

Interreg
Sudoe



EUROPEAN UNION

ADDISPACE

European Regional Development Fund

ADDISPACE PROJECT EXTERNAL EVALUATION

EX ANTE EVALUATION

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To ADDISPACE Consortium



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Context and Objectives

Context

ADDISPACE Project

In the frame of the INTERREG Sudoe programme, a consortium led by ESTIA and composed by 9 partners and 8 associated partners from (1) research and technology centres; (2) clusters industrial associations and SMEs; and (3) training centres, proposed a project that has been accepted for financing from July 2016 to June 2019.

The aim of the project is to increase the adoption of MAM (Metallic Additive Manufacturing) technologies to manufacture metal components for the aerospace sector in the Sudoe region.

The Project foresees to subcontract to an external actor the evaluation to the project. In order to be able to mitigate potential deviations, risks, etc. and in order to have room for improvement along the project, such evaluation will be organised around 3 phases.

ADDISPACE External evaluation

Capital High Tech is the entity chosen by the project to conduct the external evaluation of ADDISPACE. The overall goal of the external evaluation is to assess the project relevance, effectiveness, efficiency and impact.

Following the Terms of Reference produced by the project, the external evaluation program will be developed in 3 phases:

1. Ex ante evaluation → report by the end of May 2017

Focus on: relevance and coherence of the project strategy and work, success factors and risks, expectations.

2. Intermediate evaluation → report by the end of April 2018

Focus on: achievements, effectiveness and efficiency, management and coordination, partners' satisfaction, preliminary impacts...

3. Final evaluation → report by the end of June 2019

Focus on: effectiveness and efficiency, partners' satisfaction level, assessment of project's impacts in terms of project and Interreg Sudoe program results and productivity indicators, assessment of final impact on different fields (networking, platform success and sustainability, advancements in standardization and quality certification...)

Objectives of the first phase report

In the context explained above, and according to relevant and detailed Terms of Reference elaborated within the project, the objective of this report, which corresponds the 1st phase – ex ante evaluation - is to assess the following:

- Relevance and coherence of the project
- Key success factors
- Stakeholder analysis
- Project analysis
- External risks

Following such analysis, this report will provide some conclusions and recommendations to the consortium, concerning issues that deem to be closely monitored or corrected or improved to maximize chances of success for the project.

The methodology adopted by Capital High Tech includes:

- Analysis of project documents (minutes, deliverables, website, working documents...); and of any other relevant document external to the project
- Participation to ADDISPACE meetings;
- Interviews with partners of the project and associated beneficiaries,
- Interviews of a sample of stakeholders and end users involved.

Ex-ante evaluation

The structure of the following chapters reflects the objectives of the report.

Relevance and coherence of the project

Project objectives relevance towards INTERREG Sudoe Programme's priorities

Programme Priorities	Objectives of the project	Relevance (from 1 to 5)// Explanation
Transnational program to strengthen synergic and networking cooperation of R&I	To involve 9+8 different and complementary partners from three countries of the Sudoe area	4 // The consortium is quite balanced (a majority of Spanish entities is observed, but each country has at least 3 entities). Transnational cooperation is achieved.
Smart, inclusive and sustainable regional development	To increase the adoption of a KET by SMEs in aerospace sector in Sudoe region.	4 // The project explains why MAM is a smart (new design and lighter parts) sustainable (less material is consumed) and inclusive (towards women) technology. Also, the Aerospace focus responds to the 'regional development' priority as it is well developed sector in this part of Europe. By focusing on MAM and Aerospace, the project contributes to the achievement of this priority.
Develop applied research dissemination in relation with KET	Create a platform for MAM technologies dissemination and transfer including since the beginning Research centres. MAM is considered a KET.	5// By involving technology and research centres, by creating pilots, by organizing conferences and by involving research and industry communities in the platform, the project is well placed to reach such a priority.
Support lasting innovation capabilities for a smart, inclusive and sustainable growth	Increase the adoption of MAM by SMEs	5// ADDISPACE looks for innovative transfer solutions towards SMEs. The project explains why adopting MAM technologies will be an innovative solution for smart, inclusive and sustainable growth. (see above). The platform and project results and recommendations are thought to last after the end of the project.
Strengthen research, technological development and innovation	Create pilots (demanding R&D efforts) and a platform for dissemination and technology transfer to SMEs wishing to adopt an innovative solution	4// The project will clearly contribute to this priority as it foresees 4 parallel research efforts and a certain increase in TRL of MAM.

1= not relevant at all / 5: very relevant

Towards European and National identified policies

The following table summarises some of the European, national and regional policies to which ADDISPACE contributes or is aligned:

European / National Policies	Objectives of the project	Relevance (1 to 5)
Adoption of KET - CE COM (2014) 014 final	Facilitate the adoption of MAM as a Key Enabling Technology	5
Priority over Laser and photonic technologies - RIS3 Aquitaine (FR)	Promote the adoption of laser beam based technologies within MAM	4
Advanced materials and processes: aeronautics and diversification - RIS3 Occitanie (FR)	Facilitate the adoption of a KET especially in the aerospace sector	5
Aerospace sector and AM, as priorities of Pays Basque and Andalusia RIS3 (ES)	Promotion of the adoption of AM technologies in the aerospace and transport sector	5
Strategic Plan for aeronautic sector in Spain, 2008-2016 (ES)	Promotion and support to the aeronautic sector in Sudoe region (industries and SMEs) for their adoption of AM technologies (dissemination, demonstration, training, creation of the necessary ecosystem...)	5
Priorities to AM, aerospace sector and new advanced fabrication methods - National RIS3 (PO)	Promotion of the adoption of AM technologies in the aerospace sector	5
FR and PO government initiatives about adopting national strategy to support AM	Support the adoption of AM in a lasting and replicable way	5

Relevance of the project strategy towards the problem identified

The strategy of the project is very relevant to face the problems identified by the project. In very few cases the strategy seems to be less relevant: notably to face the problem of high costs to adopt MAM. Facing this problem is not easy, and we think that demonstrating the economic added value and sustainability of the technologies is the most relevant effort that can be done in the frame of the project, and notably in the frame of Pilots. Lack of reliability on MAM quality can be partially faced through pilots and qualification efforts.

Problem	Project Strategy	Relevance (1 to 5)
Weak knowledge and awareness of MAM technologies, opportunities and advantages	Organise context and opportunities to spread updated and deep knowledge of MAM (conferences and workshops). Dissemination/Awareness raising of the project in events Demonstrate added value and sustainability (pilots)	5
Weak technology transfer (TT) initiatives in the MAM domain	Develop TT promotion activities Create opportunities and matchmaking for TT Create lasting and replicable tools for TT	5
Lack of reliability on MAM quality	Advance research Demonstrate and validate quality of MAM Train personnel	4
High costs for MAM equipment	Advance research Demonstrate economic viability	3
Lack or few well trained persons specifically for MAM	Training development	5

A more in-depth analysis is performed within Deliverable 1.1.1 “State of the Art of MAM”, where challenges for MAM to achieve aerospace quality, and thus to be adopted, are identified: design of prototypes, properties of raw material, post processing treatment, failure analysis, design for demise. It is recommended that ADDISPACE Pilots addresses the highest number possible of those challenges, and that the project benefits as much as possible of other projects’ results on these topics.

Coherence of the work plan towards the strategy of the project

The ADDISPACE work plan responds well to the strategies adopted by the project. Some of the objectives are very ambitious and the strategy and work plan are coherent with them. It is worth mentioning also the coherence of the consortium partners’ profiles to achieve the project objectives. For instance, we can quote FADA-CATEC experience in part designs, in cooperation with a potential end user (Airbus). We can also quote ESTIA experience in technology transfers and training, or Portuguese and Spanish industry associations reach to disseminate results and engage end users and stakeholders.

Strategy	Work Plan	Coherence (1 to 5)
Organise opportunities to spread updated and deep knowledge of MAM. Dissemination/Awareness raising of the project in events Demonstrate added value and sustainability	WP1: Diagnostic -state of the art of AM technologies - Complementary specialisation analysis among RIS3 - Use and barriers analysis - Technological trends - Piece Target identification WP3: conferences and workshop WP transversal 2 on communication	5
Demonstrate reliability, quality, and added value of MAM	WP2: demonstrate technological, economic and environmental sustainability (4 pilots). Demonstrate the quality. Identification of the knowledge and technology to be transferred.	4
Promote technology transfer	WP3: 3 Technology Transfer workshops to create TT opportunities and 3 conferences for dissemination. Development of a catalogue. Creation of a platform and recommendations for replication, standardization, training...	5
Training development	WP4: training (training needs analysis, training framework development, training pilots).	4
Lasting and replicable initiatives for TT in the MAM domain	WP5 creation of roadmap and implementation strategy concerning a stable and lasting platform. Policy recommendations and policy briefs elaboration	5

Key Success Factors

In order to fully achieve the objectives of the project, Capital High Tech has identified – at this stage- the following Key Success Factors (KSF) for the first phase of the project (T0-T+6) that should be closely monitored in order to increment chances of success.

Stakeholders and end-users engagement and deep understanding (KSF n. 1)

The ADDISPACE project started to perform stakeholders and end-user engagement.

For the first months of the project we observed the following efforts:

- Participation to Events (in Albi, France, where more than 60 persons answered to questionnaire)
- Questionnaires preparation and dissemination through the website of the project: this channel has not proven as successful as the workshop in Albi, so there is little representation of Spanish and Portuguese respondents to the questionnaire as of today, comparing to the French.

- Dissemination activities, notably the participation to the Aerospace Valley Forum, mainly aimed at communicating about the project and raise awareness among aerospace industries.
- Preparation and dissemination of the first call for proposals addressed to industries wishing to propose a component to be designed and manufactured in the frame of the Pilots.

Analysis: since the project it is at its beginning, stakeholders and end users' engagement is expected to increase.

Recommendation n. 1 → It is recommended that in the following months the project strengthens this activity and it is recommended to pay particular attention to geographical balance in the stakeholders' identification and engagement. Their engagement is a key success factor for ADDISPACE as they will be at the base of Key Performance Indicators.

Effectiveness and impact of demonstrations (pilot tests) (KSF n. 2)

Definition and preparation of the Pilots is ongoing. A Pilot coordinator has been designated, and each Pilot will have a responsible partner in charge of it with the support of the other partners and stakeholders when deemed necessary.

Pilots are a key component of the project for different reasons: to advance research, to demonstrate the added value of MAM and thus to convince SMEs to go towards a technology transfer thanks to the demonstration of MAM sustainability. This activity if successful will provide high quality dissemination material (success stories) and will ensure the impact of the project. This activity deserves the time and resources necessary to make them a success.

Recommendation n. 2 → ensure time and resources to be committed to this activity; ensure strong involvement of each partner and of stakeholders for the success of pilots.

Massive and effective dissemination (KSF n. 3)

Actions achieved for dissemination in relation to the Communication Plan include: Web site, brochures, poster, participation to events such as Aerospace Valley Forum.

Dissemination effort must continue. Also after the end of the project, the website should continue to exist and make available updated catalogues, pilots results, surveys results, etc. to ensure lasting results.

Close follow up of expenses and timetable (KSF n. 4)

Expenses in the first 6 months of the project could not be evaluated yet. Indeed, according to the Consortium, due to the INTERREG Sudoe program delays in the establishment of the internet platform for reporting (technical and financial reporting), the consortium has not performed any financial reporting yet. Thus, the Consortium prefers the external evaluator to perform such analysis in the next intermediate report, when partners will have reported and thus received the first consistent transfer of resources from the program.

Concerning the timetable for the work plan, the project concretely started 4 months later (KoM in November 2016) than the official date (July 2016). According to the consortium, this was due to the INTERREG Sudoe program delay in the contract signature, which was done end of September.

The consortium cannot postpone the final date of the project, nor increase the months of the project. Thus, this imply an effort to perform the same amount of work in 32 rather than 36 months.

Recommendation n. 3 → It is recommended to early identify the activities that can be started earlier in the project calendar and/or that can easily be performed in a shorter time so to anticipate and calibrate the abovementioned effort among the partners and according to the activity.

In the first 6 months, the following deliverables have been done (in green, even though some are not yet in their definitive version) or are under development (in orange):

WP	Name	Activity period	Activity and level of realisation	Delivery date
WP1	Diagnostic and opportunities study	7-2016 to 2-2017	1.1 Diagnostic	10-2016
			1.2 Barriers identification	12-2016
			1.3 Opportunity study	2-2017
WP2	Pilot test for TT towards aerospace SMEs	1-2017 to 10-2018	2.1 ToR and Specifications	3-2017
			2.2 Industrial research	2-2018
			2.3 Viability study	10-2018
WP3	Dissemination and TT	1-2017 to 3-2019	3.1 Workshops (1st kind of, done)	10-2018
			3.2 Catalogue	2-2018
			3.3 Conferences	3-2019
WP4	Specialised training	1-2017 to 2-2019	4.1 Needs analysis	4-2017
			4.2 Training pilot	9-2018
			4.3 Framework proposition	2-2019
WP5	Towards a Platform of TT	7-2018 to 6-2019	5.1 Roadmap and action plan Platform	6-2019
			5.2 Policy and strategy briefs	6-2019
T1	Project management	7-2016 to 6-2019	T1.1 Procedures, structures, responsibilities for project coordination and management	
			T1.2 Decision making bodies identification	
			T1.3 Internal communication	
			T1.4 Internal organisation for reporting	
			T1.5 Financial management	
T2	Project communication	7-2016 to 6-2019	T2.1 Logo creation	
			T2.2 Website	
			T2.3 Dissemination Event	
			T2.4 Poster	
			T2.5 Communication plan	
			T2.6 Participation to other events	
			T2.7 Communication Material	
T3	Project Evaluation and follow up	7-2016 to 6-2019	T3.1 Procedures and structures for project follow-up	
			T3.2 Procedures and structures for project evaluation	
			T3.3 Proceedings for risk management and quality control	

Even though the project has started with 4 months' delay in comparison with the official starting date, the above table shows that the consortium has produced or started to produce several documents/activities, proving a certain dynamism in the consortium.

Stakeholder Analysis

Objectives and methodology

Capital High Tech developed a short indicative questionnaire to interview a sample of key stakeholders for the project, among those already engaged.

Kind of relevant stakeholders include: MAM equipment and solution provider, MAM operator or component manufacturer (SME and industrial group), research organization, education organization.

The objective was to assess:

- Their motivations in collaborating with the project and their expectations;
- Their satisfaction so far;
- The possible barriers they see in the future adoption of AM technologies.

After discussions with the Consortium, and due to the work plan of the project and the slight delay of the project for the reasons explained above, it was decided that it is too early to conduct such analysis at this stage. In fact, the project has engaged stakeholders in a still superficial and indirect way (through questionnaires on line or on paper), and a proper relation between stakeholders and the project has not been fully developed yet. Thus, it has been required to postpone this analysis to the intermediate evaluation.

Project analysis

Objectives and methodology

Capital High Tech developed a short and indicative questionnaire to perform interviews of project's partners and associated beneficiaries to assess:

- Their expectations from the project (what to achieve, what impact for their own activity)
- Their vision about the strengths and the weakness of the project in terms of
 - Content (objectives, activities)
 - Implementation (coordination, management, cooperation)

Results

Capital High Tech participated to the Project Steering Committee held in Archon on the 16th of May 2017, and assisted to one of their dissemination activities. This was the occasion to interview some of the partners.

Partners of the consortium consider ADDISPACE a relevant and strategic project, with a good timing in terms of technological evolutions. They have chosen to participate for various reasons, the main ones include: wish to develop or consolidate their knowledge on MAM, wish to expand the network and commercial opportunities out of their country; wish to have a deep understanding of demand/offer so to orient their research and market strategies.

All interviewed partners expressed their satisfaction in relation to the quality, competence, network capacities and motivation of the team. There is a general good dynamic and spirit of collaboration in the project.

Interviewed partners see the strengths of the projects as: the transnational composition, the strategy of the project (technical, business and training issues are combined), the role of the project in accelerating industrial and market processes around MAM.

Our evaluation leads us to name the following weaknesses: the delay of the project creates an additional pressure that will need to be managed. The training sessions foreseen in the project seem as of today to be quite short in time to train all categories of persons. This aspect will need to be carefully dealt with to ensure impact of the three main training categories. The administrative delays of the INTERREG Sudoe program implies that partners must invest before obtaining the funding (the first financial reporting and payment will take place almost one year after the project start). This may create demotivation and financial problems to certain partners. Also, the different technological level of partners will not be a weakness of the project only if clear Intellectual Property Right rules are established among members to ensure the exchange of necessary information. This aspect is under consideration in the project.

External Risks

External risks identified

Here below some of the external risks identified and evaluated in terms of probability and impact from 1 (very low/inexistent) to 5 (very high):

Risk 1: low stakeholder and end-user engagement during and after the project (in relation to ADDISPACE KPIs).

Probability: low (2), since the consortium has foreseen many ways to engage them and survey shows a real interest in MAM.

Impact: quite high (4) as it would weaken the pilots and the final objective: adoption of MAM

Risk2: low adoption of MAM by aerospace sector in the Sudoe region at the end of the project (in relation to KPIs).

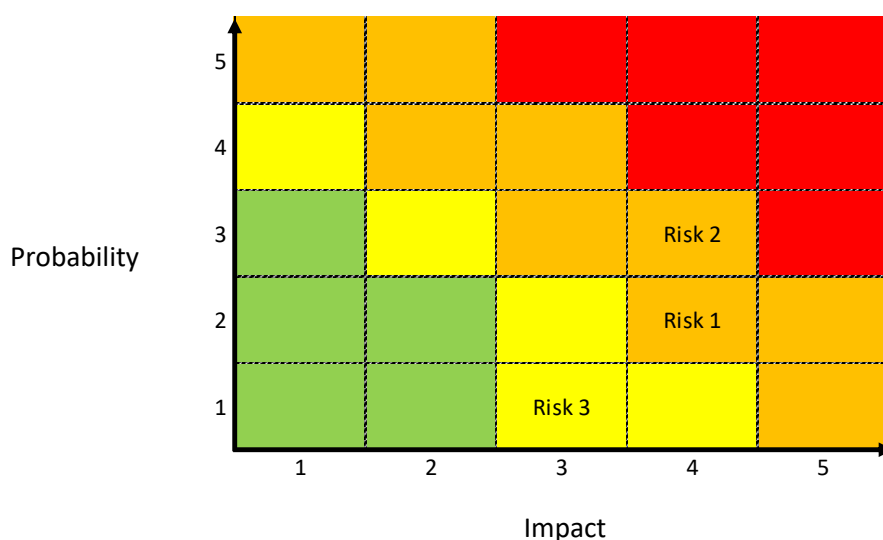
Probability: medium (3), as the project is addressing most of the barriers, but as of today it seems no facing all of them: for instance, cost of the technology adoption and exploitation (including post-fabrication treatments), or quality of raw material. (see page 10 of this report)

Impact: quite high (4), as it would hamper the final objective of the project: adoption of MAM

Risk3: low engagement of the public sector for supporting training and TT platform replicability in other regions.

Probability: very low (1), as policy documents at regional, national and European level push towards AM adoption and the Aerospace sector support for innovation and market.

Impact: medium (3), as no public support would hamper the lasting impacts of the project (training and TT platform), but still private companies could engage in such an effort if they are convincing of the opportunity and advantages to do so (Pilots and dissemination are key).



Early warning indicators

Risk 1: Low stakeholder engagement and participation since the beginning of the project.

Risk 2: economic analysis of pilots unveils prohibitive costs for the whole chain of MAM and low economic advantages for Aerospace industries comparing to conventional manufacturing.

Risk 3: drastic changes in the national and regional priorities and political engagement towards AM and the aerospace sector.

Potential mitigation measures

Risk 1: increase consortium efforts in disseminating information and Pilot results towards stakeholders and end users. Dissemination should concern not only project information and MAM information but also concrete results of demonstrations and results from studies on technical, environmental and economic feasibility. Success stories and examples should be strongly disseminated as well.

Risk 2: a clear effort should be put on economic analysis and to find the right economic arguments to address end users concerns, which would complement concerns on training and technical feasibility. Another mitigation measure could be to invite to workshops funding entities (banks, consultants, other ...) that may provide support to SMEs for funding their investments in MAM adoption.

Risk 3: Provide arguments to convince that it is worth considering the opportunity for aerospace industries to fund (part of?) training and technology transfers.

➔ The project has foreseen risk mitigation analysis

Conclusions, recommendations and next steps

Conclusions

The consortium has collaborated with Capital High Tech to enable us to perform this evaluation: full access has been provided to the Website restricted area, we have been invited to the project Steering Committee held in Arcachon, and partners were fully collaborative to be interviewed.

The project is relevant both in terms of strategy and work plan towards INTERREG program, national and regional priorities. The consortium and associated beneficiaries are meaningful for the project in terms of geographic balance, typology and competences. The consortium has shown dynamism and spirit of cooperation and is well managed, with the support of a specialised consulting company. The work is ongoing and some key steps have been fully achieved (state of the art analysis, communication, end user engagement, management, dissemination) despite the delay of the KoM.

Recommendations

Three recommendations have been formulated for the next months of the project and are recalled here:

Recommendation 1 ➔ To strength end user engagement paying attention to geographical balance.

Recommendation 2 ➔ To ensure time and resources to be committed to Pilots as well as strong involvement of stakeholders.

Recommendation 3 ➔ Taking into account the delay of the project KoM, to close follow-up deadlines and resources, reallocating them if necessary to prioritise key activities (such as pilots and dissemination)

Next steps

Concerning the external evaluation, the next step will be the Intermediate Evaluation. This report will be issued by the end of April 2018.

List of abbreviations used in this report

AM	Additive manufacturing
ES	Spain
FR	France
KET	Key Enabling Technologies
KoM	Kick-off-Meeting
KSF	Key Success Factors
MAM	Metallic Additive Manufacturing
PO	Portugal
RIS3	Research and innovation strategies for a smart specialisation
TT	Technology Transfer
WP	Work Package

Consulted Documents

- All documents presented in the restricted area of the website and available at the 29th of May 2017
- Quoted RIS3
- EC COMM (2014) O14 final
- Interreg Sudoe Program documents

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