring and assessing the UMA3 impact are:

Media coverage, press publications and references to the project: This is the simplest form of measurement, through a record of the number of online articles and scientific articles published on national and international journals. Moreover, the number of references in other scientific publications, but also on stakeholder websites is considered.

Number count of publicity material: This measure consists of a count of the number of news, brochures, posters and other dissemination means produced and distributed during the project.

Record of contacts: Through the involvement of all UMA3 partners, the number of contacts at the project's events is tracked, along with the number of people asking for feedback or more information, the website accesses and people subscribed to the project mailing list, as well as the contacts through social networks and the people involved in project-related discussions are recorded.

Number of participation in events: The number of external dissemination events attended by the UMA3 partners for the promotion or presentation of the project is recorded. Main topics and characteristics of the attended events, the dissemination products presented (e.g. paper, leaflet, poster, banner, presentation, etc.) and feedback from the audience are considered.

Number of participation in project events: The number of people attending the UMA3 seminars and everts, as well as the specific characteristics of the audience is tracked, together with the feedback and comments received during and after said events.

Website statistics & Search Engine performance: Standard analytics tools are used for monitoring the UMA3 public website number of visitors, the bounce rate and the position on the search engine. Other data collected on the project website may be: duration of visits, most visited pages, traffic sources, time spent on the website, referral traffic and geographical distribution of the visits.

In line with the preceding analysis and based on the feedback collected by the UMA3 partners regarding their performed dissemination activities during M1-M18 of the project, the following intermediate assessments can be made:

- ✓ A topmost dissemination action exploited by the UMA3 consortium during the first reporting period of the project, has been the participation in existing relevant major events, conferences and workshops.
- ✓ This type of dissemination activity significantly enhances the project's visibility as well as engages important target groups such as the scientific community, the industry and policy making authorities.
- ✓ Another significant dissemination channel that was exploited during the past 18 months of the project is the publication of UMA3 related articles in newsletters (non-scientific and non-peer reviewed publications). This action was pursued with the aim to reach multiple audiences, including UMA3 stakeholders, the academia and policy makers. Specifically, a series of UMA3 related articles have been published in the periodic EASN newsletter which is distributed to approximately 10,000 subscribers; scientists, policy makers and key players in the European aerospace industry.
- ✓ Further to the above, the dissemination team and the consortium partners, in an effort to influence and further engage relevant target audiences, as well as to increasingly build and enlarge the UMA3 Community/Network, created UMA3 social media profiles while several relevant portals, platforms and websites host in their content UMA3 related information.
- ✓ During the one and a half year of the project's duration, the following target groups were predominantly addressed and reached:
  - ▫ UMA3 attended events mainly addressing researchers, scientists, industry representatives and academics.
  - ▫ The produced communication/dissemination material of the project, have been widely circulated by the UMA3 partners to several thousands of stakeholders (estimated to have reached more than 10.000 individuals) including researchers, scientists, academics and students, industry representatives, policy and decision makers.
  - ▫ Project updates at the EASN newsletter aimed at engaging researchers, academics, industry representatives, policy makers, etc.
  - ▫ The UMA3 public website, social media profiles and popularized publications mainly reach the general public, incorporating both technical and non-technical audiences.

4. UMA3 Exploitation Plan

Exploitation is generally defined as the use of a project's results at various levels, both during as well as after the project's implementation. Explicitly, it is important that the project's outcomes may influence, benefit, or provide sound basis for decision making within the strategic planning of relevant stakeholders, to steer the future calls, to support the decision to fast-track some projects or re-assign project funding. Exploitation addresses different stakeholders. The partners of a project, each partner individually and the project consortium as a whole, intend to turn their involvement in the project and the project outcomes into profit, to support the development of their current activities, and to possibly lead to the launch of new complementary activities. Research partners may be more oriented to knowledge and technology, while the 'industrial' ones may be more focussed on project outcomes affecting industrialization and commercialization aspects. Concurrently, external stakeholders, such as policy and decision makers, are interested in the project results so as to shape, form and address future strategies and policies.

This is even more true when a project is a Coordination and Support Action (like in the case of UMA3), which is by definition aimed at contributing to the implementation of the Framework Programmes and the preparation of future EU research and technological development policy or the development of synergies with other initiatives. The UMA3 exploitation strategy shall therefore provide guidelines and actions in order to multiply the impact of the project findings and ensure the use of results beyond the project itself.

The UMA3 project is expected to contribute to the penetration of novel materials for specific aerospace applications, but will also develop and share valuable new knowledge and information with potential applications in other related sectors such as automotive, machinery, manufacturing, and power generation (nuclear, renewable). For this reason, the UMA3 partners are very mindful about the relevance of exploitation channels and planning measures. Precisely, the UMA3 Exploitation Plan consists of the following five main axes:

1. The UMA3 Community/Network of stakeholders, plays a key role in the project's exploitation planning since the beginning of the project. Namely, said community has been prudently informed, consulted as well as invited to UMA3 events, project progresses and outputs. The community is integrated by the industrial and technological networks represented by the UMA3 Consortium members, and which essentially cover a full range of sectorial clusters and companies. This measure predominantly aims at engaging important key relevant stakeholders and ultimately transform them into active agents for technology transfer, testers of potential/initial applications, and even future developers of derived technological applications.

2. At a second stage, Watch and IPR activities take place. Watch implies a survey conducted outside of the consortium network, searching for new markets or parallel industrial sectors. While IPR positioning ensures a strong way across the initially detected application areas and new opportunity sectors through the management of exploitable results. An adequate IPR positioning will require a full market analysis, specifics point in Consortium Agreement, patent scouting, and a study of associated risks (development or market entry barriers) with minimization measurements.

3. Platforms will allow the Associations become Multipliers of research and industrial applications. For example, EIT/EIP Raw Materials, EU-NANOFUTURES and the industrial Clusters involved through the UMA3 Consortium members, possess and conduct their own particular communication plans, publications and specialized events, which will in turn be indirectly used as multipliers of progress and results.

4. A meaningful step during and beyond the project is Replication within the UMA3 Partners. The knowledge assimilation and development of techniques will give more strength to the Consortium members to open up new possibilities, implement technology transfers and innovation, as well as speed up dissemination and exploitation activities.

5. Finally the Exploitation planning closes with a loop, returning to its first step (early adopters from stakeholder community), so that the replication can be addressed by other agents outside the project's partner group. Hence, strategy is defined in two different aspects: stimulation of project opportunities (targeted stakeholders group, nearest networks, multipliers), and concrete activities during the project (planning, progress, IPR positioning, etc.).

The strategic vision of UMA3 is summarized in the figure below (Figure 5), analysing in a Business canvas all the factors, strengths and market opportunities concerning the UMA3 project. In conjunction, particular exploitation measures to be applied in UMA3 are illustrated in Figure 6.

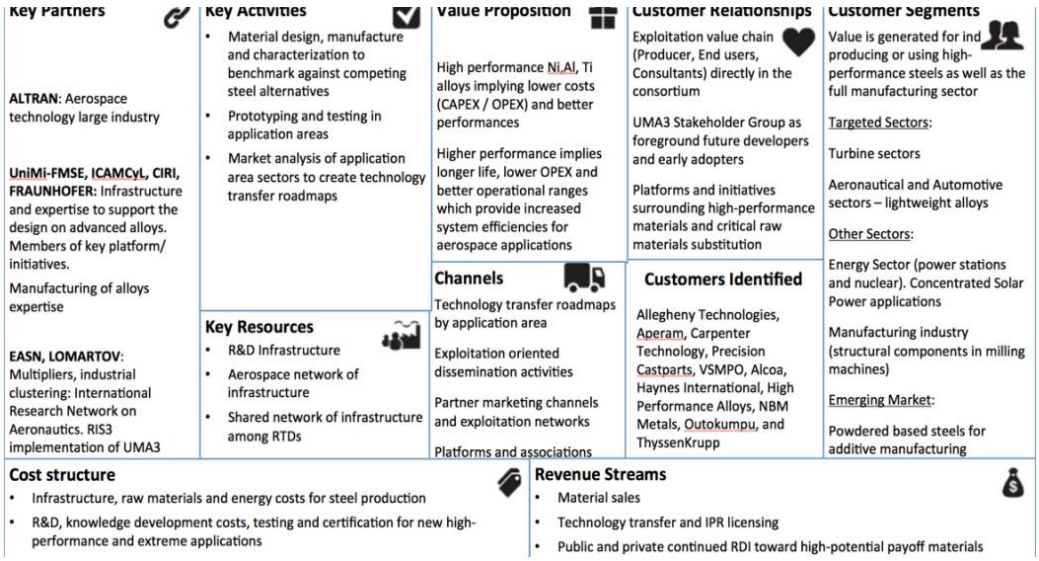

Figure 5: Strategic vision and business canvas of UMA3

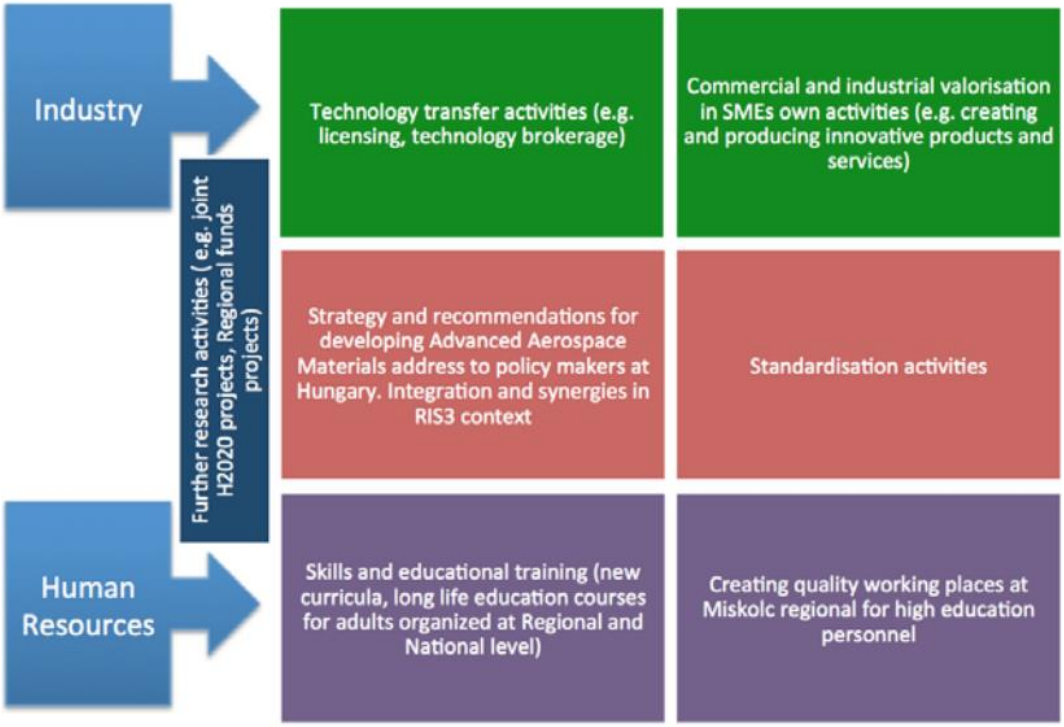

Figure 6: UMA3 exploitation measures

5. Conclusions

Dissemination, communication, networking and exploitation activities promote the project research but also the scientists and partner institutions driving this research, thus leading to enhanced recognition, networking and new collaboration opportunities.

Said activities also enhance knowledge sharing and the acceleration of innovation, while also contribute to the European excellence by enhancing the scientific and industrial profile of the European research and development. In this context, the present document described the dedicated UMA3 Plan for the Dissemination, Communication, Networking activities & Exploitation of the project results, thus materializing the delivery of D6.2. The logic, tactic and methodology behind said plan's formation has been elaborated, together with its main objectives; while an overview of the foremost activities realized so far has been presented. Moreover, in order to check the effectiveness of the implemented strategy, a set of key performance indicators (both qualitative and quantitative) have been identified as well as some conclusions on the up-to-date achieved impact have been drawn.

Considering that the planned activities of each individual UMA3 partner are shared with the dissemination team and the other consortium members, the important tasks of protecting the partners' IPRs and the planning of future communication strategies become easier and more effective, as well as the same applies to the closer monitoring and assessment of the implementation of the plan. In that sense, the current document is also expected to act as a point of reference and guideline for current and foreseen dissemination activities for the UMA3 consortium. Consequently, albeit the official delivery of the document is, as contractually stated, in M20 of the project, the UMA3 Plan for the Dissemination, Communication, Networking activities & Exploitation of the project results will be continuously monitored, assessed and updated throughout the project lifetime. In particular, it will be periodically circulated to the project partners for updates, corrections and/or amendments. Moreover, information will be also added continuously, in line with the overall evolution of UMA3, as well as in accordance to the performed and planned dissemination activities during the entire project lifespan.

In conclusion, as elaborated in the main parts of this document, the UMA3 dissemination, communication, networking and exploitation strategy consists in a strategic matching between the target audiences' distinct characteristics, interests and needs; the selection of the key information and messages to be communicated (tailored on the target needs) and the identification and utilization of the proper content, formats, language style, means and tools, so as to achieve the required results and impacts. After identifying all relevant target audiences of UMA3 (in line with the project's concept, topic, scope and objectives), an analysis of the specific needs and possible usages of the project outputs for each of the three main clusters of relevant target groups, followed as a key step for shaping an effective dissemination strategy. This allows the consortium to tailor the information and the proper mean to be used for communicating the intended messages. After that, the contents to be promoted are defined, according to the evolution of the project and the available outcomes.

Fundamentally, at the early stages of the project, the main dissemination goal is to create interest and awareness about the latter, thus the main focus is on communicating general, introductory information about the project through informative tools such as brochures, social media and websites, while more specialized means such as scientific articles, presentations at conferences, and seminars, are exploited at a later stage, for engaging the project's community/ network; thus communicating results that are more concrete, detailed and technical. The implementation of dissemination activities, based on the status of the project, tailored to the clusters of stakeholders, and through proper communication means per stakeholder in accordance with the needs and evolution of the project, is the final and operative part of a successful dissemination strategy.

Following what above described, the map of relevant stakeholders has been matched with a set of products considered as the most effective and suitable for each group of stakeholders. A specific description of the planned means and tools of communication has also been subsequently reported. This matching analysis will be updated, monitored, assessed and evaluated throughout the entire project development, depending on the overall project's progress, activities and outcomes, as well as in line with the dissemination needs and communication effectiveness.