Project Management Plan

D5.1

MINIMA

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MINIMA

MITIGATING NEGATIVE IMPACTS OF MONITORING HIGH LEVELS OF AUTOMATION

Abstract

Assigning tasks which were formerly executed by human operators to automation can increase the performance in many aspects of Air Traffic Management. If the absence of automation errors cannot be guaranteed, a human operator is required to monitor the automation and to intervene in the rare cases of automation errors. This monitoring role of human operators leads to negative effects like lack of attention, loss of situation awareness and –in the long term – skill degradation.

MINIMA will develop a vigilance and attention controller to mitigate these effects. A highly automated arrival management task, in which aircraft follow predefined 4D-trajectories, will be investigated as an example. This task environment will be analysed to identify tasks that could be assigned to the Air Traffic Controllers to increase their task engagement.

A Vigilance and Attention Observer will use psychophysiological measurements like EEG to identify the state of the Air Traffic Controller. The observer will be combined with an adaptive task activation component to form a Vigilance and Attention Controller. This will allow for activating tasks based on the Air Traffic Controllers state to keep their performance on a high level and to ensure safe operations.

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List of Acronyms

Abbreviation	Description
AB	Advisory Board
DL	Deliverable Leader

Abbreviation	Description
DLR	Deutsches Zentrum für Luft- und Raumfahrt (German Aerospace Center)
DM	Dissemination Manager
ER	Exploratory Research
GA	Grant Agreement
JU	Joint Undertaking
MINIMA	MItigating Negative Impacts of Monitoring high levels of Automation
ONERA	Office National D'etudes Et De Recherches Aerospatiales (The French Aerospace Lab)
PC	Project Coordinator
PMP	Project Management Plan
PSO	Project Scientific Officer
SC	Steering Committee
SESAR	Single European Sky ATM Research Programme
SJU	SESAR JU
UNIBO	Universita Di Bologna
WL	Work package Leader
WP	Work package

Definitions

Definitions	Description
(Project) Risk	Project risk is an uncertain event or condition that, if it occurs, has a positive or negative effect on a project's objectives [15]
Issue	An Issue is a negative project risk that has occurred [15]
Stakeholder	According to E-OCVM, anyone that has any input or is in any way affected by the implementation of the proposed concept can be considered a stakeholder [16].

1 Executive Summary

This document is the Project Management Plan (PMP) of MINIMA. It shall complete the project information provided in the Grant Agreement Annex 1 (Description of Action) [1][2]. The Grant Agreement Annex 1 (Description of Action) will remain the contractual reference.

The PMP includes the following topics:

- The Management processes of the MINIMA project including the responsibilities of the different roles, and names the role owner.

- The project schedule with dates for all deliverables, reports, milestones and for important meetings. Additional information for these documents and milestones is also provided. Further, dates for dissemination activities and dates related to ethical issues are included.

- The Project Management plan including details about quality management, progress reporting an effort management.

- The Risk and Issue Management plan which describes how risks are identified, evaluated and documented. Additionally the currently identified risk are given

- The communication plan of MINIMA, which describes which stakeholders will be approached and by which means

- The dissemination and exploitation plan of MINIMA. This plan provides details about the goal for the amount of publication expected in MINIMA, the targeted scientific communities, the dissemination means and a list of currently envisaged publications.

- Information regarding the Implementation of Ethics Requirements. For Details it is referred to D6.1 to D6.6.

2 Introduction

MINIMA (MItigating Negative Impacts of Monitoring high levels of Automation) is a response to the SESAR 2020 Exploratory Research First Call for Research Projects [4]. It addresses the topic ER-01-2015 – AUTOMATION IN ATM. It was founded under Grant Agreement No 699282.

This Project Management Plan (PMP) of MINIMA complements the project information provided in the Grant Agreement Annex 1 (Description of Action) [1][2] and the consortium agreement [3]. However, the Grant Agreement Annex 1 (Description of Action) will remain the contractual reference.

This document should be used by participants of MINIMA as a guideline for their work within the project. In detail it provides information about

- The organisation of MINIMA, the roles and the responsible persons

- Details about the Schedule of MINIMA including deliverables, reports, milestones, as well as dissemination and ethics related dates

- The Quality Management Proceeds for Deliverables

- Required Reports

- The Risk and Issue Management Procedures

- The Communication Plan

- The Dissemination and Exploitation Plan

There was no explicit differentiation between the target audience for Communication and Dissemination in the Grant Agreement Annex 1 (Description of Action). The PMP the differentiation in accordance with Grant Agreement Article 29 ("disseminate its results by disclosing them to the public by appropriate means, including scientific publications") and Article 38 ("The beneficiaries must promote the action and its results, by providing targeted information to multiple audiences (including the media and the public) in a strategic and effective manner.").

Thus, the target audience for dissemination activates are different scientific communities and stakeholders that might use or apply MINIMA results. Typical forms of dissemination are presentations at a scientific conference and peer reviewed publications.

Communication activities are aimed in promoting the action and its result to audiences that go beyond the action's own community. Communication is addressed to the general public. Examples are press releases for the general public, leaflets, videos and websites.

Activities which are targeting at both groups will be considered as Communication or Dissemination activities based on the main target group. For example, the website will be considered as Communication activity as it will be used to promote the action and not only provide results.

The opinions expressed herein reflect the author's view only. Under no circumstances shall the SESAR Joint Undertaking be responsible for any use that may be made of the information contained herein.

3 Organisation

According to the Grant Agreement Part B [2] the following project management structure is implemented in the project.
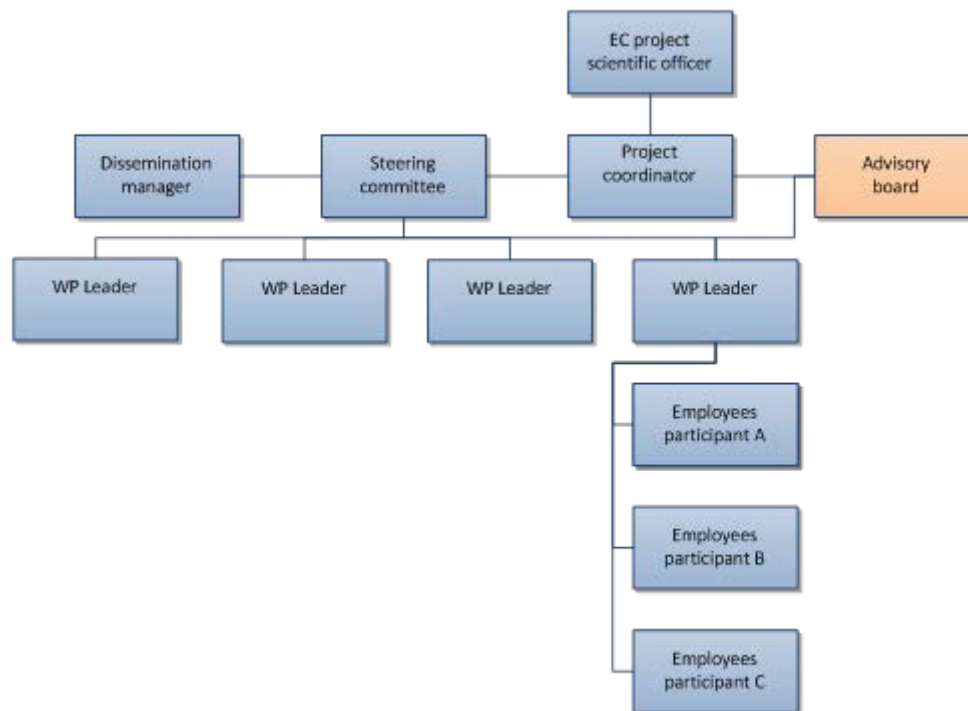
Figure 1: MINIMA Project Management Structure

3.1 Steering committee

The Steering Committee (SC) is the decision making body of the consortium [3]. The Steering Committee consists of one representative from each beneficiary. Additionally one representative from the third party BrainSigns and the project coordination deputy will be associate members. The project scientific officer as representative of the SESAR JU (SJU) is allowed and invited to participate. Further participants are invited on request. The Steering Committee will meet regularly every two weeks at a fixed date for about one hour via Adobe Connect.

The Coordinator will chair all meetings of the Steering Committee, unless decided otherwise by the Steering Committee. The Steering Committee executes the monitoring, control, and steering of the project. The parties agree to abide by all decisions of the Steering Committee. Details are fixed in the Consortium Agreement [3].

3.2 Project Coordinator

The Project Coordinator (PC) performs the tasks assigned to it as described in the Grant Agreement and the Consortium Agreement. The project coordinator will be responsible for the overall management of the work packages, the organisation of project meetings, the preparation of technical and management project reports and the administration of project finances.

In particular, the Project Coordinator must

- act as intermediary for all communications between the beneficiaries and the JU,
- request and review any documents or information required by the JU and verify their completeness and correctness before passing them on to the JU,
- collect, review, approve and submit the deliverables given in Table 2 and in the MINIMA GA [1] in accordance with the timing and conditions set out in it through the portal for assessment by the JU,
- submit to the JU the period and final technical and financial reports (see section 5.8 for details about the dates and content of reports). These reports include requests for payment and must be drawn up using the forms and templates provided in the portal,
- inform the JU and the other beneficiaries about events, which are likely to affect significantly or delay the implementation of the action or the EU's financial interests, and circumstances affecting the decision to award the grant or compliance with requirements under the Agreement,
- submit and receive requests for amendment of the Grant Agreement on behalf of the beneficiaries, discuss them with the JU and, if the consortium agrees to an amendment requested by the JU, sign the amendment within 45 days through the portal (details are provided in section 5.10),
- ensure that all payments are made to the other beneficiaries without unjustified delay,
- inform the JU of the amounts paid to each beneficiary, when required according to Articles 44 or 50 of the Grant Agreement or requested by the JU,
- keep the address list of members and other contact persons up to date and available on the Teamsite [5], and
- prepare meetings, propose decisions and prepare the agenda of the Steering Committee meetings, chair the meetings, prepare the minutes of the meeting and monitor the implementation of the meetings decisions.

This list is not complete. Further responsibilities are defined in the Consortium Agreement [3].

3.3 Advisory Board

A fundamental support for this objective is the Advisory Board (AB). The Advisory Board will be established with a set of members of key institutional stakeholders to ensure that the project remains connected to the real needs and objectives of the aviation domain. The Advisory Board will meet once per year, with the following objectives:

1. Discuss the major findings of the project.

2. Evaluate whether the results match real needs of main organisations involved.

3. Assess whether to adapt the remaining project activity to ensure that needs are met.

Further details of the Advisory Board are detailed in the Grant Agreement – Annex 1 – Description of Action (Part B). Work package 4 (Dissemination) is responsible, in Coordination with the steering Committee, for the Advisory Board Meeting.

The first Advisory Board meeting will take place at the TU Delft on November 10th after the closing ceremony of the Sesar Innovation Days 2016. The second Meeting is planned for February 2018.

The advantage of having the Advisory Board meeting aligned with the SESAR Innovation Days (SID) is that no extra traveling effort is required to participate at the Advisory Board meeting. However, this advantage only applies to those, how participate at the SID. Thus, MINIMA plan to approach exactly these stakeholders who participate at this event. However, it is currently not know who will participate at the SID, as the list of participants has not been published yet. Thus MINIMA could not approach these stakeholders, yet. It is planned to do this as soon as the list of participants for the SID is published. However, as it can be assumed that most of the members of the programme committee will participate, they have been contacted and ask to support MINIMA by participating at the Advisory Board Meetings. Up to now, nine stakeholders agreed to support MINIMA as members of the Advisory Board. The names and affiliations of these stakeholders are given Table 1. Further stakeholders will be contacted as soon as the list of SID participants is available.

Table 1: List of MINIMA Advisory Board Members

Name	Affiliation
Lorenzo Castelli	University of Trieste
Andrew Cook	University of Westminster
Guglielmo Lulli	Lancaster University
Simone Pozzi	Deep Blue
Jose Javier Ramasco	IFISC
Damián Rivas	University of Seville
Eva Puntero	CRIDA
Giancarlo Ferrara	ENAV
Jose Canos Delgado	University of Granada

3.4 Dissemination Manager

The Dissemination Manager (DM) can be appointed by the Steering Committee. The Dissemination Manager will be responsible for all dissemination (see chapter 8) in cooperation with the Project Coordinator.

3.5 Work Package Leader

The work package leader (WL) is responsible for the task and work within the respective work package. The WL is responsible for tracking the status of the Action Item and updating the list on the MINIMA Teamsite [8].   The WL appoints the Deliverable Leader. He/she will organise meetings/conferences when necessary for the organisation of activities of the WP and identify risks in his/her work package and inform the Steering Committee.

3.6 Deliverable Leader

For each deliverable exactly one person is responsible, the "Deliverable Leader (DL)". The Deliverable Leader is identified at the second page of a document with the position "Deliverable Leader". By default the partner being responsible for a deliverable (specified Grant Agreement – Annex 1 – Description of Action [1]) provides the DL. The concrete Deliverable Leaders are specified on the deliverable list on the MINIMA Teamsite [6].

The Deliverable Leader is responsible for completing the deliverable in time. The Deliverable Leader decides (after consulting PC and responsible WL) whether a review by the Work Package Leader, Project Coordinator or another person to be named is necessary or not. The reviewers are specified in "Reviewers internal to the project" of the document at page 2 and on the deliverable list on the MINIMA Teamsite [6]. The DL is responsible for planning enough time for the reviewers so that the deliverable can be send to SJU by the PC in time. The Deliverable leader can request to have deliverable closure meeting.

3.7 Responsible Persons

Project Coordinator (PC):	**Andreas Hasselberg (DLR)**
Deputy:	**Oliver Ohneiser (DLR)**
Dissemination Manager (DM):	**Francesca De Crescenzio (UNIBO)**
Members of the Steering Committee (SC):	**Andreas Hasselberg (DLR),**
	Francesca De Crescenzio (UNIBO),
	Bruno Berberian (ONERA)

WP1 Lead:	**Bruno Berberian (ONERA)**
WP2 Lead:	**Oliver Ohneiser (DLR)**
WP3 Lead:	**Francesca De Crescenzio (UNIBO)**
WP4 Lead:	**Francesca De Crescenzio (UNIBO)**

WP5 Lead:	**Andreas Hasselberg (DLR)**
WP6 Lead:	**Andreas Hasselberg (DLR)**
Ethical Focal Point:	**Francesca De Crescenzio (UNIBO)**

The responsible SJU Project Scientific Officer (PSO) is **Alessandro Prister**.

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4 Project Schedule and Gantt Chart

This chapter provides details about the planning of various activities in MINIMA. At first, the Gantt chart in Figure 2 and Figure 3 gives on overview of all dates relevant for MINIMA. It shows the dates of work packages, tasks, deliverables, milestones, review meetings, already planned communication and dissemination activities and the dates related to ethical issues.

Details are provided in the following Tables. In Table 2, the deliverables according to the MINIMA GA [1] are given. This table gives for each deliverable the responsible partner, who will provide the deliverable leader, the type of the deliverable, the dissemination level and the due date (as relative date and as calendar date). A list of deliverables is also available on the MINIMA Teamsite [6].

The details about Milestones are given in Table 3. For each milestone, the responsible partner and the due date (again as relative and calendar date) are given. Further, the verification means are given, which will be used to detect if a milestone is reached.

Table 4 gives the dates and locations for the review meetings, namely the intermediate project review meeting and the project closeout and review meeting. The details about planed project internal meetings are given in Table 5. This table provides information about dates, places and expected attendees. Finally, Table 6 gives the dates related to communication and dissemination activities.

Name	Start (T0+X)	Start	Finish	Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun Jul
WP1 Review and Concept Development		**Mon 02.05.16**	**Fri 30.12.16**	WP1
T1.1 Review State of the Art	T0	Mon 02.05.16	Fri 29.07.16	Task 1.1
D1.1 State of the Art Report	T0+3	Fri 29.07.16	Fri 29.07.16	D1.1
T1.2 Concept Development for Vigilance and Attention Controller in Highly Automated TMA	T0+3	Mon 01.08.16	Fri 30.12.16	Task1.2
D1.2 Concept Description	T0+8	Fri 30.12.16	Fri 30.12.16	D1.2
MS1: Concept Developed	T0+8	Fri 30.12.16	Fri 30.12.16	M1
WP2 Implementation	**T0+8**	**Mon 02.01.17**	**Mon 31.07.17**	WP2
T2.1 Implementation of Vigilance and Attention Observer	T0+8	Mon 02.01.17	Fri 30.06.17	Task 2.1
D2.1 Vigilance and Attention Controller	T0+14	Fri 30.06.17	Fri 30.06.17	D2.1
T2.2 Implementation of Task Environment	T0+8	Mon 02.01.17	Fri 30.06.17	Task 2.2
D2.2 Task Environment	T0+14	Fri 30.06.17	Fri 30.06.17	D2.2
T2.3 Implementation of Adaptive Task and Support Activation and Integration of Vigilance and Attention Controller	T0+12	Mon 01.05.17	Mon 31.07.17	Task 2.3
WP2 Technical Integration Meeting	T0+13	Wed 31.05.17	Wed 31.05.17	Integration
MS3: Integrated Attention Controller	T0+15	Mon 31.07.17	Mon 31.07.17	M3
WP3 Evaluation	**T0+12**	**Mon 01.05.17**	**Wed 28.02.18**	WP3
T3.1 Evaluation Plan	T0+12	Mon 01.05.17	Thu 31.08.17	Task 3.1
D3.1 Evaluation Plan	T0+16	Thu 31.08.17	Thu 31.08.17	D3.1
MS4: Evaluation Plan / Approval and Authoisation	T0+16	Thu 31.08.17	Thu 31.08.17	M4
T3.2 Preparation of Test Scenarios	T0+15	Tue 01.08.17	Fri 29.09.17	Task 3.2
T3.3 Conduction of Study	T0+17	Mon 02.10.17	Fri 29.12.17	Task 3.3
Meeting: Evaluation	T0+18	Tue 31.10.17	Tue 31.10.17	Evaluation
MS5: Study conducted	T0+20	Fri 29.12.17	Fri 29.12.17	M5
T3.4 Analysis of Study and Overall Evaluation	T0+20	Mon 01.01.18	Wed 28.02.18	Task 3.4
D3.2 Evaluation Results	T0+22	Wed 28.02.18	Wed 28.02.18	D3.2
MS6: Evaluation Report Completed	T0+22	Wed 28.02.18	Wed 28.02.18	M6

Figure 2: MINIMA Gantt chart for WP1, WP2 and WP3

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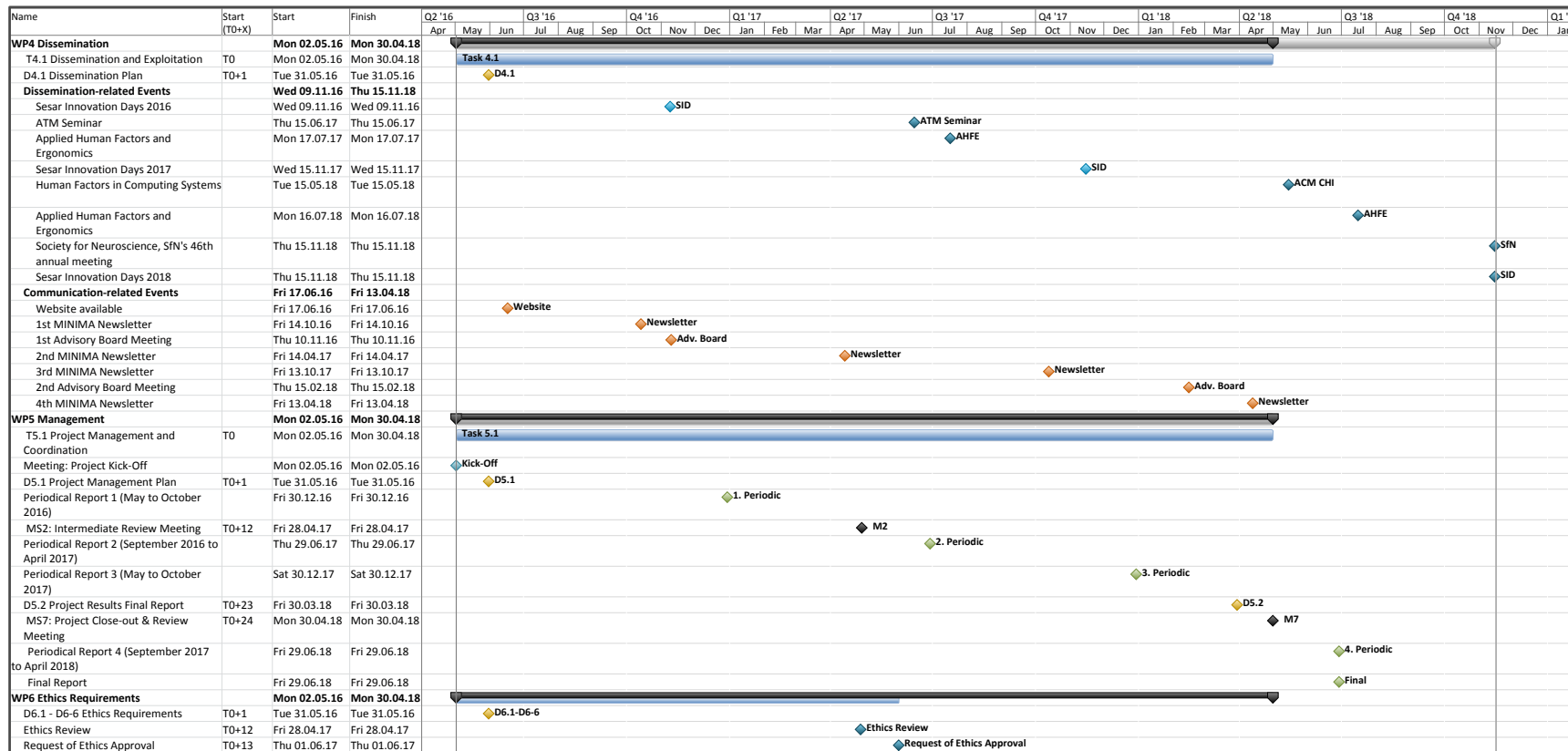
Figure 3: MINIMA Gantt chart for WP4, WP5 and WP6

Table 2: List of Deliverables according to MINIMA GA [1]

Deliverable Number	Deliverable	WP	Lead	Type[1]	Dissemination Level[2]	Due Date (relative)	Due Date (calendar)
D1.1	State of the Art Report	WP1	ONERA	R	P	T0+3	31.07.2016
D1.2	Concept Description	WP1	ONERA	R	P	T0+8	31.12.2016
D2.1	Vigilance and Attention Controller	WP2	UNIBO	D	C	T0+14	30.06.2017
D2.2	Task Environment	WP2	DLR	D	C	T0+14	30.06.2017
D3.1	Evaluation Plan	WP3	ONERA	R	P	T0+16	31.08.2017
D3.2	Evaluation Results	WP3	ONERA	R	P	T0+22	28.02.2018
D4.1	Dissemination Plan	WP4	DLR	R	C	T0+1	31.05.2016
D5.1	Project Management Plan	WP5	DLR	R	P	T0+1	31.05.2016
D5.2	Project Results Final Report	WP5	DLR	R	P	T0+23	31.03.2018
D6.1	H – Requirements No. 1	WP6	DLR	E	C	T0+1	31.05.2016
D6.2	H – Requirements No. 2	WP6	DLR	E	C	T0+1	31.05.2016
D6.3	POPD – Requirements No. 3	WP6	DLR	E	C	T0+1	31.05.2016
D6.4	POPD – Requirements No. 4	WP6	DLR	E	C	T0+1	31.05.2016
D6.5	POPD – Requirements No. 5	WP6	DLR	E	C	T0+1	31.05.2016
D6.6	POPD – Requirements No. 6	WP6	DLR	E	C	T0+1	31.05.2016

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[1] R = Report, D = Demonstrator, E = Ethics,

[2] P = Public, C = Confidential, only for members of the consortium (including the Commission Services)

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Table 3: List of Milestones according to GA [1]

Milestone Number	Milestone title	WP	Lead	Due Date (relative)	Due Date (calendar)	Means of verification
MS1	Concept Developed	WP1	ONERA	T0+8	31.12.2016	The concept development is completed and described in D1.2
MS2	Intermediate Review Meeting	WP5	DLR	T0+12	30.04.2017	This meeting will aim at steering the project in order to achieve the expected quality and maturity at the project Close-out meeting
MS3	Integrated Attention Controller	WP2	DLR	T0+15	31.07.2017	The attention controller is Integrated in the task environment and ready to be evaluated in a study
MS4	Available Evaluation Plan and approval and authorisation to start experiments	WP3	DLR	T0+16	31.08.2017	The evaluation plan described in D3.1 is available and an approval and authorisation to start the experiments has been obtained. This is confirmed by SJU.
MS5	Study conducted	WP3	UNIBO	T0+20	31.12.2017	The study has been conducted
MS6	Evaluation Report Completed	WP3	ONERA	T0+22	28.02.2018	The study has been evaluated and the report has been finalized.
MS7	Project Close-out & Review Meeting	WP5	DLR	T0+24	30.04.2018	The results have been analysed and reported. The objective of the Meeting is to check if the project has achieved its objectives and to close its contractual obligations.

Table 4: Tentative schedule of project reviews according to GA [1]

Review number	Tentative timing (relative)	Tentative timing (calendar)	Planned venue of review	Comments, if any
RV1	T0+12	30.04.2017	SJU/Brussels	Intermediate Project Review
RV2	T0+24	30.04.2018	SJU/Brussels	Project Closeout & Review Meeting

Table 5: List of Meetings and Mission, based on GA – Annex 1 Part B [2]

Meetings and Missions	Date (relative)	Date (calendar)	Place	Expected Attendees
Project Kick-Off	T0+1	*02.05 - 03.05.2016*	Braunschweig, DLR	Principal Investigators of the MINIMA project
Meeting with Advisory Board	*T0+7*	*10.11.2016*	*Delft, aligned with SESAR Innovation Days*	Project Coordination, Steering Committee and Advisory Board Members
Intermediate Review Meeting	T0+12	30.04.2017	Brussels, SJU	Principal Investigators of the MINIMA project
WP2 Technical Integration Meeting	T0+13	31.05.2017	Bologna	Principal Investigators involved in WP2
Evaluation	T0+18	31.10.2017	Bologna	All Persons involved in carrying out the study in T3.3
Final Review of Results / Meeting with Advisory Board	T0+22	28.02.2018	*Brussels, DLR*	Project Coordination, Steering Committee and Advisory Board Members
Project Close-out and Review Meeting	T0+24	30.04.2018	Brussels, SJU	Principal Investigators of the MINIMA project
Project Status Meeting	Every second week		Online	Project Coordination and Steering Committee

Please note, the Dates and Places have been changed compared to the list of planned meetings given in the GA – Annex 1 Part B [2]. It has been agreed within the consortium that the first Advisory Board Meeting will be organized linked to the SESAR Innovation Days 2016 in Delft.

Table 6: Project Communication and Dissemination Table

Event	Date
Website available	17 June 2016
1st MINIMA Newsletter	October 2016
SESAR Innovation Days 2016	8-10 November 2016
Advisory Board – First Meeting	10 November 2016
2nd MINIMA Newsletter	April 2017
Intermediate Review Meeting	April 2017
ATM Seminar	June 2017
Applied Human Factors and Ergonomics	July 2017
3rd MINIMA Newsletter	October 2016
SESAR Innovation Days 2017	November 2017
Advisory Board – Second Meeting	February 2018
4th MINIMA Newsletter	April 2018
Project Close-out & Review Meeting	April 2018
Human Factors in Computing Systems	May 2018
Applied Human Factors and Ergonomics	July 2018
Society for Neuroscience, SfN's 46th annual meeting	November 2018
SESAR Innovation Days 2018	November 2018

5 Management plan

5.1 Project Collaboration

The MINIMA Project agreed to use the Microsoft Teamsite functionality for file exchange and to share other information relevant for the project: https://teamsites-extranet.dlr.de/fl/MINIMA

The Teamsite supports copies and restoring to previous version (version control). Project member will use the check-out and check-in procedure provided by the Teamsite to prevent that two people are working on the same document at the same time. The Teamsite is password protected and a secure communication protocol is used. The project coordinator will provide credentials to access the Teamsite.

5.2 Documents Templates

The SESAR 2020 Word template and the SESAR 2020 PowerPoint template will be the "standard templates", respectively, for all MINIMA deliverables and for all official MINIMA presentations (presentations involving SJU or external audience). The SJU Templates for deliverables and presentations have been made available at the Kick-Off. The SESAR 2020word template was extended to include MINIMA specific information (e.g. on the title page and in headers and footers). All templates are available for project participants on the Teamsite.

5.3 Archiving of Documents

The Project coordinator is responsible to achieve MINIMA documents (including deliverables). The coordinator has a dedicated internal server for archiving project results. This system will be used for the MINIMA document. After the project is closed, all documents will move from the Teamsite to the archive-server. The archive includes information about the required storage duration. According to H2020 Guidelines, MINIMA results will have to be stored for at least 5 years. The coordinator will provide documents on request in accordance to access rights to these documents.

5.4 Handling of sensitive/confidential data

In Section 10 (Non-disclosure of information), the MINIMA Consortium agreements specifies the handling of confidential data. This section is repeated here in other words, however, the Consortium agreements will remain the contractual reference regarding the handling of confidential data.

Information, which is disclosed by a Party (the "Disclosing Party") to any other Party (the "Recipient") and

- Which the Recipient can reasonably expect to be confidential or

- Has been explicitly marked as "confidential" at the time of disclosure or

- When disclosed orally has been identified as confidential at the time of disclosure and has been confirmed and designated in writing within 15 calendar days from oral disclosure at the lasts as confidential information by the Disclosing Party

is considered as Confidential Information.

The MINMA partner have agreed in the Consortium Agreement

- Not to use Confidential Information otherwise than for the purpose it was disclosed

- Not to disclose confidential information to any third party without the prior written consent of the Disclosing Party

- To ensure that distribution of Confidential Information internally to their organization by a Recipient shall take place on a strict need-to-know basis; and

- To return to the Disclosing Party on demand all Confidential Information which has been supplied to or acquired by the Recipient including all copies thereof and to delete all information stored in a machine readable form. The Recipients may keep a copy of the extent it is required to keep, archive or store such Confidential Information because of compliance with applicable laws and regulations or for the proof of on-going obligations

The Recipient is responsible for the fulfilment of the above obligations. The Recipient shall apply the same degree of care as with its own confidential information.

The above shall not apply if the Recipient can show that:

- The Confidential Information becomes publicly available by means other than a breach of the Recipient's confidentiality obligations

- The Disclosing Party subsequently informs the Recipient that the Confidential Information is no longer confidential

- The Confidential Information is communicated to the Recipient without any obligation of confidence by a third party who is to the best knowledge of the Recipient in lawful possession thereof and under no obligation of confidence of the Disclosing Party

- The disclosure or communication of the Confidential Information is foreseen by provisions of the Grant Agreement

- The Confidential Information, at any time, was developed by the Recipient completely independently of any such disclosure by the Disclosing Party

- The Confidential Information was already known to the Recipient prior to disclosure or

- The Recipient is required to disclose the Confidential Information in order to comply with applicable laws or regulations or with a court or administrative order

5.5 Project Effort Management

Project Management requires carefully monitoring of time, resources/budget and project result. Fast feedback is required in order to be able to early detect deviations from the plan. Therefore, the project will apply the CPI (Cost Performance Index) and SPI (schedule performance index).

The SPI measures the time efficiency of a project and the timely deviation to the planned progress. It is calculated by dividing the Earned Value (EV) by the Planed Costs (PC): SPI = EV/PC. If the SPI is larger than one, the project progresses fast as planned, if it is smaller than one, the project progresses slower than planned.

The Planned Cost (PC) indicates how much of the budget should have been spent according to the project plan at a specific point in time. The Earn Value (EV) is calculated by multiplying the progress of the project with the planned overall project budget at a specific point in time.

The Cost Performance Index measures the cost efficiency of the project. It is calculated by dividing the Earned Value (EV) by the Actual Costs (AC): CPI = EV/AC. If the CPI is larger than one, the results of the project are reached with fewer budgets than expected, if the CPI is smaller than one, the project is spending more budget than planned to reach the results.

For example, a project has planned to complete a task within 10 days and an effort of 1000€ is planned for this task. It is assumed that the budget is spent equally during the task. After 5 days, 350€ are spent and the task is completed by 40%. The Earned Value is: EV = 40% * 1000 € = 400 €, the planned costs are: PC = 5 days/10 days * 1000 € = 500 €, and the actual cost are: AC = 350 €. In this example, the CPI (= EV/AC = 400 € / 350 € = 1.14) is larger than one. This means that the results are achieved with fewer resources than planned. The SPI (= EV / PC = 400 € / 500 € = 0.8) is smaller than one. That means that the progress is slower than planned.

While time and budget can easily be measured, it is more difficult to estimate the progress precisely. In order to do so, a planned budget will be assigned to each task defined in the Grant Agreement – Annex 1 – Description of Action (Part A) [1]. Additionally, clear criteria for the completion of the tasks will be defined. In most cases, this is the finalization of a deliverable.

To allow for a more precise measurement of the progress, tasks will be split up into sub-tasks. The planned budget for one task will be divided between its sub-tasks. Also for each sub-task, criteria for its completion have to be defined. This could be internal deliverables but also other measures can be used.

The work package leader is responsible for splitting up task into sub-task, dividing the effort between the tasks and indicating the progress of each task respectively sub-tasks. If it is not possible to indicate the progress of a task or sub-task precisely (e.g. for implementing a software function), the 20/80 Method will be used. The Earned Value of Task will be set to 20% of the planned budget for that task as soon as it started, the remaining 80% will be added when it is completed.

A list on the MINIMA Teamsite will be used to track the progress of each task [7]. The progress will regularly (at least every three month) be reviewed by the Steering Committee.

5.6 Meetings (Agenda, Minutes and list of Action Items)

The Project Coordinator will provide the draft agenda at least two days in advance before Meetings of the Steering Committee via the MINIMA Teamsite. Work package Leaders are responsible for providing Agendas for work package meetings.

Meeting Minutes will be recorded in all Meetings of the MINIMA Steering Committee and Work Package Meetings. The project coordinator is responsible for the Minutes of the Steering Committee. The Work package leader is responsible for the Minutes of Work package Meetings. He can assign the responsibility to a meeting chairperson.

The Minutes shall be the formal record of all decisions taken. The responsible person shall send draft minutes to all Members within 10 calendar days of the meeting. In case the SJU representatives participated to the meeting, the responsible person will send the draft minutes to the SJU representatives via email for review. The minutes shall be considered as accepted if, within 15 calendar days form sending, no member has sent an objection in writing to the chairperson with respect to the accuracy of the draft of the minutes.

Agenda, Meeting Minutes and other Material used during the Meeting (e.g. Presentations) will be shared via the MINIMA Teamsite. There will be a dedicated folder for each Meeting. If meeting agenda, meeting minutes or other meeting material are made available via the Teamsite or modified on the Teamsite, the meeting participants have to be informed via email about this.

Identified Action Items during Meetings will additionally be copied into an Action Item List on the Teamsite [8]. Each Action Item will have an Identifier, a Description which has a clear definition of what has to be done to complete the action, a responsible person and it will be assigned to a specific work package. The work package leader is responsible for tracking the status of the Action Item and updating the list on the MINIMA Teamsite. If the Action Item list was updated as a response to a meeting with SJU representatives, the person updating the Action Item list will send a copy of this list via email to the SJU representatives.

5.7 Review Meetings

Two review meetings are foreseen during the project:

• the 'Project Intermediate Review meeting', which will be planned approximately half-way through the Project. This meeting will be held at the SJU or at the Coordinator's premises and will aim at steering the project in order to achieve the expected quality and maturity at the project Close-out meeting;

• the 'Project Close-out meeting', normally held at the SJU following the submission of all contractual deliverables, will include a final presentation of the project results.

In case MINIMA claims having reached the maturity required for a transition to the Applied-Oriented Research, the SJU will organize an Excellent Science/Applied Oriented Research (ES/AR) Review in conjunction with the Project Closeout meeting for assessing the readiness of the project results for the Applied-Oriented Research;

5.8 Deliverables and Reports to be submitted

The project coordinator will submit the following deliverables and reports via the H2020 Participant Portal. These reports include requests for payment and must be drawn up using the forms and templates provided in the electronic exchange system (see Article 52 of GA).

- Deliverables according to Annex 1 of the GA [1] and repeated in Table 2. Amon these deliverables is the Project Management Plan (this document) and the Project Results Final Report. This report will be used at Project Closeout meeting to discuss the transition to subsequent development stages including a self-assessment of the TRL (Technology Readiness Level) achieved at the end of the project. This Final Project Report will summarize the project scope and objectives, the achieved results and main conclusions, the performed communication and dissemination actions, and the Exploitation and follow-up activities proposed for the next stage of the R&I lifecycle. The SJU will verify the maturity achieved in order to initiate, if applicable, the appropriate transition of the results to subsequent life-cycle phase.
- According to Article 20 of the GA, a Periodical Report within 60 days following the end of each reporting period. A Periodical Report consists of a Periodic Technical Report and a Periodic Financial Report. The Progress Report will follow the ER H2020 guidelines [18]. The reporting periods are:
  o RP1: from month 1 to month 6 (May 2016 to October 2016)
  o RP2: from month 7 to month 12 (September 2016 to April 2017)
  o RP3: from month 13 to month 18 (May 2017 to October 2017)
  o RP4: from month 19 to month 24 (September 2017 to April 2018)
- According to Article 20 of the GA, a Final Report within 60 days following the end of the last reporting period. The Final Report consists of a Final Technical Report and a Final Financials Report and provides a qualitative summary of the work performed during the whole duration of the project. The Final Report will follow the H2020 guidelines [18].

The Periodical Technical Reports will contain:
- An explanation of the work carried out by the beneficiaries.
- An overview of the progress towards the objectives of the action, including milestones and deliverables identified in Annex 1 [1].
- Explanations justifying the differences between work expected to be carried out in accordance with Annex 1 and that actually carried out.
- Details about the exploitation and dissemination of the results.
- A summary for publication by the JU
- Answers to the 'questionnaire', covering issues related to the action implementation and the economic and societal impact, notably in the context of the key performance indicators and monitoring requirements of Horizon 2020 and the JU;

The Periodical Financial Report will contain

- An 'individual financial statement' (see Annex 4 of the GA) from each beneficiary, for the reporting period concerned. The individual financial statement must detail the eligible costs (actual costs, unit costs and flat-rate costs; see Article 6 of GA) for each budget category (see Annex 2 of GA).
- Details about the receipts of the action (see Article 5.3.3 of GA). Each beneficiary must certify that:
  - the information provided is full, reliable and true;
  - the costs declared are eligible (see Article 6 of GA);
  - the costs can be substantiated by adequate records and supporting documentation (see Article 18 of GA) that will be produced upon request (see Article 17 of GA) or in the context of checks, reviews, audits and investigations (see Article 22 of GA), and
  - for the last reporting period: that all the receipts have been declared (see Article 5.3.3);
- An explanation of the use of resources and the information on subcontracting (see Article 13 of GA) and in-kind contributions provided by third parties (see Articles 11 and 12 of GA) from each beneficiary, for the reporting period concerned;
- A 'periodic summary financial statement' (see Annex 4 of GA), created automatically by the electronic exchange system, consolidating the individual financial statements for the reporting period concerned and including — except for the last reporting period — the request for interim payment.

The final technical report with a summary for publication will contain

- An overview of the results and their exploitation and dissemination
- The conclusion on the action, and
- The Socio-technical impact of the action

The final financial report will contain

- A final summary financial statement (see Annex 4 of GA), created automatically by the electronic exchange system, consolidating the individual financial statements for all reporting periods and including the request for payment of the balance and
- a 'certificate on the financial statements' (drawn up in accordance with Annex 5) for each beneficiary , if it requests a total contribution of EUR 325 000 or more, as reimbursement of actual costs and unit costs calculated on the basis of its usual cost accounting practices (see Article 5.2 and Article 6.2, Point A).

5.9 Quality Management of Deliverables and Reports

The quality procedures in MINIMA are meant as a set of procedures and rules that shall allow the produced deliverables to correctly communicate, explain and detail the activities performed within the project, meeting the expected project results as indicated in the GA Annex 1 [2] and/or as changed during the project due to contingency plans agreed with the SJU.

All project participants are involved in the quality assurance procedures. Each individual member of the project is directly responsible for:

- The quality of the work performed for the tasks under his/her responsibility;
- The identification and implementation of preventive and corrective actions (if needed);
- The identification of necessary improvements to the achieved results to meet the project initially expected results;

The value and amount of the project work carried out in the task is represented in the deliverable. Deliverable must be a reflection of the work done in the related task. Therefore, it must provide a clear picture of the work. It is expected that constant quality checks will be applied during the production process of the deliverable and the final check will mainly involve a formal quality control.

The quality assurance process will involve the following steps:

Step 1, Appointment of Deliverable Leader: The WP Leader will assign a Deliverable Leader at the start of the work package

Step 2, Appointment of Reviewers: The Steering Committee can - in coordination with the WP Leader - appoint Reviewers for the Deliverable. If no reviewers are appointed explicitly, the members of the steering committee will review the document. The Steering informs the Deliverable Leader about the appointed revivers.

Step 3, Generation of the Deliverable: The Deliverable Leader is responsible for the generation of the deliverable and will

- define the structure of the document using the provided template
- Collect information from contributing partners;
- Create a single master document that is properly structured and have a natural flow and consistency. Deliverables should not be just a collection of contributions but a single coherent document. It must provide credible proofs for all the claims made in the document. The document shall be shared via the MINIMA Teamsite.
- Keep updated the master file on the MINIMA Teamsite and manage the organisation of the information;
- Update WP leader and Steering Committee about progress of activities;
- Identify risks and communicates these risk to the WP Leader and the Steering Committee for an assessment and the decision for mitigation actions.

- Provide the deliverable in time to allow the internal quality process assurance (see next point) and provide the Project Coordinator with the deliverable to be submitted on time with respect to the plan;
- Update the Document History within the master file on the Teamsite
- Enter his name in the first line of authors on the second page of the document and enter the name of all other contributors to the document below.
- Enter the names of the reviews into the document on the second page

Step 4, Release of Document by Deliverable Leader: The deliverable leader should provide a document that is already considered of acceptable quality (regarding contents and format). He/she must ensure that there will not be any inconsistencies across deliverables and the same terminologies are used across deliverables. The document should be released 10 working days before the Due Date. The document is provided on the Teamsite and the WP Leader is informed. If the Deliverable Leader is the WP Leader, he/she will inform the reviewers and the Steering Committee about the status.

Step 5, Check of Document by WP Leader: When the WP leader is not the same person as the deliverable leader, the WP leader will read the document and verify that the contents are in line with the expected results. This should happen until 8 working days before the Due Date. If the document is not in line with the expected results, he/she will decide – in coordination with the deliverable leader – how to solve this and in case delays are expected, inform the Steering Committee about the status. When the document is in line with the expected results, the work package leader will inform the reviewers and the Steering Committee about the status.

Step 6, Review of Document by Reviewers: The document will be reviewed by the assigned reviewers. They will use the Teamsite for this. Reviewers will check out the deliverable, review the document, enter the date on the second page behind their name to confirm that they have reviewed the document and finally check in the document again. They will inform the DL about the review. The review should be completed 5 working days before the Due Date.

Step 7, Update of Document by Deliverable Leader: After the document is reviewed, the DL will integrate the comments. He can assign task to the co-authors of the deliverable. The updated document will be shared on the Teamsite. When the comments are integrated, the DL informs the project coordinator about the status. This should happen 3 working days before the Due Date.

Step 8, Approval of Document by Steering Committee: The Project Coordinator will ask the Members of the Steering Committee to approve the document. They will open the document on the Teamsite, and in case they approve it, enter their name and the date on the second page of the document. They inform the project coordinator about their decision. This should happen 1 working day before the Due Date.

Step 9, Submission of Document by Project Coordinator: The project Coordinator will formally hand over the final deliverables to the SJU for a quality assessment in view of their approval. The project deliverable will be handed over for SJU assessment by uploading them on the dedicated project page

on H2020 Participant Portal. He will inform the Steering Committee, the WL Leader and the authors about this.

Step 10, SJU Assessment of Project Deliverables: The SJU assesses the handed-over deliverable with special emphasis on the validity of its content, alignment with commitments, internal consistency and compliance with the relevant contractual provisions set forth in the grant agreement, compatibility with SJU obligatory material (e.g. templates) and other SESAR programme management documents and guidelines as detailed in the project management guidelines [18].

The SJU aims to evaluate a deliverable within **60 days** from the delivery, and may:

- Accept it in writing, in whole or in part, or make acceptance of the deliverable subject to certain conditions;

- Request in writing certain clarifications or additional information, as appropriate. The Consortium shall answer the SJU's request within **15 days** from receipt of the SJU's request for clarifications or additional information. If, upon receipt of the clarification or additional information, the SJU does not respond within **30 days**, this clarification or additional information shall be deemed accepted.

- Reject it by giving the appropriate justification in writing.

Step 11a, Reception of SJU request of clarifications: The project coordinator will forward the request to the deliverable leader. He/She will provide an answer to the request and provide this to the project coordinator. He/she will check it and either ask the DL for further clarification or provide the clarification to the SJU. He/she will inform the SC about this.

Step 11b, Rejection of the deliverable by the SJU: The Project Coordinator will forward the justification provided by the SJU to the DL and the SC. The DL will improve the deliverable accordingly. The described process start moves to step 3. The PC will put the deliverable on the agenda for the next SC Meeting. The SC will discuss the deliverable and decide if further actions deviating from the process described here are necessary.

5.10 Change Management

It must be differentiated between changes that require an amendment of the Grant Agreement and changes that require only an update of the PMP. The Annotated Model Grant Agreement [15] provides details and examples for what aspects of the Grant Agreement can be changed and what aspects can NOT be changed: The general terms and condition cannot be changed while GA-specific data and the options can be changed via an amendment.

In some cases in which an amendment of the Grant Agreement is not required, an update of the PMP may be necessary. Examples for the latter case are changes of delivery dates that will not affect the overall project duration.

Changes in the name, address, legal form and organisation type AND changes in the legal, financial, technical, organisational or ownership situation may or may not require an amendment. The Coordinator will inform the JU about these changes. The JU will examine the situation and inform the coordinator if such changes affect the implementation of the action and require an amendment.

In order to determine if an amendment is possible and required, the sample list provided in the Annotated Model Grant Agreement [15] shall be used. Further Information can be found in the H2020 Online Manual (Section: Amendments) [16]. In case of doubt, the coordinator should contact the JU (via the Participant Portal messages function) to discuss the amendment.

5.10.1 Amendments to Grant Agreement

If changes to the Grant Agreement are required, Article 55 of the Grant Agreement needs to be considered. Detailed information about the process are available in the Annotated Model Grant Agreement [15] on in the H2020 Online Manual (Section: Amendments) [16].

The procedure described in Article 55 foresees, that changes must be requested through the portal. The coordinator will act on behalf of the other beneficiaries with the exception of the requested change of the coordinator without the coordinators agreement.

The request must include: the reasons, appropriate supporting documents and for a change of coordinator, the opinion of the coordinator or the proof that this opinion has been requested. The JU can request additional information.

Agreements must be signed through the portal within 45 day if agreed by the receiving party. If the party does not agree, it must formally notify is disagreement within this deadline. The deadline can be extended. If no notification is received within the deadline, the request is considered as rejected.

An amendment enters into force on the day of the signature of the receiving party.

An amendment takes effect on the date agreed by the parties or, in the absence of such an agreement, on the date on which the amendment enters into force.

5.10.2 Changes to the PMP

The changes to the PMP related project information which are not mentioned in the grant will be managed through an agreement with the JU. If such a change is requested by the consortium, the coordinator will contact the JU to provide the details and the reasons for the requested change. If the JU agrees to the change, the coordinator will update the PMP accordingly and distribute it within the consortium and to the JU in a way previously to be agreed with the JU.

6 Risk and Issues management plan

The following section describes the risk and issues management plan for MINIMA: In this project, a risk, also called project risk, is understood as an uncertain event or condition that, if it occurs, has a positive or negative effect on a project's objectives [15]. An issue is understood as a negative project risk that has occurred [15]. Risk must be managed in order to avoid that they become issues (prevention) or that their initially expected effect becomes actual (protection). Issues must be treated as soon as possible.

The risk management in MINIMA includes the identification of risk, their assessment, the definition of mitigation actions for risk and issues, the implementation of these actions and the regular maintaining of risk and issue information.

The management of risk and Issues will be done through the Periodic Reporting via the H2020 Participant Portal [17]. The Technical Progress Report will include the top Risk (A and B Risks, see section 6.2) in order of priority and the mitigation actions defined. Further, the Technical Progress Report will include significant issues (if applicable), with their impact, status and corrective actions. The project coordinator will prepare the report based on the list of risk and issues regularly reviewed by the steering committee (see section 6.4).

6.1 Risk identification

In a first step, risks have been identified in the proposal phase of MINIMA. Additionally, there were discussions after each work package presentation at the kick-off meeting, to identify further risk related to this work package. Further risk identification rounds will be conducted regularly during the steering committee meetings (see details below). Moreover, everyone is encouraged to report risks to the project coordinator or any other member of the steering committee. The project coordinator will assign the risk to one or several work packages and ask the work package leader to provide a preliminary risk assessment. The project coordinator will put newly identified risk on the agenda for the Steering Committee Meeting.

6.2 Risk assessment

MINIMA will perform a qualitative Risk Analysis to identify probability and severity of risk in order to prioritise risk. The risk assessment process has two steps. After a risk has been identified, the project coordinator will ask the leader(s) of the work package(s) that is/are affected by the risk to provide a risk assessment. In the next step, this initial assessment is reviewed during the next steering committee meeting. A 4x4 risk matrix will be applied in MINIMA. The probability of risks will be assessed according to Table 7. The severity of risk will be assessed bases on their expected impact on

the schedule, the budget, content, and quality of the project according to Table 8. The highest of these severities will be considered as the overall severity of the risk.

Table 7: Qualitative assessment of probability of risks

Assessment	Description	Scale
Very high	The occurrence of the risk event is very likely	> 90 %
High	The occurrence of the risk event is likely	51 – 90 %
Increased	The occurrence of the risk event is possible	21 – 50 %
Low	The occurrence of the risk event is unlikely	< 20 %

Table 8: Qualitative assessment of severity of risks

Assessment	Schedule	Budget	Content	Quality
Very high	Delay > 4 weeks	> 25 k€	Project will be terminated or one of MINIMAs objectives will not be reached.	Drastic increase of error rate that makes application during evaluation impossible.
High	Delay 2-4 weeks	10 – 25 k€	Successful completion of project endangered, large impact on objectives.	Increase of error rate that drastically increase the application during evaluation.
Increased	Delay 1-2 weeks	5 – 10 k€	Successful completion of project still likely, medium impact on objectives.	Increase of error rate that affects application during evaluation.
Low	Delay < 1 week	< 5k€	Only small impact of objectives, successful completion of project not affected.	Slightly increase in error rate, no impact on application during evaluation.

After the probability and severity of risks have been assessed, the priority of risk results from the risk matrix shown in Table 9. The probability influences the priority of risk linearly; the severity of risks influences the priority of risk exponentially. Risk with a priority of 16 or greater are considered as A-Risk, risk with a priority between greater or equal than 4 and smaller 16 are considered as B-Risks and risks with a priority smaller than 4 are considered as C-Risks.

Table 9: Risk Matrix used in MINIMA

Probability		1- Low	2- Increased	4- High	8- Very High
	4- Very high	4	8	16	32
	3 - High	3	6	12	24
	2- Increased	2	4	8	16
	1 - Low	1	2	4	8
		1- Low	2- Increased	4- High	8- Very High

Severity

6.3 Definition and Implementation of Mitigation Actions

Mitigation actions have already been defined for the risk identified during the proposal phase and at the kick-off Meeting. For additional risks identified during the project, mitigation actions will be defined by the steering committee directly after the risk assessment has been accepted. For each defined mitigation action, the steering committee will define someone who will be responsible for implementing the mitigation action.

6.4 Maintaining of risk and issue information

The agreement on the identification of risk, on the assessment of risk and on agreed mitigation actions by the steering committee will be documented in the minutes of the meetings.

The project coordinator will keep a list of risk and issues. The list will be available on the Teamsite [9]. The project coordinator will update the risk information or enter new risk information according to the decisions made by the steering committee. At least every three month, or on request by one of the members of the steering committee, the project coordinator will put a review of the risk and issue information and the mitigation actions on the agenda for the next steering committee meeting. The steering committee will decide for each risk if the project is still exposed to this risk and if the assessment of its probability and severity and the resulting priority is still reasonable. In the first case, the list will be deleted form the list. In the second case, the steering committee will perform a re-assessment of the risk. Further, the steering committee will review the mitigation actions and check, if they are performed as intended, decide, if they are still suitable, and, if deemed necessary, decided about other mitigation actions.

6.5 Management of issues

Once a foreseen or unforeseen risk realises and turns into an issue, the steering committee will be informed by the work package leader. The project coordinator will decide if a meeting of the steering committee needs to be scheduled on short notice, or if the issue will be discussed at the next scheduled meeting. During the next steering committee meeting, the steering committee will assess

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the severity of the issue and decided which actions are necessary to encounter the issue. The project coordinator will update the list of risk and issues [9] and the action item list accordingly [8].

6.6 Current List of Risk and Issues

Table 10 gives the current list of project risks and issues with proposed mitigation measures. The risks have been identified in the proposal, the Kick-Off Meeting and during Meetings of the Steering Committee. The references to the particular Minutes of the meeting in which decisions related to risks have been made are given in the Table.

Table 10: Project risks and mitigation measures

Risk-Number	References	Description of risk	Probability (Low, Increased, High, Very High)	Severity (Low, Increased, High, Very High)	Priority (A, B, C)	WPs involved	Proposed risk-mitigation measures	Responsible
R1	Proposal	Uneven biometric response of controllers Simulation in Bologna environment may "stress" study participants and keep some awake anyhow, others act normal and are bored due to very few work If threshold of vigilance and attention observer output is uneven for different participants, the "reactions" in simulation environment sometimes fit, sometimes not. That could make it harder to compare results.	High	High	12-A	WP2, WP3	Literature review, searching for the best fitting indexes (i.e. the indexes with limited variance from one subject to another). Multiple data sources combination. Multiple indexes combination, including indexes representative of the TMA situation (overall or particular).	FD
R2	Proposal	Capacity to detect certain biological signals (for example for mind wandering episodes) with current system used by the University of Bologna	Low	Increased	2-C	WP3	If necessary, ONERA will make its own equipment available for the project (EEG device and eye tracker).	FD
R3	Proposal	Limited availability of participants for study. MINIMA plans to recruit ENAV controllers as participants for the study. There is an existing cooperation between ENAV and UNIBO and ENAV ATCOs have participated in several UNIBO studies. Therefore this risk is low.	Low	High	3-C	WP3	We could contact ATCOs from DFS alternatively, which have participated in previous studies conducted by DLR.	FD
R4	KO [11]	Transport of devices A DLR Simulation Environment must be transportable to UNIBO to conduct the evaluation.	1	1	1-C	WP3	This will be considered during the concept development (WP1), development (WP2) and the generation of the evaluation Plan (Task 3.1). : Probably only the software should be transported	OO
R5	KO [11]	Technical interfaces	Increased	Increased	4-C	WP1, WP2,	The interface will already be defined and documented in WP1 during the concept	BB

		For the Evaluation, the Vigilance Controller has to be combined with the Simulation.				WP3	development, so that it is known before the actual implementation of the software starts in WP2. WP2 will appoint a person responsible for managing change requests regarding the interface.	
R6	KO [11]	Legal issues about IT (Connecting devices of different companies)	Low	Increased	2-C	WP3	This risk will be re-evaluated during the concept is developed and to identify specific problems and select appropriate countermeasures (like signing agreements, using separated networks, using specific devices, etc.).	FC
R7	SCM-5 [12]	Project is not delivered on time	Increased	Very High	16-A	WP5	The close project controlling (detailed in section 5.5) should help to detect problems early to allow the steering committee to reallocate resources.	AH
R8	SCM-5 [12]	Over-ambitious objectives	High	High	12-A	WP5	The steering committee shall re-evaluate the risks and review the objectives periodically.	AH
R9	SCM-5 [12]	Delayed Ethics Approval	Increased	Increased	4-C	WP6	The Ethics Approval will be requested 2 month in advance of the Evaluation.	FD

7 Communication Plan

The MINIMA Communication Plan defines clear objectives and set out a concrete strategy planning for the communication activities to promote the project and its results. The purpose of the communication plan is to ensure MINIMA's communication activities are conducted in an efficient and effective way. By effectively communicating the project can accomplish its work with the support and cooperation of each stakeholder group. The communication plan provides a framework to manage and coordinate the wide variety of communications that take place during the project. The communication plan covers who will receive the communications, how the communications will be delivered, what information will be communicated, who communicates, and the frequency of the communications.

The MINIMA Communication Plan can be adapted during the project by the Steering Committee.

Any communication activity that is expected to have a 'major media impact', i.e. media coverage (online and printed press, broadcast media, social media, etc.), that will go beyond a local impact and which could have the potential for national and international outreach must be first notified to the SJU.

For guidance regarding Communication Activities please see also the "Horizon2020 - Communicating EU research and innovation guidance for project participants" [16].

7.1 Project Communication, Point of Contact (Poc)

The Project Coordinator will be the MINIMA PoC for all Communication activities.

7.2 Communication Objectives

The Communication Plan in MINIMA is defined with the flowing objectives:

- Promote the MINIMA project
- Show the potential benefits of MINIMA's results
- Promote the application of MINIMA's results
- Enable Stakeholders to provide feedback
- Give accurate and timely information about the project
- Ensure a consistent message
- Enable efficient and effective Communication Activities

7.3 High Level Messages

The following High Level Messages describe the goal of MINIMA and can be used for Communication Activities:

- MINIMA aims at providing a new methodology for the design of the next generation of Human-Machine-Systems.

- MINIMA aims at providing solutions to keep Air Traffic Controllers in the Loop when the automation in Air Traffic Control is increased in the future.

- MINIMA aims at contributing to safety by designing future Air Traffic Control tasks in which Air Traffic Controllers can stay concentrated to detect automation failures.

7.4 Short "About the Project" Description

In the following, the MINIMA Abstract to be used in MINIMA Deliverables is given. It will be available on the MINIMA Teamsite and be adapted as the Project progresses.

Assigning tasks formerly executed by human operators to automation can increase the performance in many aspects of Air Traffic Management. If the absence of automation errors cannot be guaranteed, a human operator is required to monitor the automation and to intervene in the rare cases of automation errors. This monitoring role of human operators results in negative effects like lack of attention, loss of situation awareness and – in the long term – skill degradation.

MINIMA will develop a vigilance and attention controller to mitigate these effects. A highly automated arrival management task in which the aircraft follow their predefined 4D-trajectories will be investigated as an example. This task environment will be analysed to identify tasks that could be assigned to the Air Traffic Controllers to increase their task engagement.

A Vigilance and Attention Observer will use psychophysiological measurements like EEG to identify the state of the Air Traffic Controller. The observer will be combined with an adaptive task activation component to form a Vigilance and Attention Controller. This will allow for activating tasks based on the Air Traffic Controllers state to keep their performance on a high level and to ensure safe operations.

7.5 Identified external MINIMA Stakeholders

The Stakeholders given in Table 11 have been identified for MINIMA and will be addressed with Communication Activities.

Table 11: External MINIMA Stakeholders

Target	Objective	Opportunity
EU Commission	To make the EU Commission aware of the project advancements	International visibility, resonance, transparency
ANSP	To make ANSPs (Air Navigation Service Provider) aware of open issues related to monitoring high levels of automation and MINIMA prosed solutions	Increased Capacity , Efficiency while ensuring a constant Safety for the future ATM system, Exploitation of results
SJU	To support SJU (SESAR Joint Undertaking) in the development of a more efficient and safer SES ATM network	Exploitation of results, Innovation
EUROCONTROL	To make EUROCONTROL aware of the project's results.	Exploitation of results, Innovation
General Public	To inform the general Public about the benefits of the project and its future application	Interest in specific research activities

7.6 Stakeholders Targeted by Planned Communication activities

The identified stakeholders will be addressed with following means described in Table 12.

Founding Members

EUROPEAN UNION   EUROCONTROL

Table 12: Communication means

	EU COMMISSION	ANSP/EUROCONTROL	Industry	SJU	General Public
Website	■	■	■	■	■
Newsletter	■	■	■	■	
Leaflets and Posters	■	■	■	■	
Advisory Board		■	■		
Networking events:	■	■	■	■	

7.7 Details about Planned communication activities

7.7.1 Website

The website http://www.minima-project.eu/ was set up to share information about the project with stakeholders. The website includes: Project related information (objectives, outcomes, etc.), Project related documents, Periodic status updates. It will also include an updated time schedule and project related events (conferences, workshops, etc.).

It was agreed in the Steering Committee [12] that the responsibility to provide updated information on the website will circulate between partners. Each partner will be responsible for three month (starting with DLR at the beginning of the project) and then hand over to the next partner. However, the task to put the information prepared by the partners on the website remains with DLR.

7.7.2 Newsletter

The (intermediate) results of the MINIMA Project will be communicated to stakeholders with a bi-annual newsletter which will be published on the website and send to interested stakeholders.

7.7.3 Leaflets and Posters

Leaflets and posters will be developed to support the communication activities (e.g. the Advisory Board meetings and conferences).

7.7.4 Advisory Board

The Advisory Board will also help to disseminate the results. The Advisory Board members from interested stakeholders are encouraged to distribute the MINIMA results within their organisations. Two Advisory Board meetings are planned to be conducted by the MINIMA Consortium. The first Advisory Board Meeting will be aligned with the SESAR Innovation Days 2016. The second meeting is planned to take place in February 2018. See Section 3.3 for more information about the Advisory Board. A leaflet about the aims and results of MINIMA will be produced for each Advisory Board Meeting.

7.7.5 Networking events

As requested in the Project Execution Guidelines for SESAR 2020 Exploratory Research [18], project representatives will participate at Networking events and other transversal activities to be launched by the SJU.

7.8 Calendar of Communication-related events

The dates for the communication-related events detailed above are given in Table 13

Table 13: Calendar of Communication-related events

Event	Date
Website available	17 June 2016
1st MINIMA Newsletter	October 2016
Advisory Board – First Meeting	10 November 2016
2nd MINIMA Newsletter	April 2017
Intermediate Review Meeting	April 2017
3rd MINIMA Newsletter	October 2016
Advisory Board – Second Meeting	February 2018
4th MINIMA Newsletter	April 2018
Project Close-out & Review Meeting	April 2018

7.9 Metrics for communication activities

The following Metrics will be used to measure the success of the Communication activities in MINIMA

- MINIMA webpage:
    - Frequency of page updates
    - Number of visitors (email contacts via website)
    - Number of webpages.
- Newsletter
    - Amount of Newsletter
    - Number of Recipients
- Advisory Board
    - Number of organized workshops
    - Members
        - Different organisations
        - Number of attendees itself
    - Feedback from members

8 Dissemination and Exploitation Plan

MINIMA will promote the introduction of ground-breaking technologies into a market traditionally bound to consolidate solutions. Therefore, it is important that the knowledge developed within the project continues to exist beyond the life of the project itself. To this end, project outcomes should be made accessible and usable to other parties, such as universities, research centres and industry, allowing further development and greater outcomes.

Dissemination Activities in MINIMA are targeted at these parties interested in the methods and results of the project. MINIMA's Dissemination activities should make them aware of the results to facilitate their use in upcoming projects. Exploitation is intrinsically linked to dissemination in the sense that efficient publicity allows measuring acceptance of the proposed concepts and reuse of them in other projects. In this respect, dissemination is a facilitator of the use of these results beyond the project lifetime.

The MINIMA Dissemination Plan was developed to facilitate MINIMAs dissemination activities. At an early stage of the project, suitable dissemination activities for the expected results should be identified. The MINIMA Dissemination Plan was developed with a five step procedure. At first, a target number of publication the MINIMA project aims at is defined (section 8.1). The second step answers the question "what can be published" and identifies expected results of MINIMA. These are given in section 8.2. In the third step, the communities interested in the expected MINIMA results are identified and the expected interested of each community for each expected result is estimated (see section 8.3). This answers the question: "Whom to address?" After this, the suitable dissemination type and event respectively journal is identified for each expected MINIMA results (see section 8.4). This answers the question "How to address them?" Finally, based on the results of the previous steps, a preliminary list of publications envisaged in MINIMA is generated.

When disseminating results, MINIMA will follow the Open Access Guidelines set in the GA. Section 8.6 provides an overview of the requirements.

Each dissemination material in MINIMA must include a statement to inform about the founding and indicate that it only reflects the others view. Details can be found in chapter 9.

8.1 Target Amount of Publications

In this first step, the MINIMA Consortium defined the amount of publication that it expects to be produced in MINIMA. The numbers are given in Table 14.

Table 14: Targeted amount of publications in MINIMA

Type	Expected Number of Publications			
	2016	2017	2018	Σ
Conference (Paper and Presentation)	1	3	4	8
Journal		1	1	2
Σ	1	4	5	10

8.2 Expected Main Results of MINIMA

In the second step, potential main results of MINIMA are identified that should be disseminated. The potential results which are planned to be disseminated and have been identified so far are given in Table 15. It is expected that further results will be identified while the work is conducted during the project. The expected availability of results is taken form the Deadline of the Deliverables in which they will be reported.

Table 15: Identified Results

Result #	Result Description	Deliverable	Result available
#1	OOTL and vigilance measurement review	D1.1	31.07.16
#2	MINIMA Concept for additional controller communication/tasks to mitigate OOTL effects	D1.2	31.12.16
#3	MINIMA Concept of a Vigilance and Attention Controller (Adaptive Task Environment)	D1.2	31.12.16
#4	Neurophysiological correlates of the investigated cognitive processes (Attention and Vigilance)	D2.1	30.06.17
#5	Technical description of prototype of task environment and qualitative feedback from Controllers	D2.2	30.06.17
#6	Results of conducted evaluation study regarding simulation environment with developed new controller tasks (Without adaptation)	D3.2	28.02.18
#7	Results of conducted study. Quality of EEG-based vigilance metric of Air Traffic Controllers.	D3.2	28.02.18
#8	Results of conducted study: Adaptive automation triggered by the Attention and Vigilance observer	D3.2	28.02.18

8.3 Targeted Communities

As MINIMA is an interdisciplinary research project, different research communities might be interested in the results of the Project and will be targeted by MINIMA dissemination activities.

The following research communities have been identified in the third step:

   (1) Aviation applied Research

   (2) Human Factors and Ergonomics

   (3) Psychophysiology

   (4) Biomedical Engineering

These previously identified results are expected to be of interest for different scientific communities as show in Table 16. Based on available time and effort, communities that should be targeted were selected for each result. Selected communities are highlighted in bold.

Table 16: Targeted scientific communities and expected interest in MINIMA results

Targeted Scientific Community Result #	(1) Aviation applied Research	(2) Human Factors and Ergonomics	(3) Psycho-physiology	(4) Biomedical Engineering
#1	**H**	H	M	M
#2	H	**H**	M	M
#3	**H**	H	M	H
#4	**H**	H	H	M
#5	**H**	**H**	L	L
#6	**H**	H	L	L
#7	L	L	**H**	H
#8	**H**	**H**	M	M
(L = low interest expected, M = medium interest expected, H = High interest expected)				

8.4 Suitable Dissemination Activity

In step 4, suitable dissemination activities are identified. MINIMA plans to present and publish achievements of the project to specific conferences and seminars. Further, MINIMA will take advantage of scientific publication as a well-established mean of dissemination to broadcast the technical part of the project achievements

At first, the suitable medium (e.g. presentation at a conference or publication in a journal) for a result will be defined. To find the conference or journal suitable for a specific result, a list of

conferences and a list of journals that might be interested in the results were generated first. The following conferences have been identified as possible conferences to present MINIMA results. Confirmed dates and locations are marked with [c], expected dates and locations are marked with [e].

Community 1: Aviation applied Research

SID	SESAR Innovation Days - http://www.sesarinnovationdays.eu/ 8 – 10 November 2016 [c], Delft; Deadline 19 September 2016 [c] November 2017 [e], Deadline September 2017 [e] November 2018 [e], Deadline September 2018 [e]
ICRAT	ICRAT - http://www.icrat.org June 2018 [e]; Deadline: February 2018 [e]
ATM Congress	World ATM Congress - www.worldatmcongress.org/
ATM Seminar	ATM Seminar - www.atmseminar.org/ June 2017 - Seattle [c]; Deadline: End of January 2017 [e] June 2019 – Europe [e]; Deadline: End of January 2019 [e]
CEAS	CEAS Air & Space Conference - www.ceas2017.org 16-20 October 2017 Bucharest [c]; Abstract Deadline 15 October 2016 [c] October 2019 [e]; Abstract Deadline October 2017 [e]
DASC	Digital Avionics Systems Conference DASC - dasconline.org 25 – 29 September 2016, Sacramento, CA; Abstract Deadline passed September 2017; Abstract Deadline: March 2017 September 2018; Abstract Deadline: March 2018
HF Aviation	Human Factors in Aviation Safety - http://www.hf-aviation.org.uk/
EUCASS	The 7th European Conference for Aeronautics and Space Sciences - http://www.eucass2017.eu/
AIMAS	Associazione Italiana di Medicina Aeronautica e Spaziale - http://www.aimas.it/home.asp
ECAM	European Aerospace Medicine Conference (ECAM) - http://www.esam.aero/ 15 – 18 September 2016 [c], Oslo; Deadline passed September 2018 [e]; Deadline July 2018 [e]
DLRK	Deutscher Luft- und Raumfahrt Kongress - http://www.dlrk2016.dglr.de/ September 2016 [c], Braunschweig; Deadline passed September 2017 [e]; Deadline: April 2017 [e] September 2018 [e]; Deadline: April 2018 [e]

Community 2: Human Factors and Ergonomics

HFES	Human Factors and Ergonomics Society - www.hfes.org/web/HFESMeetings/2016annualmeeting.html 19 - 23 September 2016, Washington DC [c]; Deadline passed

	9 – 13 October 2017, Austin TX [c], Deadline February 2017 [e] 30 September - 5 October 2018, Philadelphia, PA [c]; Deadline February 2018 [e]
ACM CHI	The ACM CHI Conference on Human Factors in Computing Systems - https://chi2017.acm.org/ 6 - 11 May 2017 – Denver [c], CO; Deadline: 21 September 2016 [c] May 2018 [e]; Deadline: September 2017 [e] May 2019 [e]; Deadline September 2018 [e]
AHFE	International Conference on Applied Human Factors and Ergonomics (AHFE) - http://ahfe.net/ 17-21 July 2017, Los Angeles [c], CA; Abstract Deadline 1 December 2016 [c] July 2018 [e]; Abstract Deadline: December 2017 [e] July 2019 [e]; Abstract Deadline: December 2018 [e]
ACM CSCW	The 20th ACM Conference on Computer-Supported Cooperative Work and Social Computing - https://cscw.acm.org/2017/
ACM IUI	The ACM 22nd annual meeting of the intelligent user interfaces community - http://iui.acm.org/2017/ 13-16 March 2017 Limassol, Cyprus [c]; Deadline: 14 October 2016 [c] March 2018 [e]; Deadline October 2017 [e] March 2019 [e]; Deadline October 2018 [e]
HCI Int.	The 19th International Conference on Human-Computer Interaction - http://2017.hci.international/ 9-14 July 2017 [c], Vancouver; Proposal Deadline: 21 October 2016 [c] July 2018; Proposal Deadline: October 2017 July 2019; Proposal Deadline: October 2018
Neuro	The 1st International Conference of Neuroergonomics - http://websites.isae.fr/neuroergonomics-2016/neuroergonomics-2016/general-information/general-information

Community 3: Psychophysiology

SfN	Society for Neuroscience, SfN's 46th annual meeting - https://www.sfn.org/annual-meeting/neuroscience-2016 12-16 November 2016 San Diego [c]; Deadline passed [c] November 2017 [e]; Deadline May 2017 [e] November 2018 [e]; Deadline May 2018 [e]
ICAP	29th International Congress of Applied Psychology - http://www.icap2018.com/ 26-30 June 2018 [c]; Abstract Deadline End of 2016 [e] June 2020 [e]; Abstract Deadline End of 2018 [e]
FENS	The 10th FENS Forum of *Neuroscience* - http://forum2016.fens.org/

Community 4: Biomedical Engineering

EMBS	The IEEE Engineering in Medicine and Biology Society - http://www.embs.org/
GNB	Congresso del Gruppo Nazionale di Bioingegneria - http://gnb2016.org/

Furthermore, results could be published on scientific journals as given in Table 17.

Table 17: Scientific Journals in which MINIMA Results could be published

N°	Journal Titel	Publisher	Frequency
1	AIAA JOURNAL	American Institute of Aeronautics and Astronautics	Monthly
2	Proceedings of the Institution of Mechanical Engineers, Part G: Journal of Aerospace Engineering	Professional Engineering Publishing	Monthly
3	Presence: Teleoperators and Virtual Environments	MIT Press	Bimonthly
4	The Aeronautical Journal	Royal Aeronautical Society	Monthly
5	Human-Computer Interaction	Taylor & Francis	4 issues per year
6	CEAS Aeronautical Journal	Springer	4 issues per year

For each result, it was decided which type of publication is suitable (conference, journal or both) and which conference or journal exactly should be targeted. For each dissemination activity, up to three conferences or journal were identified that are most suitable based on the topics addressed at the conference/in the journal. The results of this step are given in Table 18

Table 18: Conferences and Journals that should be preferably targeted for each expected Result

Result #	Type	Suitable conferences or journals with Submission Deadlines		
#1	Conference	SID	ACM CHI	ICAP
#2	Conference	HFES	AHFE	ACM IUI
#3	Conference	CEAS	ATM Seminar	DLRK
#4	Journal	1	4	2
#5	Conference	SID	CEAS	DASC
#5	Conference	ACM CHI	ACM IUI	HCI Int.

#6	Conference	SID	ATM Seminar	ICRAT
#7	Conference	ICAP	SfN	
#8	Conference	HCI Int.	ECAM	AHFE
#8	Journal	4	5	6

In the next step, one of the conferences selected based on the targeted community is selected based on the date expected for the availability of results in MINIMA and the expected submission deadline of the conference. It should be noted that these dates are not know for most conferences yet and are based on experiences from previous years. Also, a lot of conferences expect that abstracts are submitted first. It can be assumed that writing and submitting an abstract is possible before the expected availability of the complete results as this is based on the Submission Deadline for related Deliverables. The suitable Conferences with their submission deadlines are shown in Table 19. The selected conference is highlighted in bold.

Table 19 Conferences selected based on dates

Result #	Result available	Suitable conferences or journals with Submission Deadlines		
#1	31.07.16	**SID** **Sep 2016**	ACM CHI 21 Sep 2016	ICAP End of 2016
#2	31.12.16	HFES Feb 2017	**AHFE** **1 Dec 2016**	ACM IUI October 2017
#3	31.12.16	CEAS 15 Oct 2016	**ATM Seminar** **Jan 2017**	DLRK Apr 2017
#5	30.06.17	**SID** **Sep 2017**	CEAS 15 Oct 2016	DASC March 2018
#5	30.06.17	**ACM CHI** **Sep 2017**	ACM IUI Oct 2017	HCI Int. Oct 2017
#6	28.02.18	**SID** **Sep 2018**	ATM Seminar Jan 2019	ICRAT Feb 2018
#7	28.02.18	ICAP End of 2018	**SfN** **May 2018**	--
#8	28.02.18	HCI Int. Oct 2018	ECAM July 2018	**AHFE** **Dec 2017**

8.5 List of Envisaged Publications

Finally, based on the results from the last step, the dissemination activities planned in MINIMA are defined. As the topics addresses at conferences might change, the deadlines for submissions might not be expected and the results of MINIMA might be available at an earlier or later point in time, the MINIMA Steering Committee might decide to deviate from the list given here.

It has already been agreed at the Kick-Off Meeting that MINIMA will present its concept at the SESAR Innovation Days 2016. Further, MINIMA will present the developed highly automated task environment at the SESAR Innovation Days 2017. This is included in the list of planned publications shown in Table 20.

Table 20: Dissemination Activities Planned in MINIMA

Result #	Result Description	Result available	Type	Conference/ Journal	Time of Event	Deadline for contributions
#1	OOTL and vigilance measurement review	31.07.16	Conference	SID	Nov 2016	19 Sep 2016
#2	MINIMA Concept for additional controller communication/tasks to mitigate OOTL effects	31.12.16	Conference	AHFE	July 2017	Abstract: Dec 2016
#3	MINIMA Concept of a Vigilance and Attention Controller (Adaptive Task Environment)	31.12.16	Conference	ATM Seminar	June 2017	(End of) Jan 2017
#4	Neurophysiological correlates of the investigated cognitive processes (Attention and Vigilance)	30.06.17	Journal	AIAA JOURNAL	n/a	n/a
#5	Technical description of prototype of task environment and qualitative feedback from Controllers	30.06.17	Conference	SID	Nov 2017	Sep 2017
#5	Technical description of prototype of task environment and qualitative feedback from Controllers	30.06.17	Conference	ACM CHI	May 2018	Sep 2017
#6	Results of conducted evaluation study regarding simulation environment with developed new controller tasks (Without adaptation)	28.02.18	Conference	SID	Nov 2018	Sep 2018
#7	Results of conducted study. Quality of EEG-based vigilance metric of Air Traffic Controllers.	28.02.18	Conference	SfN	Nov 2018	May 2018

#8	Results of conducted study: Adaptive automation triggered by the Attention and Vigilance observer	28.02.18	Conference	AHFE	July 2018	Abstract: Dec 2017
#8	Results of conducted study: Adaptive automation triggered by the Attention and Vigilance observer	28.02.18	Journal	The Aeronautical Journal		

8.6 Open Access

The obligations for open access are detailed in GA article 29.2. The following section reproduces this article.

We have to ensure open access to all peer-reviewed scientific publications relating to MINIMA results. In particular, we must:

(a)   as soon as possible and at the latest on publication, deposit a machine-readable electronic copy of the published version or final peer-reviewed manuscript accepted for publication in a repository for scientific publications;
Moreover, we must aim to deposit at the same time the research data needed to validate the results presented in the deposited scientific publications.

(b)   ensure open access to the deposited publication — via the repository — at the latest:

(i) on publication, if an electronic version is available for free via the publisher, or

(ii) within six months of publication (twelve months for publications in the social sciences and humanities) in any other case.

(c)   ensure open access — via the repository — to the bibliographic metadata that identify the deposited publication.

The bibliographic metadata must be in a standard format and must include all of the following:

- the terms "SESAR Joint Undertaking", "European Union (EU)" and "Horizon 2020";

- the name of the action (MItigating Negative Impacts of Monitoring high levels

of Automation — MINIMA'), acronym (MINIMA) and grant number (699282);

- the publication date, and length of embargo period if applicable, and

- a persistent identifier.

9 Information on founding

Each publication, exploitation and communications material, each application for protection of MINIMA results and each contribution to European or international standards must include a statement to inform about the founding of MINIMA and where necessary the JU logo and the EU emblem. This chapter gives an overview of the information about founding that has to be included

9.1 Protection of results

According to GA Article 27.3, "Applications for protection of results (including patent applications) filed by or on behalf of a beneficiary must — unless the JU requests or agrees otherwise or unless it is impossible — include the following:

'The project leading to this application has received funding from the SESAR Joint Undertaking under grant agreement No 699282 under European Union's Horizon 2020 research and innovation programme'".

9.2 Standards

According to GA Article 28.2, "If results are incorporated in a standard, the beneficiary concerned must — unless the JU requests or agrees otherwise or unless it is impossible — ask the standardisation body to include the following statement in (information related to) the standard:

'Results incorporated in this standard received funding from the SESAR Joint Undertaking under grant agreement No 699282 under European Union's Horizon 2020 research and innovation programme'".

9.3 Dissemination

According to GA Article 29.4, "Unless the JU requests or agrees otherwise or unless it is impossible, any dissemination of results (in any form, including electronic) must:

(a) display the JU logo;

(b) display the EU emblem and

(c) include the following text:

'This project has received funding from the SESAR Joint Undertaking under grant agreement No 699282 under European Union's Horizon 2020 research and innovation programme'.

When displayed together with another logo, the JU logo and the EU emblem must have appropriate prominence.

Additionally, according to Article GA 29.5, "Any dissemination of results must indicate that it reflects only the author's view and that the JU is not responsible for any use that may be made of the information it contains."

9.4 Communication

According to GA Article 38.1.2, "Unless the JU requests or agrees otherwise or unless it is impossible, any communication activity related to the action (including in electronic form, via social media, etc.) and any infrastructure, equipment and major results funded by the grant must:

(a) display the JU logo;

(b) display the EU emblem and

(c) include the following text:

For communication activities:

'**This project has received funding from the SESAR Joint Undertaking under grant agreement No 699282 under European Union's Horizon 2020 research and innovation programme'**.

For infrastructure, equipment and major results:

'**This [infrastructure][equipment][insert type of result] is part of a project that has received funding from the SESAR Joint Undertaking under grant agreement No 699282 under European Union's Horizon 2020 research and innovation programme'**.

When displayed together with another logo, the JU logo and the EU emblem must have appropriate prominence."

10 Implementation of Ethics Requirements

MINIMA project aims at developing tools for monitoring air traffic controller and methods to keep them in the loop. To achieve this goal, MINIMA Consortium is planning to run experimentation on adult healthy volunteers and requires human data collection and processing. This raises some ethical issues. Six Ethics Requirements have been identified that MINIMA must fulfil. These are shown in Table 21. MINIMAs strategy to address these issues includes several actions:

- At first, details on how MINIMA deals with these issues are described in D6.1 to D6.6 [13] in accordance with the Ethics Guidance document [19]
- Further, an Ethics proposal, which describes the planed experiments (starting in October 2017, T0+17) and the handling of the recorded data in detail, will be given e.g. to University of Bologna Ethics Committee and Data Protection Officer beginning of June 2017 (T0+13) to request an ethics approval and authorisation. The experiments will not start before the ethics approval and authorisation is granted. If the approval is requested in June, there will be 4 month between the request for approval and the envisage state
  The details of the evaluation will be defined during task 3.1. Originally, it was planned that this task will start beginning of July 2017 (T0+14). However, in order to be able to prepare the ethics proposal earlier, this task will start in beginning of May 2017 (T0+12).
  Two risks are associated with the ethics approval. On the one hand, if the ethics approval is requested very late, there is the risk that it will lead to a delay of the experiments. On the other hand, if the ethics approval is requested very early, changes to the evaluation plan (and thus to the procedure described in the ethics approval) might become necessary if the system cannot be implemented during WP2 as planned. Thus a re-approval might become necessary. However we think that the selected date for requesting the approval balances both risks.
- Milestone 4 has been modified. Previously it was reached when the evaluation plan was available. Now, additionally the approval and authorisation for the experiments is required. At this milestone it will be decided if the experiments will be conducted. Only if the Ethics Approval has been received, it can be decided to conduct the experiments. This decision has to be approved to by the SJU.
- An Ethics Audit is planned at T0+12 (End of April 2017) jointly with the Intermediate Review
- Francesca De Crescenzio was nominated as Ethical focal point of the project

Table 21: Ethics Requirements identified for MINIMA

Requirement	Ethics Issue Category	Ethics Requirement Description
#1	H – Humans	Details on the procedures and criteria that will be used to identify/recruit research participants must be provided.
#2	H – Humans	Detailed information must be provided on the informed consent procedures that will be implemented.
#3	POPD – Protection of Personal Data	Copies of ethical approvals for the collection of personal data by the competent University Data Protection Officer / National Data Protection authority must be submitted.
#4	POPD – Protection of Personal Data	Justification must be given in case of collection and/or processing of personal sensitive data.
#5	POPD – Protection of Personal Data	Detailed information must be provided on the procedures that will be implemented for data collection, storage, protection, retention and destruction and confirmation that they comply with national and EU legislation.
#6	POPD – Protection of Personal Data	Detailed information must be provided on the informed consent procedures that will be implemented.

Founding Members

EUROPEAN UNION   EUROCONTROL

11 References

[1]   MINIMA (699282) – Grant Agreement – Annex 1 – Description of Action (Part A)

[2]   MINIMA (699282)– Grant Agreement – Annex 1 – Description of Action (Part B)

[3]   MINIMA Consortium Agreement

[4]   SESAR 2020 Exploratory Research First Call for Research Projects, available at
http://ec.europa.eu/research/participants/data/ref/h2020/other/call_fiches/jtis/h2020-call-doc-er-sesar-ju_en.pdf

[5]   List of MINIMA contacts, available at: https://teamsites-extranet.dlr.de/fl/MINIMA/Lists/Contacts/AllItems.aspx

[6]   List of MINIMA Deliverables, available at: https://teamsites-extranet.dlr.de/fl/MINIMA/Lists/Deliverables/AllItems.aspx

[7]   List of MINIMA Tasks, available at: https://teamsites-extranet.dlr.de/fl/MINIMA/Lists/Project%20Tasks/AllItems.aspx

[8]   List of MINIMA Action Items, available at: https://teamsites-extranet.dlr.de/fl/MINIMA/Lists/Action%20Items/AllItems.aspx

[9]   List of MINIMA Risks, available at: https://teamsites-extranet.dlr.de/fl/MINIMA/Lists/Risk/AllItems.aspx

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[11]   MINIMA, Kick-off Minutes, available at: https://teamsites-extranet.dlr.de/fl/MINIMA/Freigegebene%20Dokumente/Meetings/2016%20-%2005%20Kick-Off/MINIMA%20Kick-Off%20Minutes%20v1.docx

[12]   MINIMA, Steering Committee Meeting #5 (29.08.2016) – Minutes , available at: https://teamsites-extranet.dlr.de/fl/MINIMA/Freigegebene%20Dokumente/Meetings/2016-08-29%20SC%20Minutes.docx

[13]   MINIMA – D6.1 to D6.6 Ethical Requirements

[14]   H2020 guidelines: http://ec.europa.eu/research/participants/docs/h2020-funding-guide/index_en.htm

[15]   Annotated Model Grant Agreement,
http://ec.europa.eu/research/participants/data/ref/h2020/grants_manual/amga/h2020-amga_en.pdf

[16]   H2020 Online Manual, http://ec.europa.eu/research/participants/docs/h2020-funding-guide/index_en.htm

[17]   Project Management Institute (2013): A guide to the project management body of knowledge (PMBOK guide). Fifth edition.

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