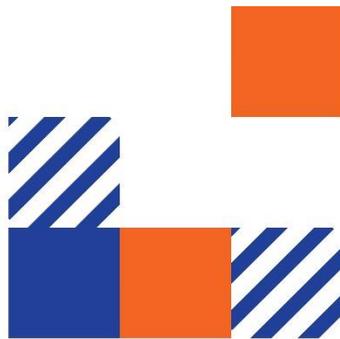


**Project title:**

**C**reating know**L**edge and skill**L**s in **A**dditive **M**anufacturing



**CLLAIM**

Reference number:

2017-3309/591838-EPP-1-2017-1-ES-EPPKA2-SSA

**Work Package 8**

**Work Package Leader  
LZH Laser Akademie**

**Deliverable D8.2**

**General Report on Mainstreaming  
Committees Kick-off Meetings**

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## Introduction

To organise the implementation of the CLLAIM project outcomes on a national level, three mainstreaming committees were founded in the UK, Spain and Germany in the CLLAIM project. The committees will stay active beyond the duration of the CLLAIM project in order to ensure a long-term sustainability of the project results and to embed results into training practices.

The members of the committees will be encouraged to keep in touch even after the conclusion of the project and take part in external events to the project, in order to mainstream/familiarise the industry with the European AM Qualification body, its mission and aims; arrange meetings with ANBs and ATBs to collect live feedback on the process of awarding qualifications. In a nutshell, these committees are responsible for evaluating the CLLAIM Guidelines and ensure updates are kept and also disseminate the results of the project. The work is voluntary and on a temporary basis.

Experts from the following companies joined the mainstreaming committees of the CLLAIM project:

- The Welding Institute (TWI, UK)
- Brunel University (UK)
- Irish Manufacturing Research (IMR, UK)
- The Certification Scheme for personnel (CSWIP, UK)
- 3D Metalforge (UK)
- University of Strathclyde/Advanced Forming Research Centre (UK)
- JGC CORPORATION, EN Technology Center, Materials & Corrosion Group (UK)
- Sicnova 3D Jaén (Spain)
- Centro Tecnológico del Metal de Castilla – La Mancha (ITECAM, Spain)
- Centro Laser, Escuela Técnica Superior de Ingenieros Industriales (Spain)
- Spanish Association of welding and Union technologies (CESOL, Spain)
- Aachen University (Germany)
- Baker Hughes (Germany)
- BBS-ME Hannover (Germany)
- LZH Laser Zentrum Hannover e.V. (Germany)
- Additive Manufacturing at Fraunhofer Institute for Casting, Composite and Processing Technology IGCV (Germany)

- DVS – Deutscher Verband für Schweißen und verwandte Verfahren e. V.  
(Germany)
- Ifw Jena (Germany)

Following the CLLAIM final conference (all members of the mainstreaming committees were invited), national kick-off meetings took place to agree on the strategies of the national mainstreaming committees for the national implementation of the CLLAIM outcomes and to discuss the next steps.

The Kick-Off-Meeting of the UK national mainstreaming committee took place on 23rd November 2020. The meeting was conducted using the Microsoft Teams platform due to travel restrictions imposed because of the Covid-19 pandemic. The main objective of the national kick-off meeting was to demonstrate the work done and resources created whilst developing the AM Personnel Qualification Scheme on the CLLAIM project. The UK national mainstreaming committee also looked at the interfaces with other projects, such as ADMIRE and SAM, and how these link to CLLAIM and how the qualifications schemes will operate and evolve based on feedback through these committees and the AM Observatory. Invitations to join the committee were published and circulated in advance of the Final Conference for CLLAIM (held on the 5th November 2020), which several members of the UK committee also attended.

The Kick-Off-Meeting of the national mainstreaming committee in Spain took place on 17<sup>th</sup> November 2020. Due to the current global situation around the Covid-19 pandemic, it had to be carried out online through the Microsoft Teams platform. The main objective of the creation of these mainstreaming committees is based on favouring the sustainability and exploitation of all the work that has been carried out during the project, around the international system of qualifications in Additive Manufacturing and the 4 profiles developed (Operator, Designer, Supervisor and Inspector in AM). The committees were created through a series of invitations/flyers and email contacts, so that these committees would be made up of experts in Additive Manufacturing, such as AM VET providers, policy/decision makers, ANBs, ATBs, industry or other stakeholders.

The invitation to join the German mainstreaming committee was done via email and phone calls to reach national AM experts, such as VET providers, an ANB, teachers and trainers, people from industry and research and other stakeholders. All members of the committee were also invited to the CLLAIM final conference that took place on the 5<sup>th</sup> November 2020. The kick-off meeting of the German mainstreaming committee was held on the 12<sup>th</sup> November 2020. Due to the situation caused by the corona virus, the meeting

was conducted online, using the MS Teams platform. In the beginning of the kick-off meeting, all participants introduced themselves referring to their role in the AM sector. Next, important CLLAIM outcomes were highlighted and the committee members started a discussion on how the results can be implemented on national level. The mainstreaming committee agreed on a strategy to update and implement chosen CLLAIM outcomes on national level.

## 1. Kick-off Meeting

### 1.1 Invitation and Flyer

A flyer was developed to support the invitation to the national mainstreaming committees. The flyer was prepared in English, Spanish and German language.

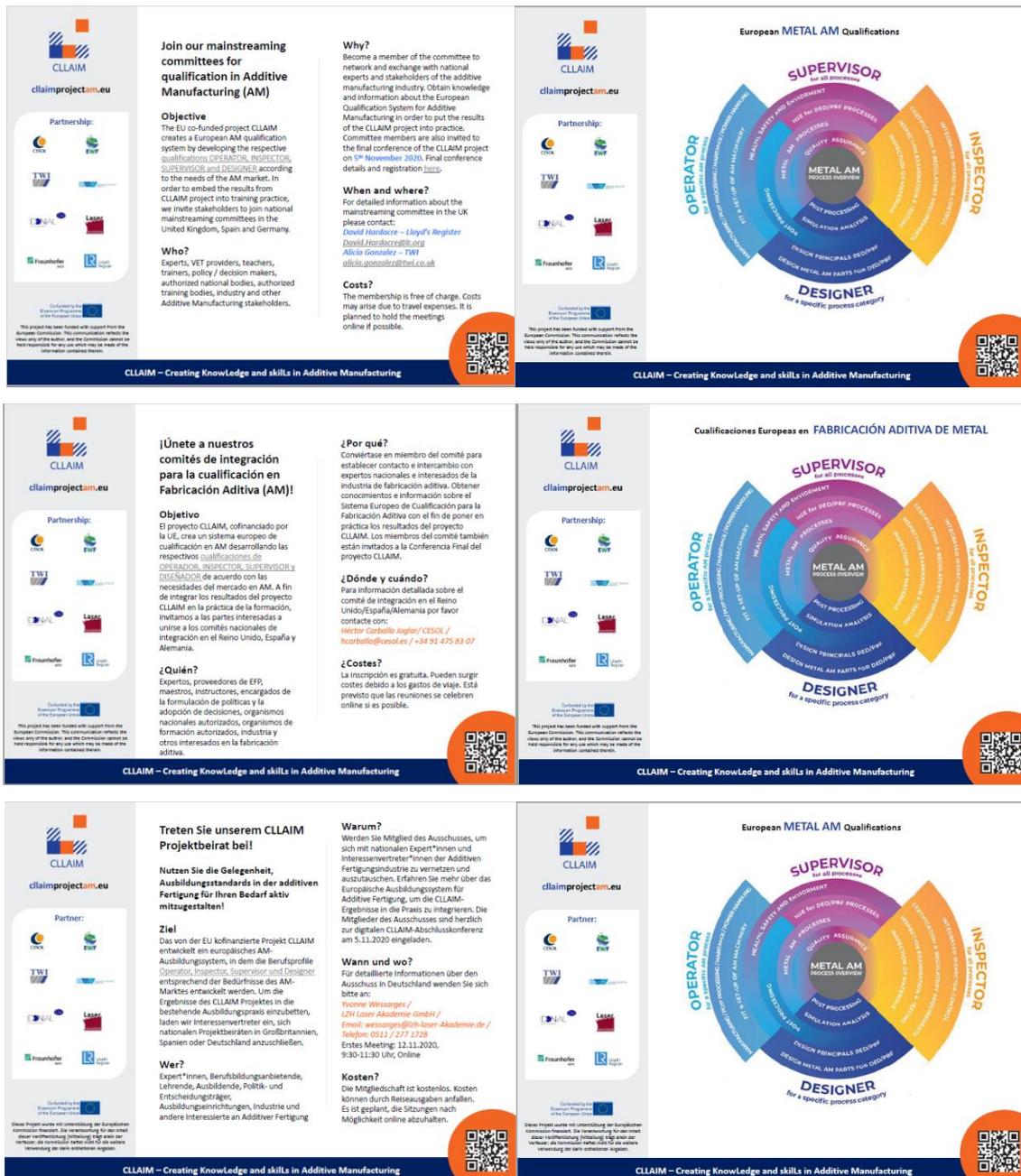


Figure 1: CLLAIM, English, Spanish and German mainstreaming committee flyers

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The members of the national mainstreaming committees were recorded on SharePoint (the companies were listed in the introduction of this report) invited to the CLLAIM final conference and to the national kick-off meetings of the mainstreaming committees (see below, Figure 2 Figure 3: Invitation to Spanish kick-off meeting, Figure 4: Invitation to German kick-off meeting).

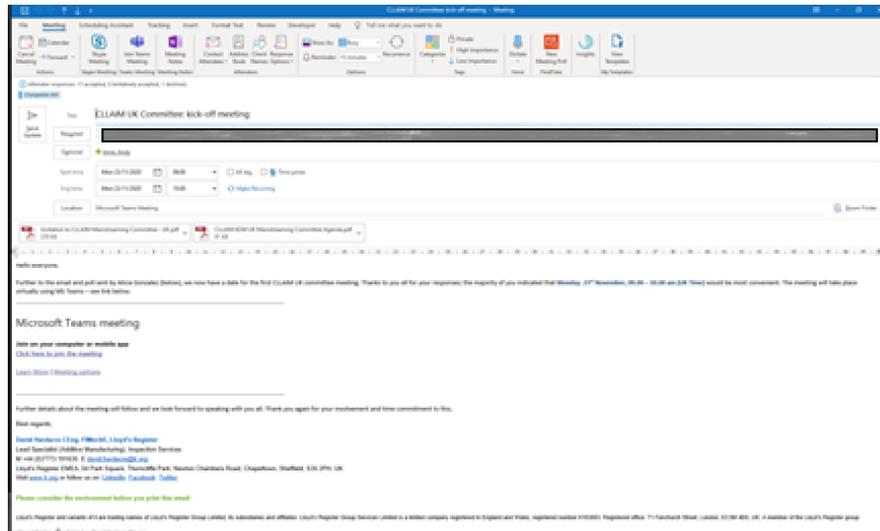


Figure 2: Invitation to UK kick-off meeting

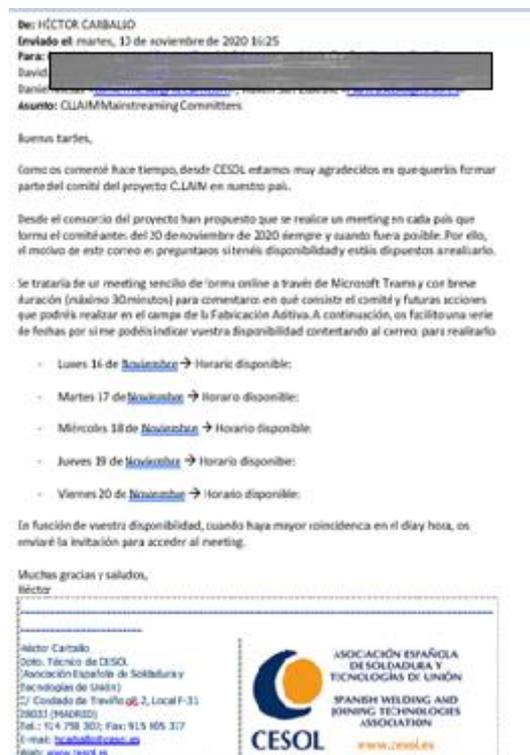


Figure 3: Invitation to Spanish kick-off meeting

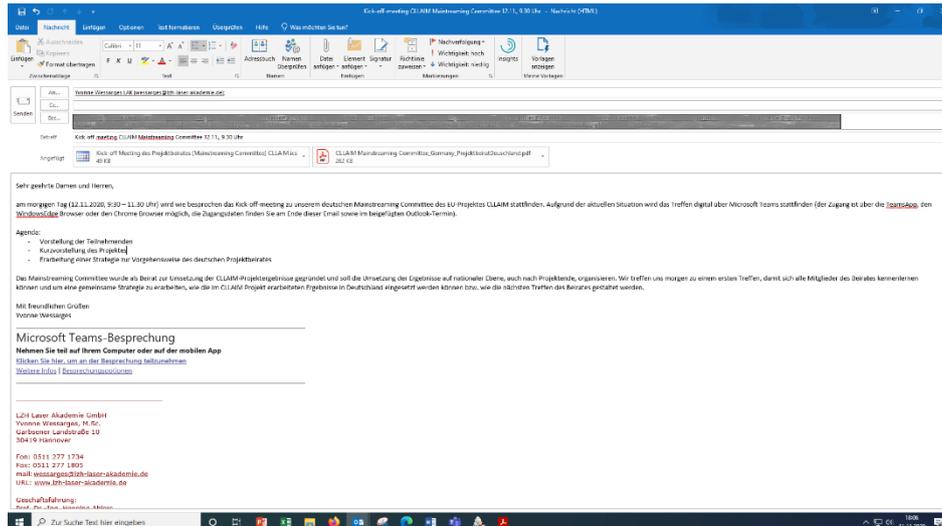


Figure 4: Invitation to German kick-off meeting

## 1.2 Agenda of Kick-off-Meeting

Before kick-off meetings, national agendas were prepared with the most important topics to be discussed (see Figure 5, Figure 6, Figure 7). All meetings started with a welcome to all members by the CLLAIM partner and a brief introduction of all participants. Subsequently, the main objectives and important outcomes of the CLLAIM project were presented. Next, the members discussed and agreed on a strategy of each national mainstreaming committee to consider and implement the CLLAIM results on national level. The presentations shown at the kick-off meetings are attached to the Annex section of this report.



## CLLAIM Kick Off Meeting

### UK Mainstreaming Committee

23<sup>rd</sup> November 2020

(held virtually via [MS Teams](#))

#### Agenda

09:00	Introductions
09:10	Protocol for meeting
09:15	Overview of CLLAIM project
09:25	SAM project <ul style="list-style-type: none"> <li>Objectives &amp; links to CLLAIM</li> <li>Possibility for the experts to join the observatory of SAM project</li> </ul>
09:35	Purpose of mainstreaming committee <ul style="list-style-type: none"> <li>Strategy</li> <li>Access to information through <a href="#">CLLAIM website</a></li> <li>How to implement CLLAIM results on a national basis</li> <li>Agree frequency of meetings</li> </ul>
09:55	Any other business <ul style="list-style-type: none"> <li>Feedback (<a href="#">survey monkey</a>)</li> </ul>
10:00	Close meeting

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of the European Union



Figure 5: Agenda of the UK mainstreaming committee kick-off meeting



## CLLAIM KOM Mainstreaming Committee in Spain

17<sup>th</sup> November 2020

Due to the COVID measures applied, the event will be held fully online, via Microsoft Teams.

#### Agenda

10:30 – 10:40	Welcome and presentation of the Committee
10:40 – 10:50	Main outcomes and objectives of CLLAIM Project
10:50 – 11:10	Future strategy of the Committee
11:10 – 11:20	Observatory of SAM Project

One week before the event, you will receive the invitations via email to access through Microsoft Teams.



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Figure 6: Agenda of the Spanish mainstreaming committee kick-off meeting



CLLAM Mainstreaming Committee

Kick-off Meeting of German Mainstreaming Committee

12.11.2020, 9:30-11:30 Uhr  
 Teams-Meeting

Agenda

- Vorstellung
- Kurzvorstellung des Projektes
- Erarbeitung einer Strategie zur Vorgehensweise des deutschen Projektbeirates

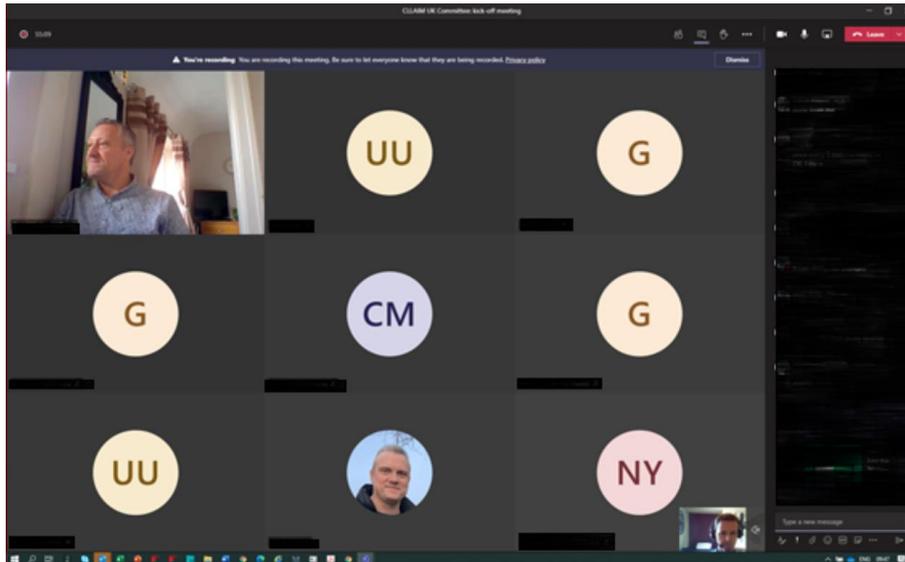
Figure 7: Agenda of the German mainstreaming committee kick-off meeting

### 1.3 List of Attendees

At least five members attended in each national kick-off meeting of the mainstreaming committee. The target group covers AM experts, VET providers, policy / decision makers, ANBs, ATBs, industry and other AM or training related stakeholders.

List of attendees and evidence in UK:

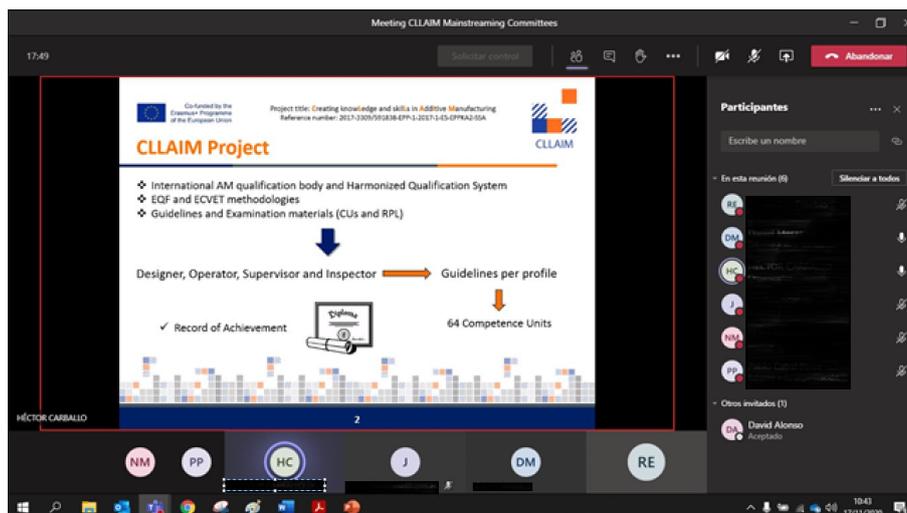
Full Name	Company	Email	Scope
[Redacted]	Lloyd's Register	[Redacted]@lloydsregister.org	Inspection Authority Training Provider
[Redacted]	TWI	[Redacted]@twi.co.uk	AM User Training Provider
[Redacted]	JGC	[Redacted]@jgc.com	AM User Training Provider
[Redacted]	TWI	[Redacted]@twi.co.uk	AM User Training Provider
[Redacted]	Lloyd's Register	[Redacted]@lloydsregister.org	Inspection Authority Training Provider
[Redacted]	AFRC	[Redacted]@afrc.ac.uk	AM User Training Provider
[Redacted]	TWI	[Redacted]@twi.co.uk	AM User Training Provider
[Redacted]	TWI	[Redacted]@twi.co.uk	AM User Training Provider
[Redacted]	TWI	[Redacted]@twi.co.uk	AM User Training Provider
[Redacted]	TWI	[Redacted]@twi.co.uk	AM User Training Provider
[Redacted]	3D MetalForge	[Redacted]@metalforge.com	AM User



List of attendees and evidence in Spain:

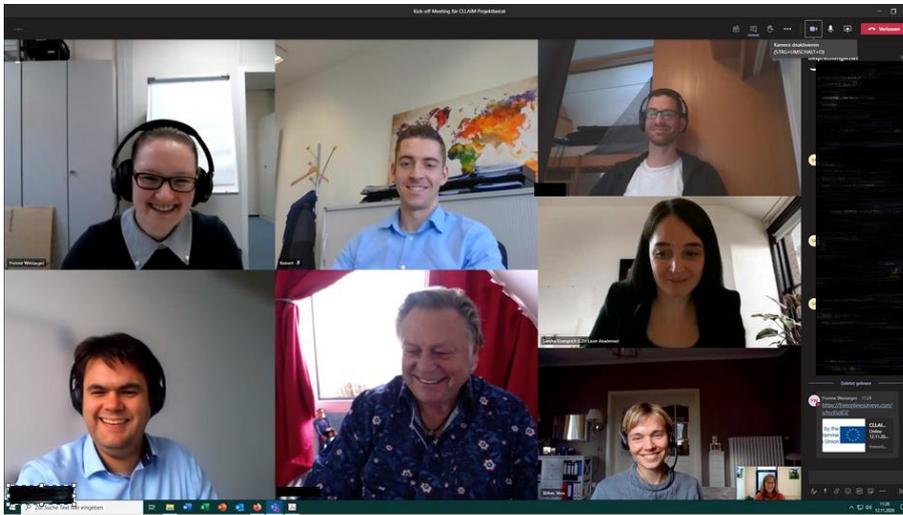
Attendance List:

- [Redacted], Potential AM User/Worker, Centro Láser UPM,
- [Redacted], ITECAM, AM Training Provider, [Redacted]
- [Redacted], ITECAM, AM Training Provider, [Redacted]
- [Redacted], ITECAM, AM Training Provider, [Redacted]
- [Redacted], SICNOVA 3D, AM User/Worker and Industry Stakeholder, [Redacted]
- [Redacted], IDONIAL, AM Training Provider, [Redacted]
- [Redacted], CESOL, AM Training Provider, [Redacted]
- [Redacted], CESOL, AM Training Provider, [Redacted]



List of attendees and evidence in Germany:

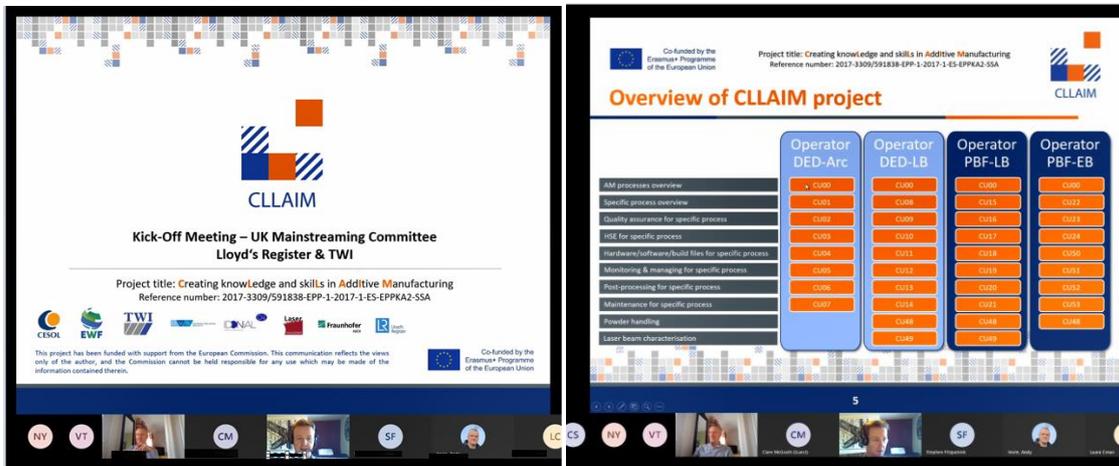
- Dr. [redacted] SLV Rostock
- Dr.-Ing. [redacted] Fraunhofer-Institut für Gießerei, Composite- und Verarbeitungstechnik IGCV
- Dr.-Ing. [redacted] Laser Zentrum Hannover e.V.
- Dr.-Ing. [redacted], Fraunhofer-Institut für Gießerei-, Composite- und Verarbeitungstechnik IGCV
- [redacted], LZH Laser Akademie GmbH
- [redacted] bbs-me
- [redacted] DVS – Deutscher Verband für Schweißen und verwandte Verfahren e. V.
- [redacted] LZH Laser Akademie GmbH
- [redacted] LZH Laser Akademie GmbH



5

1.4 Evidences for conduction

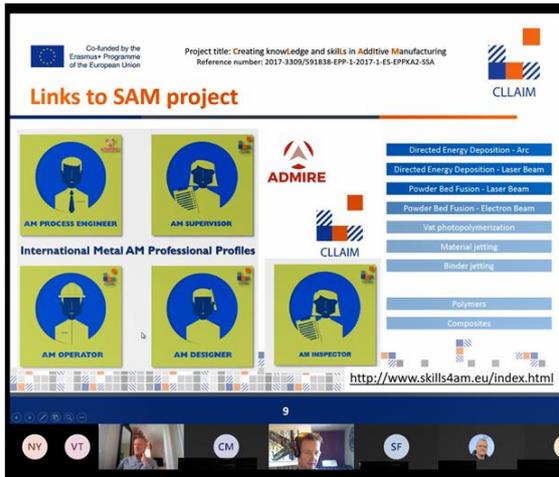
Screenshots of UK kick-off meeting:



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Project title: Creating knowledge and skills in Additive Manufacturing  
Reference number: 2017-3309/591838-EPP-1-2017-1-ES-EPPKA2-SSA

## Links to SAM project



**International Metal AM Professional Profiles**

- AM PROCESS ENGINEER
- AM SUPERVISOR
- AM OPERATOR
- AM DESIGNER
- AM INSPECTOR

**ADMIRE**

- Directed Energy Deposition - Arc
- Directed Energy Deposition - Laser Beam
- Powder Bed Fusion - Laser Beam
- Powder Bed Fusion - Electron Beam
- 3D photopolymerisation
- Material jetting
- Binder jetting
- Polymers
- Composites

<http://www.skills4am.eu/index.html>

Co-funded by the Erasmus+ Programme of the European Union

Project title: Creating knowledge and skills in Additive Manufacturing  
Reference number: 2017-3309/591838-EPP-1-2017-1-ES-EPPKA2-SSA

## Links to SAM project



**NATIONAL REQUIREMENTS**

**INDUSTRIAL REQUIREMENTS**

**DIFFERENT LEVELS OF SKILLS**

**FAST EVOLVING TECHNOLOGY**

**VET AND HE**

Co-funded by the Erasmus+ Programme of the European Union

Project title: Creating knowledge and skills in Additive Manufacturing  
Reference number: 2017-3309/591838-EPP-1-2017-1-ES-EPPKA2-SSA

## CLLAM Mainstreaming Committees

**JOIN SAM GROUPS!**

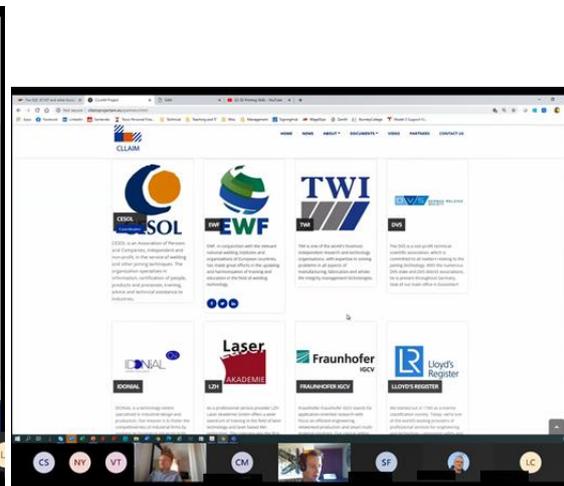
All Students, Trainees and Jobseekers in AM are invited to join SAM project groups.

Sector Skills Strategy in Additive Manufacturing  
<https://www.linkedin.com/groups/12231279>

Students, Trainees & Jobseekers in AM  
<https://www.linkedin.com/groups/8918566>

Sector Skills Strategy in Additive Manufacturing (SAM) Project

3D Printing Channel  
<https://www.youtube.com/channel/UCCO-PDXv5ReiEtkvYvBtHA>



CLLAM

CSOL

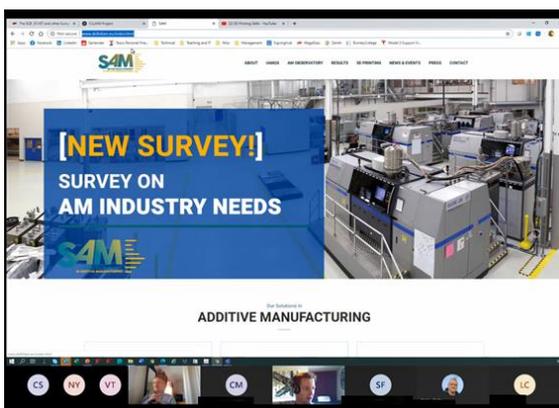
EWf

TWI

Laser AKADEMIE

Fraunhofer IPA

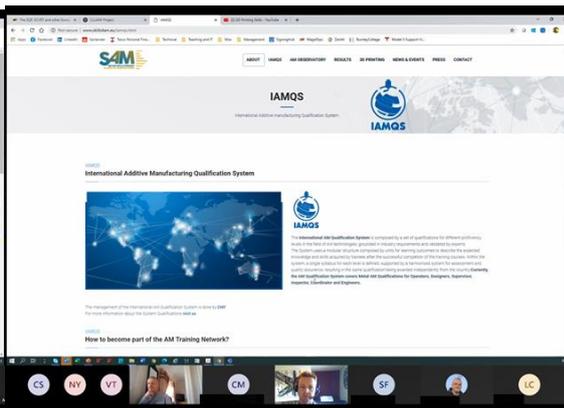
Lloyd's Register



**[NEW SURVEY!]**

**SURVEY ON AM INDUSTRY NEEDS**

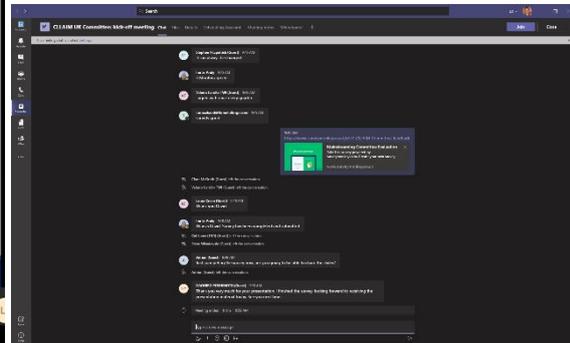
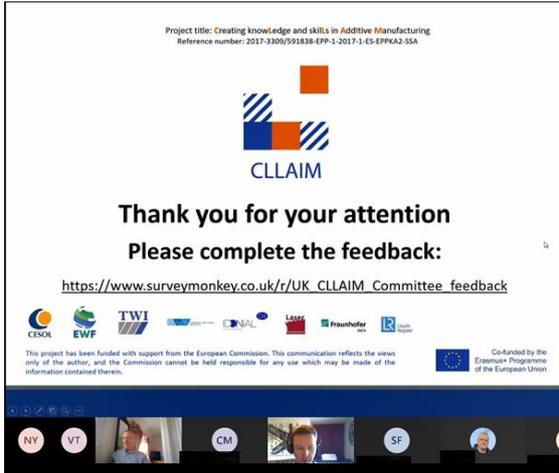
ADDITIVE MANUFACTURING



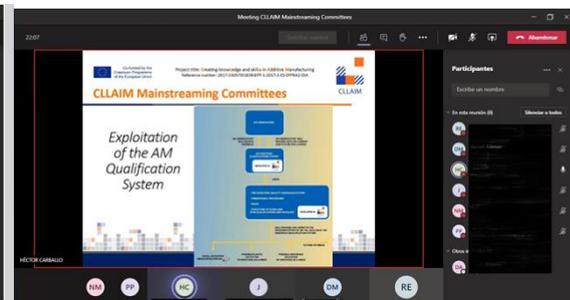
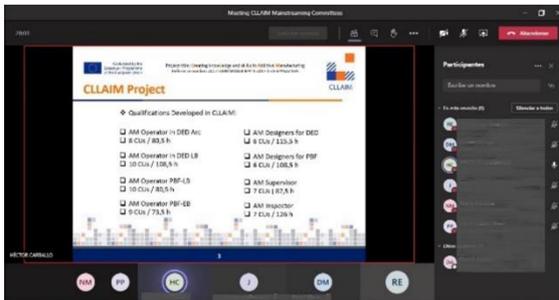
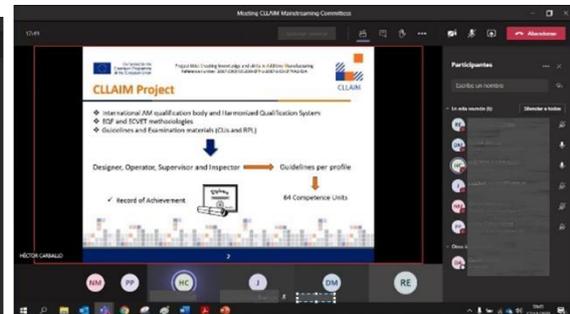
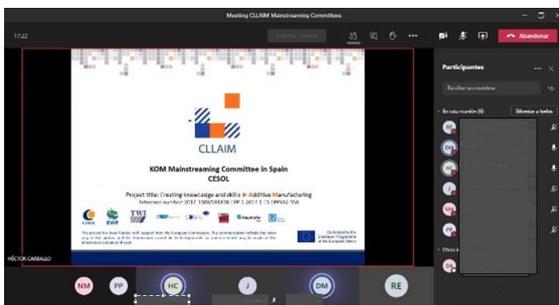
**IAMQS**

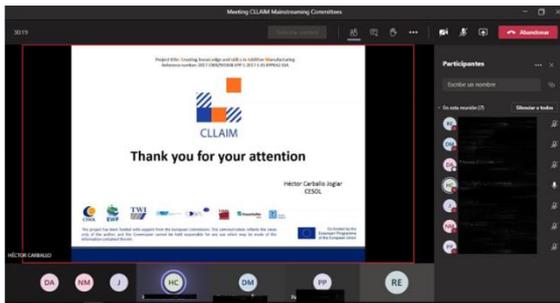
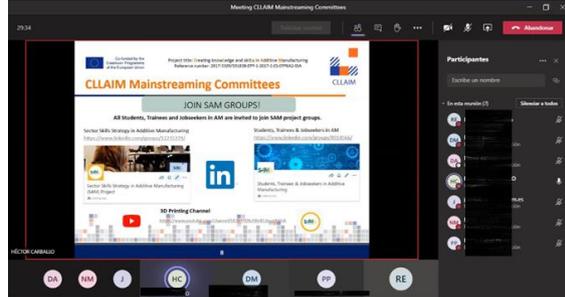
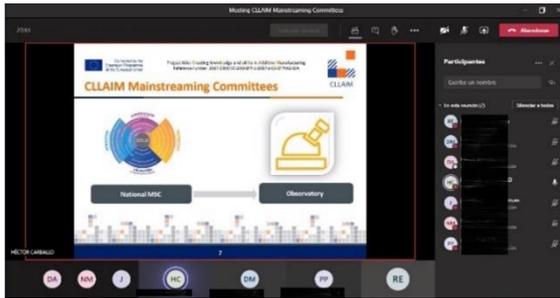
International Additive Manufacturing Qualification System

How to become part of the AM Training Network?

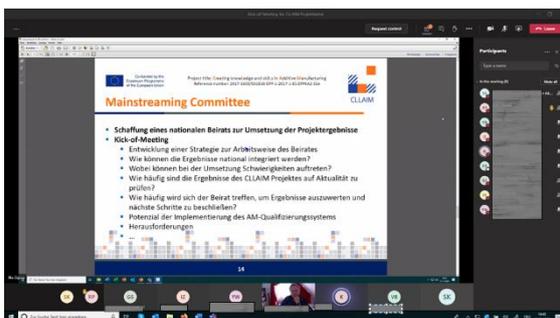
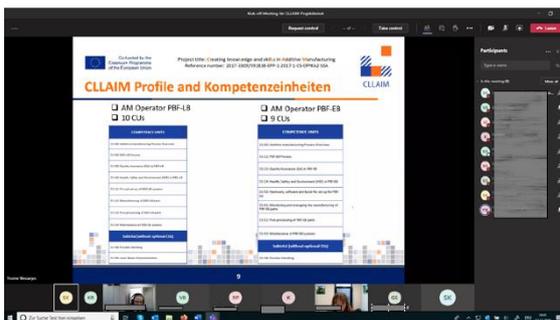


Screenshots of Spanish kick-off meeting:





Screenshots of German kick-off meeting:



## 2. Strategy

Each national mainstreaming committee defined a strategy during the kick-off meeting to start and arrange the implementation of CLLAIM outcomes at a national level. The next steps that were agreed in the respective kick-off meetings are summarized below.

The main topics discussed during the UK kick-off meeting were based on the adoption of the qualification scheme, feedback from those that use it (or choose not to use it) and whether it is deemed fit for the purpose compared with industry needs. This feedback will be critical in updating the scheme to keep it relevant and in line with the ever-evolving AM technologies. The opportunity to get involved in the SAM Groups was also discussed and the possibility of merging this with the National Mainstreaming Committee to reduce the ongoing overhead of time required. The frequency of meetings was agreed to be every three months, so the next meeting will take place in February 2021 (date and time to be agreed by Doodle Poll).

The main topics discussed in the Spanish mainstreaming committee were based on favouring the exploitation, sustainability and exploitation of all the work that has been carried out during the project, around the international system of qualifications in Additive Manufacturing and the 4 profiles developed (Operator, Designer, Supervisor and Inspector in AM). It was concluded that all committee members will encourage the dissemination and implementation of these qualifications to make the results more visible and available to as many people as possible. Furthermore, the committee members are open to future reviews of these qualifications and to identify needs that may arise in the field of Additive Manufacturing in case the creation of additional profiles or qualifications is necessary. They also showed interest in becoming part of the Observatory of the SAM project, in order to follow more closely all aspects of the objectives achieved in the project for future revisions and implementations.

During the German kick-off meeting, the main topics of discussion were the sustainable exploitation of and the practicability of implementing the CLLAIM outputs in Germany. Some of the CLLAIM results are already being used nationally or will be used in the future. For Germany, the standards and legal regulations for training in AM, in which DVS is already involved, will also be particularly important in the near future.

DVS already has a qualification system as well as an accreditation system in which the CLLAIM results could be integrated. The DVS specialist group 4.13 deals with education and training in additive manufacturing in Germany, so there would be synergies if the

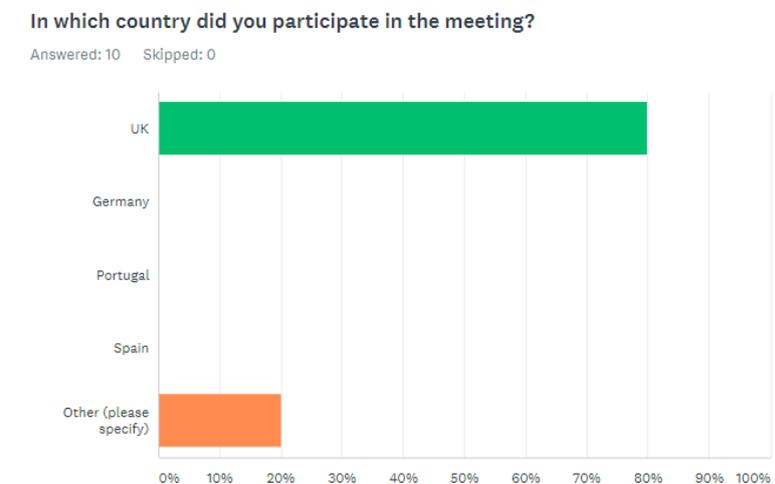
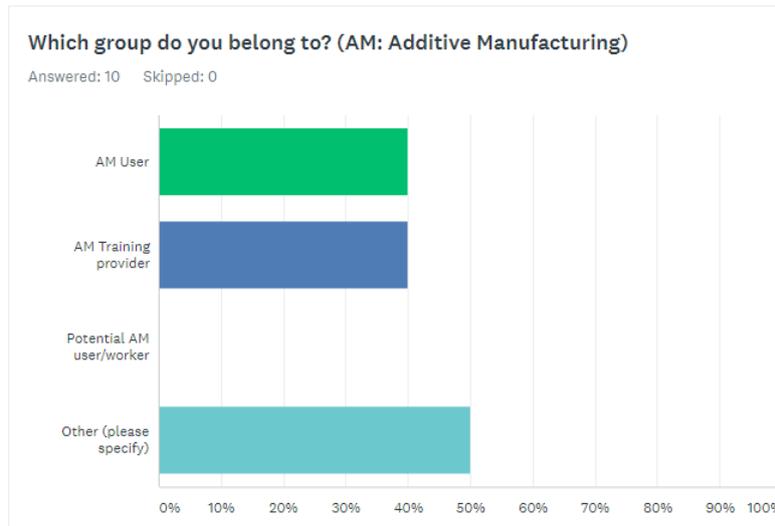
specialist group will be overlaid with the mainstreaming committee of CLLAIM. The participants of the kick-off meeting agreed on this step. After the end of the CLLAIM project, the mainstreaming committee will either be integrated into the DVS specialist group or will be added as a separate meeting but at the same day with more or less the same participants. The meetings to examine the need for a revision of outputs from CLLAIM and the planning of further national implementation of results are planned to take place every six months. The next meeting, in combination with a meeting of the DVS specialist group for education and training in AM (FG4.13) is scheduled for the 15<sup>th</sup> April 2021.

At international level, the outcomes of CLLAIM will be used in the SAM project. Within the framework of the observatory of the SAM project, the updating of guidelines will be managed. The members of the German mainstreaming committee have the possibility to also participate in these international working groups.

### 3. Evaluation

In the end of the kick-off meetings all partners did an evaluation survey to collect feedback from the participants. As all the kick-off meetings were conducted online, the feedback survey was also done online with different online survey tools. The prepared questionnaire can be found in the Annex. Six questions were asked, five multiple choice questions and one open question, asking directly for suggestions for improvements, notes or ideas for the mainstreaming committees.

The evaluation of the UK kick-off meeting was done using Survey Monkey. The results can be found in the Annex section and a summary is below. Ten attendees participated in the survey, 40% AM users, 40% AM training providers and the rest ticked other, but did not specify. The rating of technical quality, CLLAIM outcomes and the importance of a European AM qualification system was between good and very good. Two persons added a comment on question 6: one suggested to have an overview of the administration of the qualifications system and how all the parties' interface and the other comment wished a clear diagram of how all the activities fit together, i.e. how EWF fits into this system and how ADMIRE and SAM fit with CLLAIM.



**How important is a European education st...**

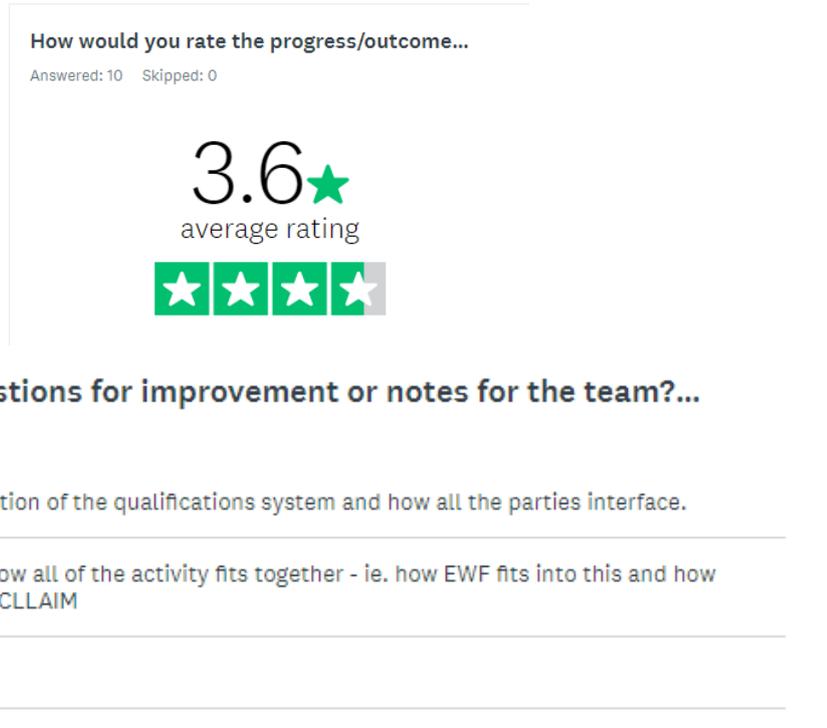
Answered: 10 Skipped: 0



**How would you rate the technical quality ...**

Answered: 10 Skipped: 0





The results of the evaluation of the Spanish kick-off meeting can be found in the Annex section. Six attendees answered to the Spanish feedback survey, three AM training providers, two potential AM users or workers and one AM stakeholder. Four attendees rated the importance of a European education standard for AM as very important, two as important. The technical quality of the event was rated as “very good” by four participants and as “good” by two participants. The progress and outcomes of the project CLLAIM also received good ratings, three ticked “very good” and three ticked “good”. Three comments were given for question 6. One attendee stated it is very important to be able to be part of the AM observatory, a second participant wrote “it would be good to create new projects parallel to CLLAIM to further exploit and implement the qualification in AM” and that he would like to be a part of the AM observatory. A third comment said, that “it is very interesting to create these committees to keep in touch with the qualifications developed and their progress”.

The results of the German kick-off meeting evaluation can be found in the Annex section. The tool “free online survey” was used and 8 participants answered. Five training providers, two AM stakeholders and one teacher participated in the German feedback survey. When asked how important a European AM education standard is for the participant, only six participants answered, three rated it as very important and three as important. The technical quality of the event was rated as good by 5 participants and as very good by three attendees. Only seven ratings were given on the progress / outcomes

of the project CLLAIM: three good ratings and four very good ratings. Two answers were given to the last question on suggestions for improvements, notes or ideas for the mainstreaming committee: one suggested to expand the committee by further experts from other institutions and sectors and the other proposed to integrated the CLLAIM mainstreaming committee into existing structures of the DVS such as the division 4.13 and continue the discussion started in the kick-off meeting there.

#### 4. Annexes

- Presentation shown during UK kick-off meeting



CLLAIM KOM UK  
Mainstreaming Com

- Presentation shown during Spanish kick-off meeting



CLLAIM\_Presentation\_KOM Mainstreami

- Presentation shown during German kick-off meeting



Presentation\_German MC kick-off.pdf

- Feedback questionnaire for kick-off meetings



Evaluation\_Mainstreaming\_Committee\_

- Feedback survey results of the UK mainstreaming committee kick-off meeting



CLLAIM KOM UK  
Mainstreaming Com

- Feedback survey results of the Spanish mainstreaming committee kick-off meeting



CLLAIM\_Evaluation  
Mainstreaming Com

- Feedback survey results of the German mainstreaming committee kick-off meeting



Report  
Mainstreaming Com