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**Project title:** Training the Next Generation of Experts in Scalable Low-Code Engineering Platforms

# INITIAL DISSEMINATION AND EXPLOITATION PLAN

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# 1. Acronyms

CV: Curriculum Vitæ, 12  
DMP: Data Management Plan, 21  
DOI: Digital Object Identifier, 25  
EB: Executive Board, 25  
EP: Exploitation Plan, 28  
ESR: Early Scientific Researcher, 13  
GB: Gigabyte, 25  
ICT: Information and Communication Technologies, 13  
IoT: Internet Of Things, 32  
IP: Intellectual Property, 29  
IT engineers: Information Technology engineers, 11  
KPI: Key Performance Indicator, 23  
LCDP: Low-code development platforms, 8  
LCE: Low-Code Engineering, 10  
LCEP: Low-code Engineering Platform, 8  
MDE: Model Driven Engineering, 8  
MS: Milestone, 20  
PaaS: Platform-As-A-Service, 25  
ROI: Return-On-Investment, 11  
SE community: Software Engineering community, 12

## **2 Introduction**

The present document is a deliverable of the Lowcomote project (Grant Agreement n°813884), funded by the European Commission Research Executive Agency (REA), under the Innovative Training Networks Programme of the Marie Skłodowska-Curie Actions (H2020-MSCA-ITN-2018).

### **2.1 Project Abstract**

Low-code development platforms (LCDP) are software development platforms on the Cloud, provided through a Platform-as-a-Service model, which allow users to build operational applications by interacting through dynamic graphical user interfaces, visual diagrams and declarative languages. They address the need of non-programmers to develop personalised software, and focus on their domain expertise instead of implementation requirements.

Lowcomote will train a generation of experts that will upgrade the current trend of LCDPs to a new paradigm, Low-code Engineering Platforms (LCEPs). LCEPs will be open, allowing to integrate heterogeneous engineering tools, interoperable, allowing for cross-platform engineering, scalable, supporting very large engineering models and social networks of developers, smart, simplifying the development for citizen developers by machine learning and recommendation techniques. This will be achieved by injecting in LCDPs the theoretical and technical framework defined by recent research in Model Driven Engineering (MDE), augmented with Cloud Computing and Machine Learning techniques. This is possible today thanks to recent breakthroughs in scalability of MDE performed in the EC FP7 research project MONDO, led by Lowcomote partners.

The 48-month Lowcomote project will train the first European generation of skilled professionals in LCEPs. The 15 future scientists will benefit from an original training and research programme merging competencies and knowledge from 5 highly recognised academic institutions and 9 large and small industries of several domains. Co-supervision from both sectors is a promising process to facilitate agility of our future professionals between the academic and industrial world.

### **2.2 Scope of the Dissemination and Exploitation Plan**

The purpose of this document is to report on the dissemination and exploitation activities Lowcomote's consortium members plan to undertake including dissemination goals and channels, target groups, and exploitation approach for each network result. It also contains a draft of the long-term business and research goals of the participants.

This document is the first among two "Dissemination and Exploitation Plan" reports. It plans dissemination and exploitation activities mainly during the project. It also summarizes Communication activities made since the beginning of the project and Communication plans.

It is composed of two main sections:

- Section 3 plans the Dissemination strategy based on communication tools which have been set up during the first year of the project and which will be updated all along the project.
- Section 4 plans the Exploitation activities and includes a preliminary version of long-term business and research goals of the participants.

The second “Dissemination and Exploitation Plan” (deliverable D6.3, due date Month 30) will plan the last year of the project based on work made during the first three years of the project. In addition, it will detail individual plans for exploitation, long-term business and research goals for each partner, which are introduced in the current report.

This document conforms to the Grant Agreement (amended with the Annex 1 version 1.5) and the Consortium Agreement. It details, updates and fills up the grant agreement engagements concerning Dissemination and Exploitation during the project. It is a living document, which will be updated whenever needed all along the project.

### 3 Communication and Dissemination Plan

The dissemination strategy of Lowcomote aims at raising awareness and maximising the impact of the network's research and training activities and outputs. To achieve this, a wide range of communication tools will be used according to the target audiences interested in the results of the Lowcomote project.

According to article 38.1.1 of the Grand Agreement, "The beneficiaries [will] 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."

In this section, we will first present the target audiences of the Lowcomote project. Then we will introduce our *communication* plans and the tools we set during the first year of the project to broadly communicate on the project and to allow *dissemination* activities. These last are planned in the section 3.4.

#### 3.1 Target audiences

*Communication* and *Dissemination* activities are both intended to inform different target groups about the project (Communication) and its results (Communication and Dissemination).

##### 3.1.1 Communication

Communications activities are addressed to multiple audiences without distinction to inform the public about the project.

People are surrounded by computers, smartphones, IoT devices but most of them are users only. Therefore, in both their personal and professional life, they depend on software providers and think software development is accessible only to developers and computer scientists. This project is an opportunity to inform any EU citizens on their ability to develop software thanks to Low-Code Engineering (LCE). We need to provide general information on what is LCE, why is it useful for citizen developers and how it is accessible to them.

Medium impact: Communication to a public of people that would be informed that they could become citizen developers.

High impact: Communication to a public of leaders (authorities, governments, public administrations, policy-makers, etc.) that would support the growth of Low-Code Engineering (e.g. by legislating and funding education, research, industry).

##### 3.1.2 Dissemination

Dissemination activities will focus on Lowcomote results and they will be addressed to the following stakeholders.

### 3.1.2.1 LCDP / LCEP vendors

Companies that build LCDPs will be interested in Lowcomote technologies for upgrading to LCE and building new LCEPs that are more scalable, more heterogeneous, more open, and smarter.

LCDP / LCEP vendors would be interested in Lowcomote results at three levels with different impacts.

Low impact: The whole *Lowcomotive platform* (Section 4.4.2.3) which will be a community-maintained base for low-code systems. The LCDP vendors will benefit from the platform but the risk is that they make profit of it without contributing.

High impact: The resulting *concepts and techniques* can drive the upgrade of their systems.

High impact: The produced *reusable components* can be integrated in their existing platforms.

### 3.1.2.2 Low-code developers

Low-code professional developers will be able to exploit the leap in productivity enabled by smart LCE in their domain.

Medium impact: Developers which already use LCDPs waits to overstep their limitations and LCE results will help them to be able to develop more performant and scalable software.

High impact: The whole *Lowcomotive platform* will help them to develop scalable software they need. Moreover, they may be the main contributors of the improvement of the platform.

### 3.1.2.3 Actors and decision makers in industry

Actors and decision makers in industry are responsible of the choice in the methods and technologies used in their companies. They would be interested in the results of Lowcomote demonstrating they can move from traditional software engineering to LCE with a mid-term ROI. It would help how companies can organise their workforces: their domain experts could use LCE with the help of their IT engineers who can develop required connectors between LCEPs to a specific domain (e.g. managing data collection from specific IoT devices).

Medium impact: Business plans made by Lowcomote partners will be beneficial for their companies but they are not supposed to be public.

High impact: Public proof-of-concept of the efficiency of LCE and publications recognised by the SE community will convince these stakeholders.

### 3.1.2.4 Computer Science researchers

Researchers from the MDE community will be interested in Lowcomote breakthroughs in scalability, usability and availability of LCEPs.

Medium impact: Computer Science Researchers will be interested in improving LCE. It may be by considering its use in fields we won't have the time to consider during the four years of the project.

#### **3.1.2.5 Citizen developers**

Citizen developers will be interested in the availability of new technologies allowing them to develop software applications in currently unaddressed domains or for any purpose.

Scientific Researchers from other communities than Computer Science are potential citizen developers. In scientific domains like chemistry or pharmacology, it is now admitted that Data Science, Machine Learning, Cloud Computing are useful computing technics. Scientific researchers in these domains will see in LCEPs a way to apply such techniques.

High: The whole *Lowcomotive platform* will help them to be able to develop the software they need.

#### **3.1.2.6 Students**

Students are both potential Citizen developers and potential Scientific researchers. They may study computer science but also another science/engineering field which could benefit from LCE.

High impact: They will be interested in the training that will be provided by Lowcomote. Students will be interested in acquiring competencies in lowcode engineering they would list in their CV.

High impact: Some ESRs of Lowcomote and academic partners will create classes in EU Universities to train the next generation of LCE developers. These classes would be integrated in any science/engineering field and not exclusively in computer science.

Moreover, our first set of communication actions intended to recruit 15 ESRs. These actions are summarized in Annex 6.3.

### **3.2 Communication objectives, tools and actions**

Since the beginning of the project, communication plans have been made and tools have been set up to support communication (and dissemination) activities and to measure their impact.

#### **3.2.1 Communication objectives**

The communication objectives of Lowcomote project consist in:

- ensuring broad awareness of the project across the software engineering and wider ICT communities,
- ensuring a high visibility of the project on the researcher as well as the industrial level,



- ensuring a coherent and continuous communication activity through production and updating of the basic communication tools.

### **3.2.2 Communication tools**

During the Lowcomote project we first set up communication tools and plan to update them all along the project.

#### **3.2.2.1 Public Website**

The main communication tool is the project website with information about:

- Project presentation
- Project objectives
- Project results and deliverables
- ESR's PhD Topics
- Consortium
- Team Members

The documents communicated will be stored or referenced on the project website. In particular, public deliverables will be published as they become available to provide greater support for large and complex MDE based development (e.g. technical journal papers, specifications proposed as standards, etc.).

The website, active since mid-February 2019 ([www.lowcomote.eu](http://www.lowcomote.eu)), will be regularly updated and will include a twitter-based news feed to alert those tracking the project when new information concerning the project, upcoming events, training, etc. is available.

The website is described with more details in the deliverable D6.1 Network Web Presence. Here is a caption of the home page made in October 2019:



[Home](#) [PhD Topics](#) [Objectives & Results](#) [Documents](#)

[Consortium](#)

Low-code development platforms allow non-programmers to build full applications by interacting through dynamic graphical user interfaces, visual diagrams and declarative languages.

**Lowcomote** is an international project aiming at training 15 PhD students, with the potential to become the leaders of tomorrow engineering of low-code development platforms.

The network has recruited outstanding candidates and allow them to master the different competences needed in the field:

- **Model-Driven Engineering**
- **Cloud Computing**
- **Machine Learning**



[Browse PhD topics →](#)

[See our partners →](#)

### 3.2.2.2 Project Identity

- Logo

A logo for the project has been created during the first year of the project:



Its shapes and colours define the graphical project identity. It invokes the cloud, the lo(w)comotive, the models.

- Flyer/brochures

A flyer layout has been created and it is planned to be used to create different communication flyers. Flyers will be made to communicate on the platform, on the workshops, on the project's results. Lowcomote partners will hand out these flyers during the events they attend.

The first flyer created with this layout was the one to advertise the PhD positions: <https://www.lowcomote.eu/data/flyer.pdf> (Annex 6.5).

- Public presentation

A presentation layout has been created and it is planned to be used to create different communication presentations.

The first presentation created with this layout was the one used to present the project during the Research Project Showcase Workshop co-located in STAF 2019 in Eindhoven (The Netherlands) on 15 July 2019 (Annex 6.6).

### 3.2.2.3 Social Network

We communicate online using two social media networks:

- Twitter
- LinkedIn

Most of the project members already have a personal twitter account in addition to their group account and institution/company account.

For instance: Massimo Tisi can be followed with @massimotisi. He is member of the research team NaoMod followed with @naomod\_team and @atlanmod and his institution can be followed with @IMTAtlantique and @labols2n.

A Twitter account dedicated to the project has been created: @lowcomote<sup>1</sup>.

All these channels have been already used to communicate about the project, its formalization, the PhD positions advertisement, the first events.

Moreover, to go beyond our twitter followers, when communicating on Twitter, the following hashtags will be used: #lowcomote, #MDE, #cloudcomputing, #MachineLearning, #MSCA, #H2020, #ResearchImpactEU. This list will be updated, in particular by each ESR based on his/her work.

A LinkedIn group has been created: <https://www.linkedin.com/groups/13683688/>. It has been used to advertise the PhD positions. We plan to communicate every important news about the project on LinkedIn. It helps the team members to communicate to their hundreds of relationships the news about the project.

#### **3.2.2.4 Data Management**

Data Management Plan has been detailed in the report “Data Management Plan – D.1.3” (delivered 30/06/2019). In addition to the project website, data are communicated to the Lowcomote target groups using two online platforms:

- **Zenodo**<sup>2</sup> is used to make the data openly accessible and discoverable.
- **Gitlab**<sup>3</sup> is used to distribute the code of the software produced during the project.

#### **3.2.2.5 Public Demonstrators**

To effectively reach younger pupils (e.g. from high school) we will include in the set of project **demonstrators** a few simple and engaging applications, distributed online and shown at different events (e.g. for simple game development). To maximize the potential for public outreach, fellows will receive dedicated training through a Research Communication workshop.

#### **3.2.2.6 Bidirectional communication**

The project welcomes contributions from the community in particular from low-code developers or computer scientists. For that reason, software is distributed on gitlab which allows anyone to fork the project by creating his/her own version with his/her own contributions and then to propose them to be integrated in the project’s version of the software.

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<sup>1</sup> <https://twitter.com/lowcomote>

<sup>2</sup> <https://zenodo.org/>

<sup>3</sup> <https://gitlab.com/lowcomote>

In addition, we have set up the communication tools to allow anyone to contact the project managers:

- A mailing address [contact@lowcomote.eu](mailto:contact@lowcomote.eu) is available.
- The social networks natively allow communicating with the project members.
- The website provides a link to that mailing address and the social networks.

### 3.2.3 Communication actions

In this section, we list planned communication actions during the project and introduce examples of the ones performed before this report.

- **General communication about the Lowcomote project (Annex 6.1)**

Press releases will be proposed periodically and at big steps of the project (beginning, recruitments of ESR, first results, etc.). For instance, we already distributed:

- One press release in French & English about the beginning of the project (Annex 6.1)
- Articles on partners' websites. E.g. an article on IMT Atlantique website<sup>4</sup> (English & French)

- **Communication at scientific conferences**

Every time a paper is presented during a conference or a talk is delivered. For instance we already published:

- **Publication of an article<sup>5</sup> introducing the project** in the STAF 2019 Co-Located Events Joint Proceedings from 15<sup>th</sup> to 19<sup>th</sup> July 2019 in Eindhoven (The Netherlands). Presentation of the paper during the 1st Research Project Showcase Workshop co-located in STAF 2019.

- **Communication about the main events of the Project: Annex 6.2**

Main events of the Project will be the opportunity to communicate through the social medias, newspaper, etc. For instance, we already communicated:

- **kick-off meeting on 17<sup>th</sup> & 18<sup>th</sup> January 2019 and first Network Event (@IMT):** e.g. communication on IMT Atlantique's social medias accounts (Twitter & LinkedIn)

- **Communication about the ESRs**

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<sup>4</sup> <https://www.imt-atlantique.fr/en/the-school/news/lowcomote-project-has-been-selected-context-european-h2020-marie-curie-itn-call>

<sup>5</sup> <https://hal.archives-ouvertes.fr/hal-02363416v1>

In addition to the dissemination of the ESRs' results, we plan to communicate about the ESRs' participations in the project. The first one being their recruitment:

- Recruitment of the 15 ESRs has been achieved during the first year of the project thanks to intensive communication efforts of the Lowcomote Partners who realize these actions:
    - 1 recruitment flyer (Annex 6.5),
    - communication on project's LinkedIn & Twitter pages (Annex 6.3.2 and 6.3.4),
    - through the project's website (see deliverable D6.1 Network Web Presence for more details and Annex 6.3.1),
    - through advertisement websites (Annex 6.3.2),
    - through mailing lists (Annex 6.3.6).
    - In addition, each beneficiary resorted to his/her personal contacts.
  - We plan to communicate about major steps of each ESR thesis: yearly progress (e.g. in France a jury allows a PhD student to enrol every year), acceptance of publication, PhD defence.
- **Newsletters:** During the project, four public periodical newsletters will be prepared and disseminated through the project website, the social networks, and partners' existing mailing lists. Newsletters will inform readers about the project, as well as about the important milestones and deliverables.
  - **Continuous media activity** by using online and offline communication tools, such as brochures, social media networks (Twitter, etc.), public presentations, and press releases, to promote events implemented in the framework of the project (e.g. trainings, workshops, hackathons), and major achievements.
  - **Outreach Activities** will enable Lowcomote partners to communicate the results of their research and the impact of the network to a wider audience. We have identified these events and we plan to participate to them.
    - Researcher's Nights Events<sup>6</sup>,
    - EC ICT exhibitions,
    - national technology fairs and festivals such as the British Science Festival<sup>7</sup>,
    - the ScienceWeek (across different major cities in Spain, Italy and France<sup>8</sup>),

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<sup>6</sup> <http://www.madrimasd.org/lanochedelosinvestigadores/?lan=en>

<sup>7</sup> <https://britishsciencefestival.org/>

<sup>8</sup> <https://www.fetedelascience.fr/>

- the SHARing Researchers' Passions for Engagement and Responsibility (SHARPER) event across different major cities in Italy<sup>9</sup>,
- the Univaq Street Science event<sup>10</sup> at L'Aquila,
- the Pint of Science UK national science festival<sup>11</sup>,
- the Brain Bar Budapest events<sup>12</sup>,
- the Long Night of Research<sup>13</sup> in Austria (and similar events across Europe),
- the Scientific Day<sup>14</sup> of University of Nantes,
- the national day<sup>15</sup> of the CNRS in France.

### 3.3 Dissemination management

The management of the dissemination activities conforms the Consortium Agreement (in particular Section 8.4) and the Grant Agreement (in particular Articles 29.1 and 38.1, the Work package descriptions, and the Annex).

#### 3.3.1 Objectives

The WP6 workpackage manages the effective communication and dissemination of the outcomes and the achievements of the network. It contains one dissemination task:

“Task 6.1: Communication and Dissemination (INT) This task will carry out communication and dissemination activities in order to ensure a substantial impact both at an EU and international level. The communication and dissemination strategy of Lowcomote is discussed in detail in Section 2.3 [1 of the Grant Agreement's Annex].”

The WP6 will deliver three deliverables:

- D6.1: Network Web Presence (already delivered Month 6),
- D6.2: Initial Dissemination and Exploitation Plan (the current document),
- D6.3: Second Dissemination and Exploitation Plan (scheduled Month 30).

The WP6 is concerned by all the Milestones since all of them require communication activities. Many communication actions have been made about the MS1 (Kickoff meeting) and MS2 (Recruitment) has reported Section 4.2.3.

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<sup>9</sup> <http://www.sharper-night.it/>

<sup>10</sup> <https://www.univaq.it/section.php?id=1841>

<sup>11</sup> <https://pintofscience.co.uk/>

<sup>12</sup> <https://brainbar.com/>

<sup>13</sup> <https://www.langenachtderforschung.at/>

<sup>14</sup> <http://www.js.univ-nantes.fr/>

<sup>15</sup> <http://gdr-gpl.cnrs.fr/>

### **3.3.2 Roles**

All the beneficiaries are involved in this WP6, lead beneficiary being Intecs. Intecs, with the support of IMT as the Project Manager, is in charge to collect the dissemination activities and to initiate the dissemination activities when needed. ESRs will provide help for some of the WP6 management activities such as the measure of the dissemination activity impact (Section 4.5).

The Articles 29.1 and 38.1 of the Grant Agreement define the obligations of the beneficiaries concerning the dissemination activities: “each beneficiary must — as soon as possible — ‘disseminate’ its results by disclosing them to the public by appropriate means (other than those resulting from protecting or exploiting the results), including in scientific publications (in any medium).”(Article 29.1), “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.” (Articles 38.1). It means that all the ten beneficiaries of the project will have to disseminate their results.

The partner organisations will support the beneficiaries when disseminating their results using their own communication tools (e.g. own website, mailing lists).

### **3.3.3 Policy and Rules**

We briefly remind here the title of the rules of the Grant Agreement that will be satisfied by the project:

- Article 29.2 Open access to scientific publications,
- Article 29.3 Open access to research data.

The DMP report has already detailed how the project will satisfy these rules and we will remind it in the section 4.4.2.4.

Any dissemination of result will display the EU emblem and include the following text:

“This project has received funding from the European Union’s Horizon 2020 research and innovation programme under the Marie Skłodowska-Curie grant agreement No 813884”.

## **3.4 Dissemination actions per target audiences**

The Lowcomote dissemination strategy is divided into academic-oriented and practitioner-oriented actions. Major means of the dissemination strategy can be summarized as follows. These means will be completed during the project, in particular based on the ESRs work. At the time of that report they have almost all started their PhD but it is still too early for them to propose dissemination action.

### **3.4.1 Academic-oriented Dissemination Action**

Actions oriented towards Computer Science researchers, Students and Citizen developers in academia.



### 3.4.1.1 High-quality research publications and talks

The research results of Lowcomote will be disseminated to the scientific community in the form of high-quality research publications targeting major international conferences and journals including:

- IEEE Transactions on Software Engineering (IEEE TSE)
- ACM Transactions on Software Engineering and Methodology (ACM TOSEM)
- Software: Practice and Experience (Wiley SPE)
- Software and Systems Modeling (Springer SoSyM)
- Information and Software Technology (Elsevier IST)
- Journal of Systems and Software (Elsevier JSS)
- Communications of the ACM (CACM)
- IEEE Software
- Intl Conf. on Software Engineering (ICSE)
- Intl Conf. on Automated Software Engineering (ASE)
- Intl Conf. on Model-Driven Engineering Languages & Systems (MODELS)
- Intl Conf. on Fundamental Approaches to Software Engineering (FASE)
- European Conference on Modelling Foundations and Applications (EC-MFA)
- Intl Conf. on Software Language Engineering (SLE)

Each ESR will also publish in domain-specific venues. E.g. some ESRs will publish in data science conferences, like ACM SIGMOD/PODS or IEEE Big Data.

In the scientific community of Lowcomote, many international conferences published their papers in proceedings. Most of the previously listed ones are ranked A or B<sup>16</sup>.

Each ESR is expected to present his/her work and project's results during at least 3 international conferences.

The ESR will publish their own work but also the result of the collaborations with other ESRs, based on secondments.

We will also work on, publish and present common work:

- Firstly, at the scale of the work packages WP2, 3, 4.
- Secondly, at the end of the project we plan to publish a common paper.

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<sup>16</sup> <http://portal.core.edu.au/conf-ranks/>

According to Article 29.2 of the grant agreement and the DMP, publications will be openly accessible.

#### **3.4.1.2 Reports**

Reports including the deliverables of the project will be produced. In particular, research publications could be completed by a Research Report detailing with more details the experimentations.

The reports will be openly accessible in the same time than their corresponding research papers.

The software will be documented in reports available on the project website (Section 4.4.2.3).

The deliverables are planned in the grant agreement.

#### **3.4.1.3 LCE workshop**

The new LCE workshop will be organised starting at month 22, and held annually. It will be submitted to the IEEE/ACM MODELS conference which is the most adequate conference to host such an event. An alternative would be the Software Technologies: Applications and Foundations federation of leading conferences on software technologies (STAF<sup>17</sup>).

#### **3.4.1.4 Project's final event**

A final event will present the findings of the network to researchers and practitioners. This event will be recorded so that demonstrations and presentations can be viewed at a later time by a wider audience. Stakeholders will be invited to the event.

To make the conference a transition between the 4 years of the project and its future, we plan to divide the final event into two parts:

- Scientific sessions: address to Lowcomote members and stakeholders which could be interested in contributing to LCE and Lowcomotive.
- Dissemination sessions: address to stakeholders which could be interested in using LCE.

#### **3.4.1.5 Excellence networks**

The project will be promoted through national excellence networks (e.g. the Russell Group).

### **3.4.2 Practitioner-Oriented Dissemination Action**

Actions oriented towards LCDP / LCEP vendors, Low-code developers, Actors and decision makers in industry, Citizen developers and Students.

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<sup>17</sup> <https://staf2019.win.tue.nl/previous-editions/>

### 3.4.2.1 Practitioner-oriented conferences and portals

ESRs will be also encouraged and supported in disseminating their work in practitioner-oriented conferences (e.g. EclipseCon, ApacheCon, Devvxx, FOSSDEM, developer week), and practitioner-oriented portals (e.g. DZone, InfoQ).

This include expo booths at widely attended conferences and events in specific domains like the MobileWorld Congress (<https://www.mobileworldcongress.com/>), or the mobile web developer conference (<http://mobilewebdevconference.com/>).

### 3.4.2.2 Technical magazines

Articles and posts in popular technical magazines, like

- <https://appdeveloper magazine.com/>,
- <https://adtmag.com>,
- <http://infoworld.com>.

### 3.4.2.3 Platform documentation & demonstrators

Lowcomote will develop high-quality open-source software forming the LCEP named **Lowcomotive**, as described in the Exploitation section 4.2. It will be disseminating with the help of demonstration tutorial/video, technical documentation, user documentation, that will be produced mainly by the ESR in charge of the development of LCEP components.

### 3.4.2.4 Data

During this project, the data produced will be:

- Models, metamodels, model queries and transformations
- Experimental data (databases, xml, spreadsheets)
- Publications and reports (textual, document files).

These lasts are described Sections 3.4.1.1 and 3.4.1.2.

As detailed in the DMP report, the Zenodo<sup>18</sup> platform will be used to make the data openly accessible and discoverable. In any case, the data will be made available on the Lowcomote website together with metadata describing the data sets once they are released on Zenodo.

Each data set will carry a DOI as unique and persistent identifier. Data sets will be referenced in scientific publications and if the open data platform permits, scientific papers based on the data will be linked on the open data platform. The DOI is reserved when a Zenodo entry is created before any data are uploaded to the platform. At this point, the data set is not published and its visibility is classified as "Closed Access".

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<sup>18</sup> <https://zenodo.org/>

A selection of data will be chosen for dissemination and exploitation, i.e., for publication and for intellectual property protection. Remaining data will be archived. A procedure for ensuring non-disclosure of sensitive data prior to patent protection will be agreed by the EB.

Whether the data will be made fully open immediately will be decided case-by-case. In any case, all data will be made fully accessible after publication of the corresponding article. In addition, the data will be openly shared among partners of the consortium, except in some specific cases. The DOI corresponding to the data will be provided in publications. For data made open prior to publications, the corresponding links will be found on the partners' institutional websites.

#### **3.4.2.5 Press releases**

Each partner will publish press releases during the implementation of the project and spread it through various means of communication (social media surfaces, offline tools).

#### **3.4.2.6 Industrial workshop**

As core event of Lowcomote's dissemination strategy, Intecs will hold a one-day industrial workshop gathering non-academics including PaaS, LCDP or LCEP vendors, and potential LCEP users. ESRs will have the opportunity to present their results to potential recruiters.

#### **3.4.2.7 Teaching material**

The material (slides, case study, questionnaire) used during the training session will be published on the project website. We will send messages through project's social networks to announce their publication.

Teaching classes will be filmed in "broadcast" quality and can be downloaded free from the project website.

### **3.5 Communication and Dissemination measures**

In order to reach the different target groups, the following measures will be implemented:

<b>What to monitor</b>	<b>KPI</b>	<b>Monitored by</b>	<b>Measured when</b>	<b>Target Value</b>
<b>Project Website</b>	No. of visits	IMT	Every 6 months	>2000 during the project
<b>Social Networks</b>	No. of followers	IMT	Every 6 months	>100 during the project
<b>Flyer</b>	No. of distributed flyers	INT	Every 6 months	>2000 during the project

<b>Media</b>	Number of press releases and Audience	INT	Every 6 months	>2 press releases per year in journal/magazine with more than 1000 readers
<b>Newsletters, mailing communication</b>	No of recipients	INT	Every 6 months	>1000 during the project
<b>Technical magazines</b>	Number of articles	IMT	Every 6 months	>=1 article per ESR during the project
<b>Research Publication</b>	No. of published scientific papers	IMT	Every 6 months	>50 publications in journals or events with more than 200 participants
<b>Report</b>	No. of report	IMT	Every 6 months	>25 reports during the project
<b>Scientific presentation</b>	No. of scientific presentation and Audience	INT	Every 6 months	>1 presentation per year per ESR in events with more than 200 participants
<b>Project presentation</b>	No of presentation and Audience	INT	Every 6 months	>5 in events with more than 50 participants
<b>Practitioner-oriented conferences and portals</b>	No of participation and No of attendants	INT	Every 6 months	each ESR will target 1 conference and participate annually, > 200 participants per event
<b>LCE Workshop</b>	No of attendants	INT	Once a year	> 40 participants per year
<b>Industrial Workshop</b>	No of attendants	INT	Once at the end of the project	>50 participants

<b>Project's final event</b>	No of attendants	INT	Once at the end of the project	>50 participants
<b>Participation of outreach activities</b>	No of activities	INT	Every year	>=1 per country per year
<b>Teaching Classes</b>	Number of downloads of the material	UY	Every 6 months	100 downloads during the project
<b>Software</b>	Number of documentation  Number of demonstration tutorial	IMT	Every 6 months	1 technical documentation and 1 user documentation per platform component during the project  1 per platform component during the project
<b>Software</b>	Number of commits  Number of documentation  Number of demonstration video	IMT	Every 6 months	1000 commits,  1 technical documentation and 1 user documentation per platform component,  1 per platform component, during the project
<b>Scientific Data</b>	Number of elements	IMT	Every 6 months	Low-code artefacts with millions of model elements (several GBs each)

We notice that those numbers are average and they generally do not refer to the period before the ESR recruitment milestone. For instance, "Teaching classes" does not refer to the first 9 months of the project.

## 4 Exploitation Plan

The overarching aim of Lowcomote is to upgrade landscape of LCDPs to LCEPs by developing LCE technics and tools and training a generation of ESRs experts in the domain. Hence, all of the participants of the consortium wish to exploit their results and have them patented whenever possible. In a second time, to make exploitation of the results effective, we will expose our results and most promising investigations to innovative companies. The Exploitation Plan (EP) is introduced in this first version of the “Dissemination and Exploitation Plan” (D6.2). It is delivered after the preliminary year of the project, when most of the ESRs have just started their PhD.

The individual exploitation plans and the long-term business and research goals of each participant are briefly described in the following and will be further elaborated within the Dissemination and Exploitation work package where a detailed plan for dissemination and exploitation of the network’s results will be developed, periodically updated during the lifetime of the network, and deliver in the Deliverable D6.3.

The knowledge and results will be shared with the partners of the consortium, via secondments of ESRs, network activities, short term bilateral visits. Further actions will be taken to promote results and novel ideas with third party companies. The active program of inviting visiting researchers originating from research institutes and from non-academic sector (from and outside of the consortium) will improve skills and know-how of the ESRs, but also will allow the sharing of the results produced in the project and establish inter-sectorial contacts. Exploitation will be then done by preparing the transition towards industrial and commercial stakeholders.

### 4.1 Exploitation management

The Supervisory Board will supervise the exploitation activities in collaboration with the WP6 leader. The ESRs will be involved in exploitation activities and are encouraged to link them to their Personal Career Development Plan.

#### 4.1.1 Rules

The exploitation activities will conform the Consortium Agreement and Grant Agreement.

The grant agreement requires any beneficiary to make exploitation activities: “Each beneficiary must [...] take measures aiming to ensure ‘exploitation’ of its results” (Article 28.1).

Beneficiaries should mention information on EU funding: “If results are incorporated in a standard, the beneficiary concerned must — unless the Agency 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 European Union’s Horizon 2020 research” and innovation programme under the Marie Skłodowska-Curie grant agreement No 813884”.” (Article 28.2).

The Consortium Agreement also defines rules when exploiting the results, in particular in sections:

- 9.4 Access Rights for Exploitation
- 9.8 Specific Provisions for Access Rights to Software

#### **4.1.2 Intellectual Property**

All institutions have well developed Intellectual Property (IP) protection and exploitation policies and dedicated offices. A particular care will be taken to identify the ownership of results and make sure that any commercially exploitable subject matter is properly protected. The participants will make agreements for technology transfers so that relevant work may be protected and exploited commercially.

The ESRs from the beginning will take internal training in IP protection offered by the hosting partner and will participate in protection processes initiated during the course of the project, to acquire experience with the IP procedures. To protect IP rights, prior notice (at least three weeks) before any dissemination activity, including publications, shall be given to the other participants. Following notification, a participant which IP is included in the dissemination may object if its legitimate interests in relation to its results or background would suffer significant harm by the intended dissemination, such as destroy a patent's novelty. In such cases, the dissemination activity may not take place unless appropriate steps are taken to safeguard these legitimate interests. In the case of strong disagreement, the Executive Board will assist in obtaining a consensus.

### **4.2 Project Exploitation**

#### **4.2.1 Training**

Beneficiaries and partners are creating trainings in LCE. They are first intended to train the project's ESRs. They will be exploited in the future to offer training for students and any stakeholders interested in LCE.

All academic beneficiaries plan to transfer knowledge obtained through Lowcomote to undergraduate and post-graduate students through the taught and research-based degrees offered by their Department of Computer Science (including MDE and Software Engineering for Autonomous Systems), and motivate them to engage in further research on this important research area.

Industrial beneficiaries and partners plan to offer training to their clients and potential clients.

#### **4.2.2 Tools**

In order to maximise the impact and benefits for European software developers utilizing the Lowcomote results, the project strategy is to build an ecosystem of software developers and



technology providers that may exploit and evolve the LCEPs technologies to support additional components, tools and application domains.

The Lowcomote project will develop high-quality open-source software accompanied by supporting documentation and demonstrators.

To facilitate the adoption of the produced open-source software in industry, network-wide guidelines will be placed and monitored in terms of the open-source license under which the software will be made available to the community (such as BSD, MIT or EPL).

ESRs will build a set of components of a single open LCEP named **Lowcomotive**. Each ESR will be responsible of components related to his/her PhD subject. They will produce technical documentation that will target potential contributors (in particular LCD developers, computer scientists). They will also produce user documentation and demonstration videos that will target practitioners and decision makers.

As announced in the DMP, Lowcomote will use industry standard collaborative content management services such as GitLab<sup>19</sup>. All open-source software will be published in the Lowcomote GitLab group<sup>20</sup>. Git repositories will be managed by each beneficiary used to save, version, and share the data inside and outside the consortium. Each repository will provide links to the experimental datasets used in the validation of that particular research artefact. The ESRs will directly propose their contribution in GitLab; they will respect continuous integration best practices.

Beneficiaries of the network will have a strong track record of their results that are intended to be exploitable by them, as well as open source results and material that will be available to a broad scope of software developers and technology providers that seek to utilise LCEP platforms for next generation applications.

### 4.3 Beneficiary Exploitation

**IMT Atlantique** plans to integrate the results of Lowcomote in its well-known open-source toolbox<sup>21</sup> (AmmA for AtlanMod Model Management Architecture) to enhance its scalability and quality assurance of its artefacts.

**University of York** plans to exploit the theoretical findings and software products of Lowcomote as a means for promoting the adoption of relevant technologies with long-term industrial

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<sup>19</sup> <https://about.gitlab.com/>

<sup>20</sup> <https://gitlab.com/lowcomote>

<sup>21</sup> <https://www.atlanmod.org/>

partners such as Rolls-Royce, BAE Systems and IBM. Results of Lowcomote will be integrated in the context of the Eclipse Epsilon project<sup>22</sup>, led by the University of York.

**Universidad Autónoma de Madrid** has authored or collaborated in the construction of several widely used tools like AToM<sup>3</sup>, METADEPTH, an ATLyzer, DSL-comet or bentō<sup>23</sup>, which are freely available to the MDE community. Future versions of these tools would benefit from the research in this network.

**Università degli Studi dell'Aquila** will integrate most of the results in their MDE Forge platform<sup>24</sup>, an extensible model repository specifically conceived to address issues related to heterogeneity of considered modelling artefacts (e.g. models, metamodels, model transformations, and code generators).

**Johannes Kepler University of Linz:** Several open source tools have been developed together with industrial partners such as EMF Profiles (a model extension framework), AMOR (an adaptable model versioning framework), JUMP (a bridge between Java and UML), and MoMOT (a search-based model transformation framework). The planned research in Lowcomote will enable Johannes Kepler University of Linz to provide next generations of these tools which are able to deal with upcoming requirements from industrial partners concerned with big data analytics.

All industrial partners intend to exploit their results and use the shared Lowcomote's results in updating their development process:

**British Telecom:** Lowcomote will enable BT to strengthen and streamline its development process for data science applications by enabling data scientists to focus on their expertise in creating knowledge models, while at the same time providing the means for robust development practice and quality optimisation. This will lead to higher quality software, faster delivery and increased flexibility in redeployment.

**Intecs** aims to enhance its portfolio of modelling tools with the new theoretical foundations and technical contributions provided by Lowcomote (in particular for modelling of heterogeneous systems, improved management and persistence of large-scale models), experiment with the development of new capabilities based on the new services offered by Lowcomote, reduce the overall development costs of their proprietary systems, and expand the new business opportunities offered by provision of services on open source technology.

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<sup>22</sup> [www.eclipse.org/epsilon](http://www.eclipse.org/epsilon)

<sup>23</sup> <http://miso.es/tools.html>

<sup>24</sup> <http://www.mdeforge.org/>

**Uground** holds a patent in Model-to-Model transformation (USPTO 898998), executed in a Cloud development suite<sup>25</sup>. They seek in Lowcomote to extend the capabilities of their development suite by expanding the model management and creation within the application, reducing the development time of any model and allowing the users to work with hundreds or thousands of models seamlessly.

**CLMS** seeks in Lowcomote to extend the functionality of its LCDP with support for intelligent component discovery and reuse, and to apply the knowledge and tools gained through other parts of the project (e.g. low-code model query optimisation, run-time model partitioning). CLMS has a solid background in building financial, banking, logistics and transport solutions across Europe. In all these sectors they have seen a growing need for low-code solutions, which renders the results Lowcomote extremely valuable for them.

**Incquery Labs** will (i) develop the theoretical foundation of distributed algorithms for scalable, live model querying and transformation, and (ii) expand its open-source technology stack (currently including projects like VIATRA or Massif) for typical LCE domains like IoT and geospatial, where model sizes tend to be orders of magnitude larger than in current application areas.

#### **4.4 Draft of long-term business and research goals of participants**

- IMT Atlantique

The project is the first one interested in LCDP and LCEP in Europe. Positive results would encourage IMT to submit a proposal to another call of the EU (the ECSEL ICT call would be interesting depending on their characteristics at the end of the Lowcomote project).

IMT will also collaborate with local actors to exploit Lowcomote results, including companies or institutions in the Pays de La Loire and Bretagne regions.

IMT Atlantique is used to support the creation of Spin-off. Its “incubator”<sup>26</sup> may help ESRs to create a company to exploit his/her research results.

- University of York:

UY has a long research track record in performing high-impact research on model-driven engineering and delivering tangible results to the community through robust and usable open source software, primarily within the context of the Epsilon project ([www.eclipse.org/epsilon](http://www.eclipse.org/epsilon)).

UY plans to exploit the theoretical findings and software products of Lowcomote by using them for dissemination in the form of international journal and conference publications, as a basis for further research in the field of scalable low-code systems, and as a means for promoting the adoption of low-code and model-driven engineering approaches with industrial partners.

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<sup>25</sup> <https://scoop.b2tconcept.com>

<sup>26</sup> <https://incubateur.imt-atlantique.fr/home-en/>

UY also plans to transfer knowledge obtained through Lowcomote to undergraduate and post-graduate students through the taught and research-based degrees offered by the Department of Computer Science, and motivate them to engage in further research on this important research area.

- Universidad Autónoma de Madrid (UAM)

Generally, UAM aims at training specialists on Low-code engineering that can shape the development tools and methodologies of the future. With this project, UAM targets at attracting qualified researchers to their team, and extend the synergies emerged from within the project -- with both academic and industrial partners -- to further projects at the regional, national and international levels.

UAM expects to introduce the Lowcomote platform, or parts of it, as a teaching platform in their graduate and post-graduate courses.

Finally, UAM aims at transferring some of the Lowcomote results to their industrial partners in the Madrid region.

- British Telecom (BT)

BT plans to exploit the theoretical findings and software products of Lowcomote by using them as part of our data science development processes. This will enable streamlined deployment of data models and tools with direct involvement of our researchers and is expected to result in rapid feature delivery of high quality software. This realisation will deliberately target industrial software standards, such as kubernetes and data science model standards, including engagement with open-source projects and standardisation bodies to ensure industry-wide engagement.

BT further plans to exploit the findings for dissemination in the form of international journal and conference publications and as a basis for further research in the field of scalable low-code systems, and as a means for promoting the use of MDE within large corporate organisations.

- Università degli Studi dell'Aquila

UDA has a long tradition in performing high-level research in software engineering and more specifically in model-driven engineering with applications spanning over different domains, including the railways ecosystem.

UDA plans to exploit the theoretical findings and the artifacts developed in Lowcomote by developing coursework to attract students and young researchers, for dissemination in the form of international journal and conference publications, as a basis for further research in the field of cloud-based low-code systems, and as a means for demonstrating how model-driven approaches can be adopted within large organizations.

Efforts will be devoted for transferring part of the findings into companies at regional and national level.

- Johannes Kepler University (JKU) of Linz

JKU will disseminate the project results by publishing papers in high-quality conferences and journals collaboratively with the Lowcomote consortium in the following research communities: model-driven engineering, software engineering, and software analytics.

Furthermore, presentations of Lowcomote prototypes are planned at international conferences dealing with software and system engineering in general to reach a broader research community and to transfer the project results also to other fields of research.

The Lowcomote prototypes will be published and maintained as open source projects for ensuring sustainability of the project results and build the basis for future research projects and as a kick-starter for next generations of researchers.

JKU will develop dedicated courses for computer science students as well as business informatics students based on the Lowcomote outcomes.

Finally, the main findings will be also used at the regional and national level to improve the software industry in Austria and specifically in Upper Austria.

- Intecs Solutions

Intecs provides the most innovative software & hardware technology, engineering services and products for dependable, safety- and mission-critical electronic systems. Intecs designs and develops applications, tools, software, hardware components and products for Aerospace, Defense, Transportation, Telecommunication and Smart Systems markets in cooperation with major European and Italian Industries, Organizations, Universities and Research Centres.

The adoption of the specific Lowcomote technologies as updates to the existing CHES toolset and DMF platform will be a primary vehicle to reduce the overall development costs of proprietary solutions, and expand new business opportunities. Once the prototypes are validated internally, Intecs will target dissemination actions to reach the developer community and customers to make them aware of the benefits of the project technologies and will exploit them for the development of specific IoT systems for our customers.

The project exploitation strategy includes making some of the extended CHES core technologies available as open source, (e.g. on Eclipse) and publishing interfaces so that other platforms and tool providers can provide additional features and Intecs may increase the company's visibility, competitiveness and the returns in terms of offer for the CHES usage, support, training, tutoring and provision of services.

- Uground

UGROUND was founded not only with the objective of providing software services to its clients, but also with the clear purpose of developing the field of Model Driven Engineering within the private sector, at industrial scale.

By participating in the Lowcomote Project, UGROUND aims at expanding the capacity of its technology and MDE as such, and to train new highly qualified professionals on this technology. We expect that this will create new paths between the industry and the academia, facilitating the technological and economic activity in Madrid and Spain.

Hence, thanks to the Lowcomote Project, the research carried at UGROUND has the final objective of promoting the field of MDE across all sectors and to increase European technological assets.

- Incquery Labs

INQ is an innovative start-up bringing over 50 years of total R&D experience in model driven engineering with a mission to accelerate technology transfer from top-notch academic research to challenging industrial projects. IncQuery Labs has been continuously pushing innovative R&D results to open source MDE projects like VIATRA (<https://www.eclipse.org/viatra/>) and products such as IncQuery Model Analysis Suite (<https://incquery.io/incquery-server/>). Many of these approaches have already been applied to design time and runtime tools to support the low-code development methodology such as Papyrus UML, Capella, MPS and are widely used in companies already applying low-code approaches such as Embraer (avionics), Thales (system integration), or Ericsson (telecommunications).

Lowcomote will enable IncQuery Labs to (i) extend its open source technology stack to provide scalable runtime model processing technology with low-overhead and incremental model processing capabilities and (ii) reach new market segments following the developed low-code development methodology with a special focus on the currently booming process automation and smart energy segments.

## **5 Annexes**

### **5.1 Communication about approved Lowcomote project**

Here is a sample of a press release announcing the project and links to several articles.

**The Lowcomote project led by IMT Atlantique  
selected in the context of the European H2020 Marie Curie ITN call**

*Lowcomote is a software engineering training program designed to prepare a new generation of software engineers, experts in building low-code development platforms hosted on the Cloud. The proposal formulated by Massimo TISI - Associate Professor at IMT Atlantique and, member of the Automation, Production and Information Technology Department (DAPI), member of the NaoMod team of the LS2N laboratory and scientific coordinator of the programme - is part of the 7% of projects selected for funding from over 1400 proposals received.*

Marie Curie Innovative Training Network is a call for projects developed as part of the European Research and Innovation Strategy Horizon 2020. The objective is to propose programs of hybrid training and research of excellence exposing doctoral candidates to both the academic environment as well as the industrial environment. This approach aims to train experts able of operating in different countries and sectors of activity and to fuel their open mindedness to convert knowledge and ideas into products and innovative services for economic and social benefit.

The development of applications without writing computer programs is a long-standing objective of research in software engineering. To achieve this, Lowcomote proposes new platforms for software development hosted on the Cloud. By leveraging machine-learning techniques, these platforms will assist domain experts in building complete applications without the need for in-depth programming knowledge. "A much awaited evolution at a time when the Internet of Things is exploding and everything is becoming an application", says Massimo Tisi. Relying on the expertise of IMT Atlantique within the LS2N in Model-Driven Engineering, Lowcomote intends to remove the limitations that currently hamper the applicability of these software development platforms: difficulty in scaling up for the construction of large applications, fragmentation of the platforms, and lack of support for the heterogeneity of engineering applications.

Lowcomote "Training the Next Generation of Experts in Scalable Low-Code Engineering Platforms" brings together 14 partners, 5 universities and 8 industrial players from 7 European countries. The project benefits from a financing of more than 4M€ and will host 15 doctoral students.

**Press contacts :**

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[@greenlemoncom](https://twitter.com/greenlemoncom)

<https://www.imt-atlantique.fr/en/the-school/news/lowcomote-project-has-been-selected-context-european-h2020-marie-curie-itn-call>

<https://www.imt-atlantique.fr/fr/l-ecole/actualites/le-programme-lowcomote-pilote-par-imt-atlantique-retenue-dans-le-cadre-de-l-appel-projets-europeen>

## 5.2 Communication about the kick-off meeting on 17<sup>th</sup> & 18<sup>th</sup> January 2019

Here are samples of social network messages announcing the kick-off meeting.

Tweet:



**IMT Atlantique** @IMTAtlantique · 10 janv.

➡ Avis aux doctorants ! ➡

Le kick off meeting du projet européen Lowcomote en génie #logiciel aura lieu à l'Ecole à Nantes les 17 et 18 janvier.

On nous chuchote à l'oreille que 15 places sont à prendre... 😊

@LaboLS2N @MSCActions



1 7 4

LinkedIn:



**IMT Atlantique**

4 j.

Les membres du consortium du projet Européen Lowcomote\* se sont retrouvés à Nantes le 17 et 18 janvier pour le kick-off meeting.

Rendez-vous en septembre avec les doctorants !

Pour en savoir plus sur le projet : <https://bit.ly/2QUOd4t>

\* This project has received funding from the European Union's Horizon 2020 research and innovation programme under the Marie Skłodowska-Curie grant agreement

No 813884



21 j'aime · 1 commentaire



J'aime



Commenter



Partager

Grant Agreement n°813884 – Lowcomote – Horizon2020 – MSCA – ITN – 2018



## 5.3 Communication about recruitment of ESRs

Communication about recruitment of ESRs:

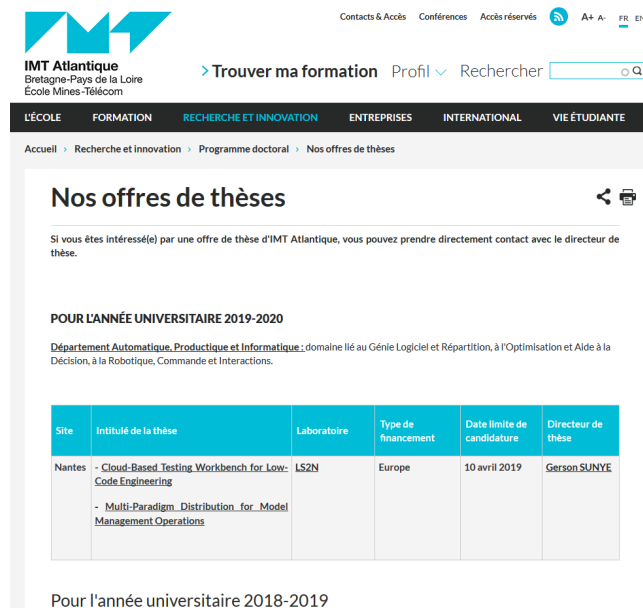
Advertisements of the ESRs position have been sent to many channels:

- respective websites of the Lowcomote members
- social networks
- recruitment flyer
- dedicated websites to recruitment
- mailing lists
- Master students

Examples of publication of vacancies:

### 5.3.1 Website's advertisements

IMT Atlantique: <https://www.imt-atlantique.fr/fr/recherche-et-innovation/programme-doctoral/offres-theses>



IMT Atlantique  
Bretagne-Pays de la Loire  
Ecole Mines-Télécom

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Accueil > Recherche et innovation > Programme doctoral > Nos offres de thèses

## Nos offres de thèses

Si vous êtes intéressé(e) par une offre de thèse d'IMT Atlantique, vous pouvez prendre directement contact avec le directeur de thèse.

**POUR L'ANNÉE UNIVERSITAIRE 2019-2020**

Département Automatique, Productive et Informatique; domaine lié au Génie Logiciel et Répartition, à l'Optimisation et Aide à la Décision, à la Robotique, Commande et Interactions.

Site	Intitulé de la thèse	Laboratoire	Type de financement	Date limite de candidature	Directeur de thèse
Nantes	- Cloud-Based Testing Workbench for Low-Code Engineering - Multi-Paradigm Distribution for Model Management Operations	LS2N	Europe	10 avril 2019	Gerson SUNYE

Pour l'année universitaire 2018-2019

LS2N website:

ESR 10: <https://www.ls2n.fr/stage-these/cloud-based-testing-workbench-for-low-code-engineering>

ESR 14: <https://www.ls2n.fr/stage-these/multi-paradigm-distribution-for-model-management-operations>

Website La Recherche en France (Campus France):

**CAMPUS FRANCE** La Recherche en France

ACCUEIL ANNUAIRE DES ECOLES DOCTORALES OFFRES (DOCTORAT, STAGE DE MASTER & POST-DOC) SE CONNECTER

## Cloud-Based Testing Workbench for Low-Code Engineering

Référence de l'offre CF201914717

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**Informatique** **Pays de la Loire**

Disciplines Génie Logiciel  
Laboratoire LABORATOIRE IDES SCIENCES DU NUMERIQUE DE NANTES (LS2N)  
Institution d'accueil IMT Atlantique  
Ecole doctorale Mathématiques et Sciences et Technologies de l'Information et de la communication (MATHSTIC) - ED 601

**Description**

**Fifteen PhDs (Early Stage Researchers, ESRs) positions are offered within the framework of Lowcomote: Training the Next Generation of Experts in Scalable Low-Code Engineering Platforms, a project funded by the European Union's**

University of York:

[https://jobs.york.ac.uk/wd/plsql/wd\\_portal.show\\_job?p\\_web\\_site\\_id=3885&p\\_web\\_page\\_id=379342](https://jobs.york.ac.uk/wd/plsql/wd_portal.show_job?p_web_site_id=3885&p_web_page_id=379342)

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### Marie Curie Early Stage Researcher ETN Lowcomote

**Department** Computer Science  
**Based at** University of York - Heslington Campus  
**Hours of work** Full-time  
**Contract status** Fixed term  
**Salary** £43,130 a year or £47,200 (Family allowance if applicable)  
**Posted Date** 01/03/2019  
**Apply by** 24/04/2019  
**Job Reference** 7423  
**Documents** [Candidate Brief - 7423.pdf](#) (PDF, 2923.54kb)

**Role Description**

**Role**

Applications are invited for a PhD position ("Early Stage Researcher") to be funded by the Marie Skłodowska-Curie Innovative Training Network "Lowcomote - Training the Next Generation of Experts in Scalable Low-Code Engineering Platforms" within the Horizon 2020 Programme of the European Commission. In this role you will conduct both individual and collaborative research projects, analyse and interpret research data, write up and publish results, and perform public engagement and outreach activities. You will be working towards a PhD degree, supported by a carefully chosen supervisory team that maximizes both scientific excellence as well as interdisciplinary and intersectoral collaboration. You will not only receive state-of-the-art science/technology training but will also benefit from a unique soft-skills training programme.

Each of the ESRs will carry out research on low-code engineering platforms, in a specific area determined by the project they choose to apply for:

ESR 11: "Intelligent Run-Time Partitioning of Low-Code System Models" will design

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**Why York?**

York is one of the most successful universities in the UK.

With world-class activity across the spectrum from the physical sciences, life sciences, and social sciences to the humanities, we have been recognised as one of the top 100 universities in the world, gaining outstanding results in official assessments of our research and teaching.

• [More about York](#)

Universidad Autónoma de Madrid :

[http://www.uam.es/ss/Satellite?c=UAM\\_BecaInvestig\\_FA&cid=1446777698275&language=es&pagename=UniversidadAutonomaMadrid%2FUAM\\_BecaInvestig\\_FA%2FUAM\\_becaInvestig&pid=1242653098571&title=DOS+VACANTES+DOCTORADO+ITN](http://www.uam.es/ss/Satellite?c=UAM_BecaInvestig_FA&cid=1446777698275&language=es&pagename=UniversidadAutonomaMadrid%2FUAM_BecaInvestig_FA%2FUAM_becaInvestig&pid=1242653098571&title=DOS+VACANTES+DOCTORADO+ITN)

FUTURO ESTUDIANTE ▾ ESTUDIANTE ▾ INVESTIGADOR ▾ SERVICIOS ▾ ACTUALIDAD ▾ INTRANET ▾

**UAM** Universidad Autónoma de Madrid

Sede electrónica  
excelencia UAM CSIC

buscar

English | BOUAM

Contacto Directorio Biblioteca

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Ofertas de empleo de Investigación

← Atrás imprimir

Área de Investigación e Infraestructuras

Presentación

Estructura

Grupos de Investigación

Personal Investigador en Formación

Ofertas de empleo de Investigación

Predoctorales

Postdoctorales

## Otras convocatorias

### DOS VACANTES DOCTORADO ITN

Recommender 0 Twitter

Estado de la convocatoria: **Abierto**

Plazo de solicitud: Hasta el 12 de abril, inclusive

[http://miso.es/ESR1\\_vacancy.pdf](http://miso.es/ESR1_vacancy.pdf)

[http://miso.es/ESR5\\_vacancy.pdf](http://miso.es/ESR5_vacancy.pdf)

Organo Gestor y Contacto

[Juan.deLara@uam.es](mailto:Juan.deLara@uam.es)

<http://miso.es/Lowcomote.html>



## Lowcomote: Training the Next Generation of Experts in Scalable Low-Code Engineering Platforms



### Innovative Training Network (ITN) MARIE SKŁODOWSKA-CURIE ACTIONS

**Lowcomote** is an international project aiming at training 15 PhD students, with the potential to become the leaders of tomorrow engineering of **low-code development platforms**.

Low-code development platforms allow non-programmers to build full applications by interacting through dynamic graphical user interfaces, visual diagrams and declarative languages. The **modelling and software engineering research group (miso)** of the Universidad Autónoma de Madrid is hiring **two PhD researchers** within this project:

- **ESR1 Scaling Up Citizen Development with Recommender Chatbots.** In this PhD, you will create a pro-active recommender system for low-code environments that can be addressed using natural language (a chatbot). The system chatbots will use conversational recommendation techniques exploiting preferences of the target user and like-minded users, artefact attributes, and contextual (action-based) data. **See more details here.**

**Technologies involved:** Natural Language processing, Machine Learning, Model-driven Engineering.

- **ESR5 Low-code Development of Rich Collaborative Mobile Apps using Active DSLs.** Based on Language Engineering techniques, you will create automation support to build mobile apps, employing the novel notion of "Active DSL" developed by our team. In this approach, a domain model will be decorated with contextual and access control rules, graphical representation, geolocation information, collaboration approach, and external API interactions. **See more details here.**

**Technologies involved:** Mobile development, Model-driven Engineering.

**Contract and Salary:** 3 year contract, 2.790€ gross per month (approx.) plus extra family allowance, if applicable. PhD tuition fees will be fully covered. The contract starts in September 2019.

**General eligibility conditions:** Master degree in computer science or equivalent (achieved less than 4 years ago), English proficiency, must not have resided in Spain for more than 12 months in the 3 years prior to the recruitment date.

**How to apply?:** You can apply from the project web page here. Please note that you can apply to more than one project.

**Application deadline:** April 12th 2019.

University of L'Aquila: <http://phdict.disim.univaq.it/phd-vacancies/>

#### The Lowcomote project

The MSCA ITN 2018 project Lowcomote will train a generation of experts that will upgrade the current trend of Low-code development platforms (LCDPs) to a new paradigm. Lowcode Engineering Platforms (LCEPs) will be open, allowing to integrate heterogeneous engineering tools, interoperable, allowing for cross-platform engineering, scalable, supporting very large engineering models and social networks of developers, smart, simplifying the development for citizen developers by machine learning and recommendation techniques. This will be achieved by injecting in LCDPs the theoretical and technical framework defined by recent research in Model-Driven Engineering (MDE), augmented with Cloud Computing and Machine Learning techniques.



The **Lowcomote project** will train the first European generation of skilled professionals in LCEPs. The 15 future Early Stage Researchers (ESRs) will benefit from an original training and research program merging competencies and knowledge from 5 highly recognised academic institutions and 8 large and small industries of several domains. Co-supervision from both sectors is a promising process to facilitate agility of our future professionals between the academic and industrial world.

#### Partners

IMT Atlantique (FR), University of York (UK), Universidad Autónoma de Madrid (ES), University of L'Aquila (IT), JK University of Linz (AT), British Telecom (UK), Intecs (IT), Uground (ES), CLMS (UK), InquiryLabs (HU), SpanSystems (AT), Metadev (ES), The Open Group (UK)

#### Vacancies at the University of L'Aquila

The MDE Group of the University of L'Aquila is hiring two PhD researchers:

- **ESR6 – Scalable and Extensible Cloud-based Low-Code Model Repository**  
See more details [here](#)
- **ESR15 – Cloud-Based Low-Code Model Transformations Composition and Execution**  
See more details [here](#)

**Contract and Salary:** 3 year contract, 3.200€ gross per month (approx.) plus extra family allowance, if applicable.

**General eligibility conditions:** Master degree in computer science or equivalent (achieved less than 4 years ago), English proficiency, must not have resided in Italy for more than 12 months in the 3 years prior to the recruitment date.

**How to apply?** You can apply from the project web page [here](#). Please note that you can apply to more than one project.

**Application deadline:** April 15th 2019.

**More information** on the [project's web site](#) or in the EU's portal [here](#). For specific enquiries, please contact [Davide Di Ruscio](#) and [Alfonso Pierantonio](#).

University of Linz: <https://www.se.jku.at/2-phd-student-vacancies-for-the-lowcomote-project/>

The screenshot shows the website of the Institute of Business Informatics - Software Engineering at the University of Linz. The page is titled "2 PhD Student Vacancies for the Lowcomote Project". It lists two research topics: "1. Mining Interaction Processes in Low-Code Engineering Platforms (ESR 7\_vacancy)" and "2. DevOps Support for Low-Code Engineering Platforms (ESR 9\_vacancy)". The duration is 36 months, full-time equivalent position. The starting date is 1st September 2019. The supervisor is Manuel Wimmer, manuel.wimmer@jku.at. The page also mentions funding from the European Union's Horizon 2020 research and innovation programme under the Marie Skłodowska-Curie grant agreement No 813884. The European Union flag is displayed. The footer indicates "Copyright © 2019 WIV-SE".

Intecs: <http://www.intecs.it/jobs/detail/pos-10-phd-student-vacancy-for-the-lowcomote-project-urban-area-management-in-smart-cities-247>

Intecs group

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Our Jobs  
Pos. 10 - PhD Student Vacancy for the Lowcomote Project Urban Area Management in Smart Cities

## Pos. 10 - PhD Student Vacancy for the Lowcomote Project Urban Area Management in Smart Cities

Via Giacomo Peroni 130, Roma 00131, Italia  
02/22/2019 08:47:11 AM

**Intecs Solutions is hiring a PhD Student for its Lowcomote Project in Pisa.**

### The Lowcomote project

The MSCA ITN 2018 project Lowcomote will train a generation of experts that will upgrade the current trend of Low-code development platforms (LCDPs) to a new paradigm, Lowcode Engineering Platforms (LCEPs). LCEPs will be open, allowing to integrate heterogeneous engineering tools, interoperable, allowing for cross-platform engineering, scalable, supporting very large engineering models and social networks of developers, smart, simplifying the development for citizen developers by machine learning and recommendation techniques. This will be achieved by injecting in LCDPs the theoretical and technical framework defined by recent research in Model Driven Engineering (MDE), augmented with Cloud Computing and Machine Learning techniques.


The Lowcomote project will train the first European generation of skilled professionals in LCEPs. The 15 future Early Stage Researchers (ESRs) will benefit from an original training and research program merging competencies and knowledge from 5 highly recognised academic institutions and 8 large and small industries of several domains. Co-supervision from both sectors is a promising process to facilitate agility of our future professionals between the academic and industrial world.

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IMT Atlantique (FR), University of York (UK), Universidad Autónoma de Madrid (ES), University of L'Aquila (IT), JK University of Linz (AT), British Telecom (UK), Intecs (IT), Uground (ES), CLMS (UK), IncQueryLabs (HU), SpanSystems (AT), Metadev (ES), The Open Group (UK)

### Training activities

The training program of Lowcomote aims at enabling the recruited ESRs to develop a broad range of scientific, technical and transferable skills that will prepare them for fruitful



"This project has received funding from the European Union's Horizon 2020 research and innovation programme under the Marie Skłodowska-Curie grant agreement No 813884".

INCQ: <https://incquerylabs.com/news/phd-student-vacancy-for-the-lowcomote-project/>

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# IncQuery Labs is hiring a PhD Student for the Lowcomote Project in Budapest

February 14, 2019 Balázs Tarnóczy

Share

Uground: <https://uground.com/phd-student-vacancy/>

UGROUND


ABOUT US USTRATEGY UPLATFORM CLIENTS & PARTNERS BLOG CONTACT US

# PhD Student Vacancy

CLMS: <https://www.clmsuk.com/careers/>

Grant Agreement n°813884 – Lowcomote – Horizon2020 – MSCA – ITN – 2018

## PhD Student Vacancy for the Lowcomote Project

 This project has received funding from the European Union's Horizon 2020 research and innovation Programme under the Marie Skłodowska-Curie grant agreement No 813884.

CLMS UK Limited is hiring a PhD Student for its Lowcomote Project in collaboration with the University of York (UK), hosted in their Athens Branch in Greece.

Within the context of the Lowcomote project, the PhD candidate will work under the research subject: **Capability Discovery and Reuse in Low-code System Models**

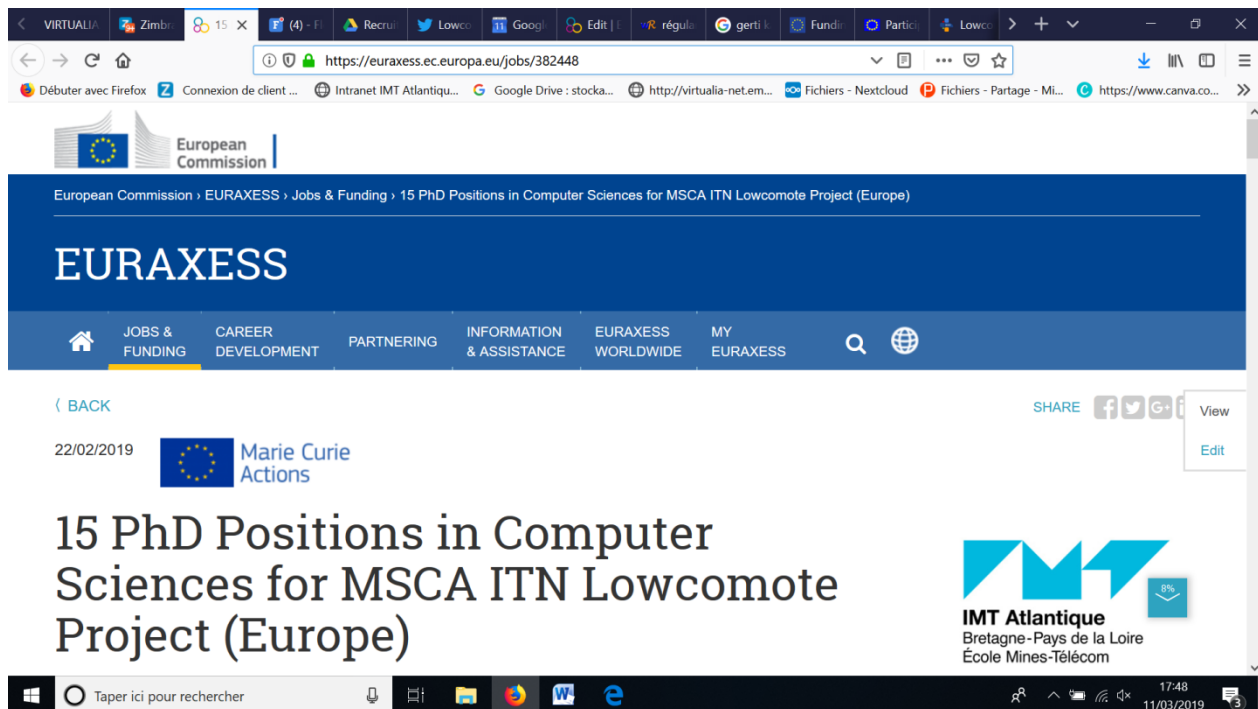
**Objectives:** Different systems within similar domains tend to share capabilities (e.g. retail systems tend to share capabilities related to the management of customers, products, orders and payments), which in the absence of effective discovery and reuse mechanisms are wastefully re-invented from scratch. This can hamper both productivity and feature-completeness. As such, facilities for automated discovery and recommendation of relevant capabilities through semantic analysis of models of other low-code systems are much desired.

The aim of this project is to facilitate model-level component discovery and reuse through automated identification of relevant low-code system model fragments from other, related system models. To achieve this aim, the project will investigate the use of a graph-based repository that can accommodate models from different low-code systems and establish probabilistic links between their components, as well as a reinforcement learning-based approach to improve the accuracy of such links.

### 5.3.2 Communication through advertisement websites

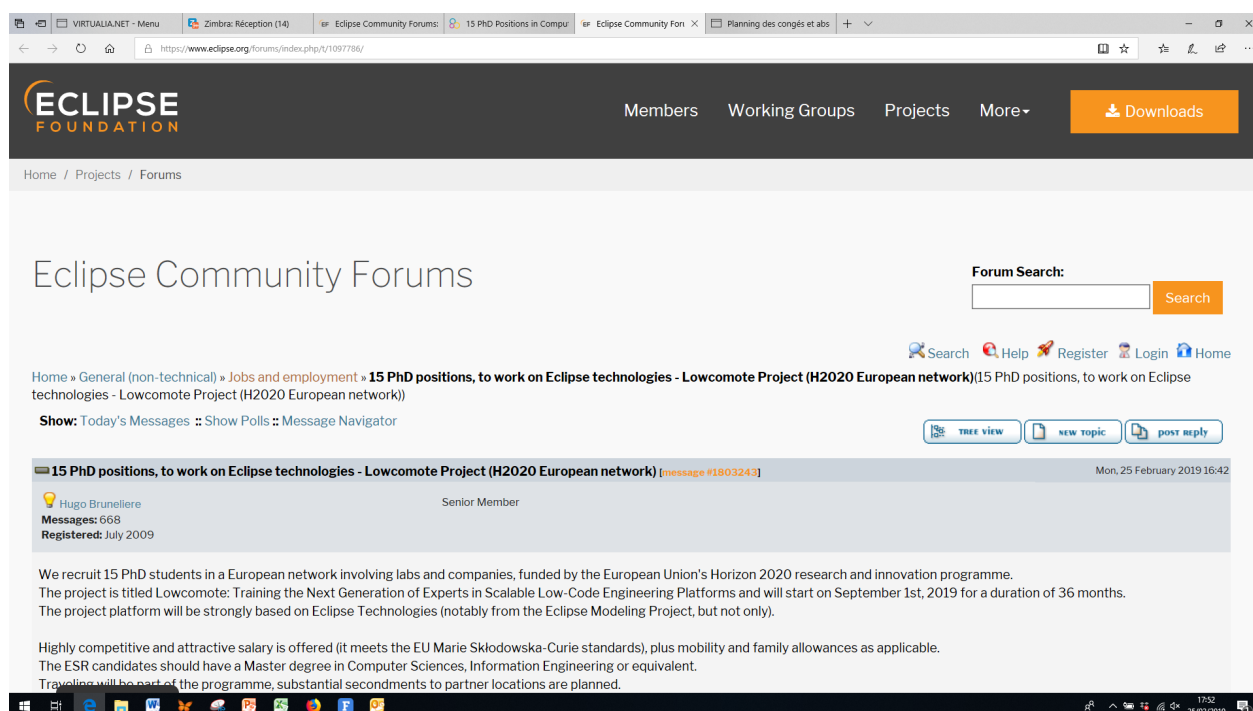
<https://euraxess.ec.europa.eu/jobs/382448>

e.g.:

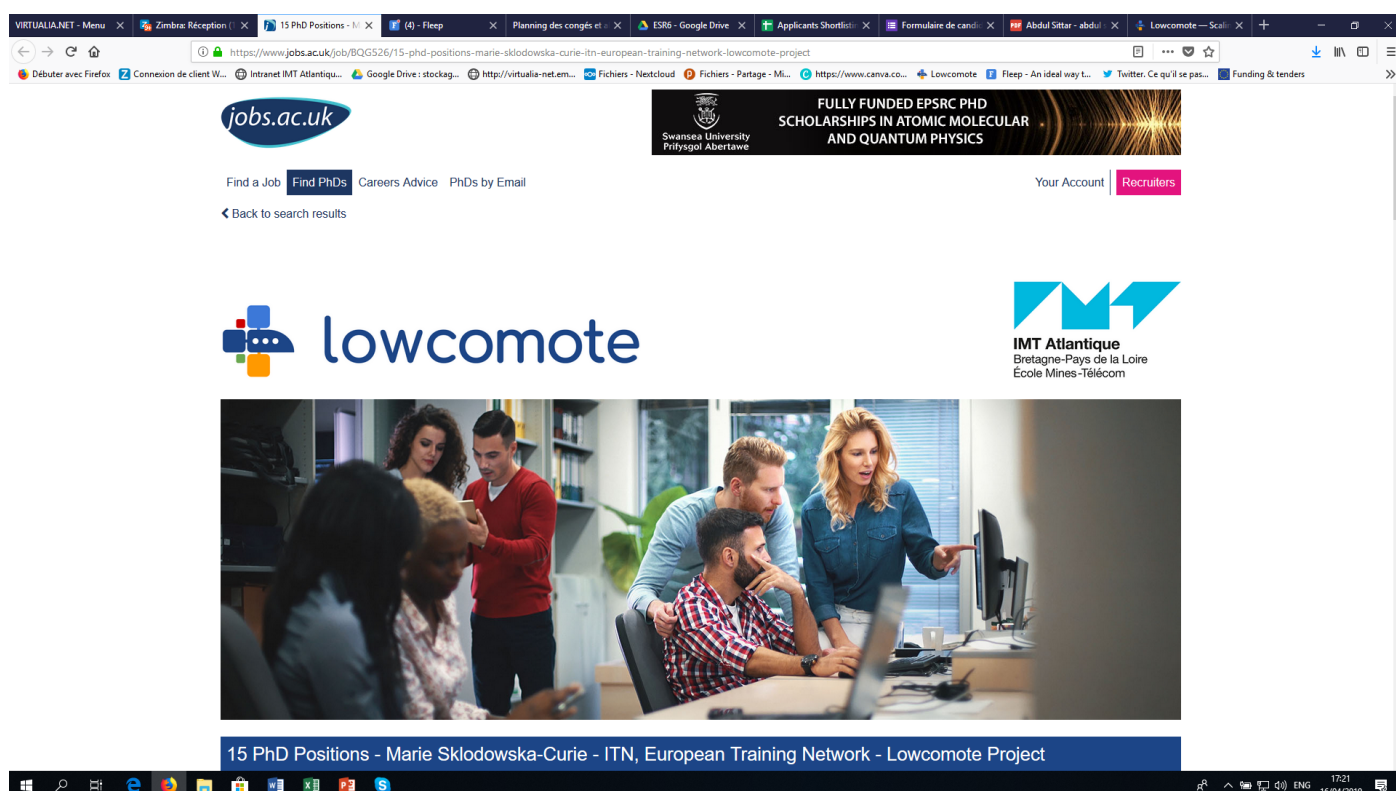
The screenshot shows a web browser window displaying the EURAXESS website. The browser's address bar shows the URL 'https://euraxess.ec.europa.eu/jobs/382448'. The website header includes the European Commission logo and the EURAXESS logo. Below the header, there is a navigation menu with links for JOBS & FUNDING, CAREER DEVELOPMENT, PARTNERING, INFORMATION & ASSISTANCE, EURAXESS WORLDWIDE, and MY EURAXESS. The main content area features a job advertisement for '15 PhD Positions in Computer Sciences for MSCA ITN Lowcomote Project (Europe)'. The advertisement includes the date '22/02/2019', the Marie Curie Actions logo, and the IMT Atlantique logo. The browser's taskbar at the bottom shows various application icons and the system clock indicating 17:48 on 11/03/2019.

<https://www.eclipse.org/forums/index.php/t/1097786/>





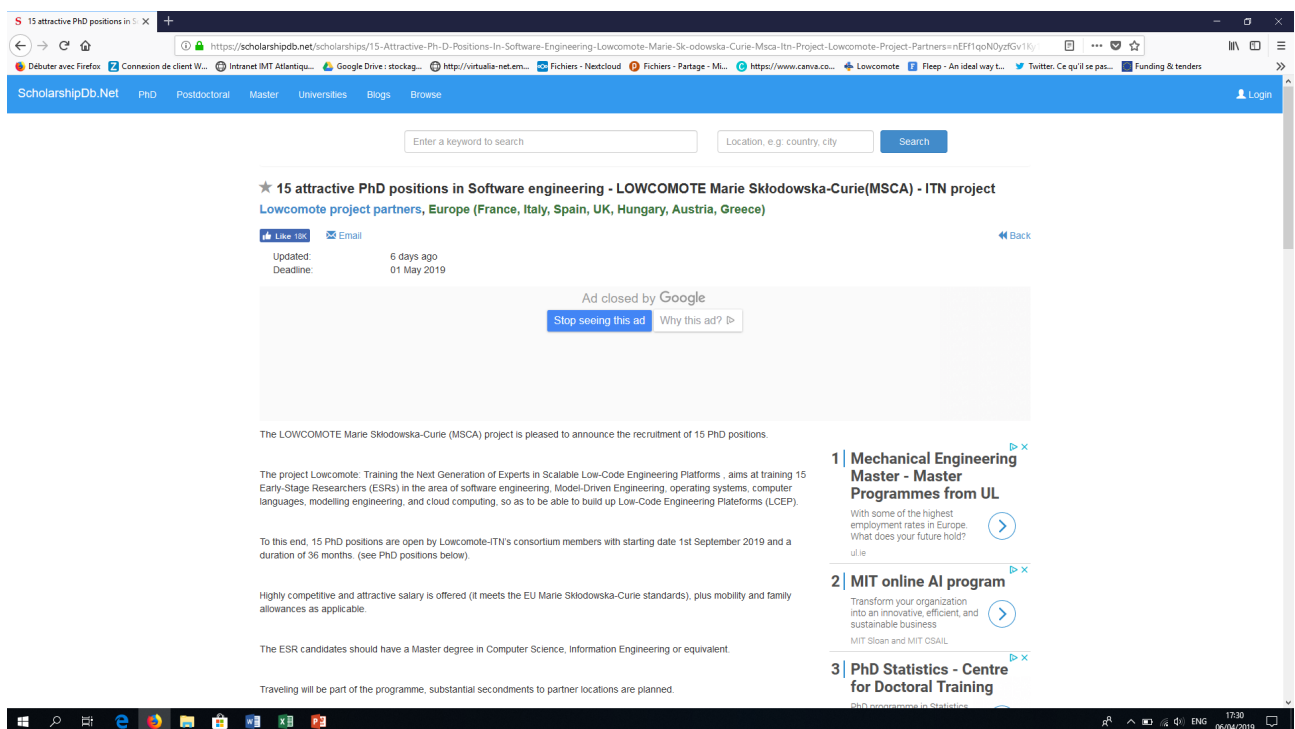
<https://www.jobs.ac.uk/job/BQG526/15-phd-positions-marie-sklodowska-curie-itn-european-training-network-lowcomote-project>



<https://www.findaphd.com/phds/program/on-behalf-of-the-lowcomote-itn-imt-atlantique-fr-is-pleased-to-announce-the-recruitment-of-15-marie-sklodowska-curie-msca-phd-positions-early-stage-researchers/?p4349>



<https://scholarshipdb.net/scholarships/15-Attractive-Ph-D-Positions-In-Software-Engineering-Lowcomote-Marie-Sk-odowska-Curie-Msca-Itn-Project-Lowcomote-Project-Partners=nEff1qoN0yzfGv1Ky1sKjJ.html?c=Europe-%28France%2C-Italy%2C-Spain%2C-UK%2C-Hungary%2C-Austria%2C-Greece%29>



<https://www.academicgates.com/job/detail/f53713b0-545c-11e9-b665-29ab9ff24a77>



**OVERALL STATISTICS**

**450,502** TOTAL JOBS  
+1270 IN 24 HOURS

**56,149** AVAILABLE JOBS  
+7379 THIS WEEK

**15 PHD POSITIONS IN SOFTWARE ENGINEERING (MSCA-ITN LOWCOMOTE PROJECT)**  
IMT Atlantique  
4, rue Alfred Kastler - La Chantrerie CS 20722 44307 Nantes cedex 3 France

**Job Description**

**15 attractive PhD positions in Software engineering - Lowcomote Marie Skłodowska-Curie (MSCA) - ITN project**

**FEATURED JOBS**

- Computational Chemistry and Biology Opportunities at D. E. Shaw Research
- Postdoctoral Fellowships in Computational Chemistry and Biology at D. E. Shaw Research

**SHARE THIS JOB**

**SEND THIS JOB TO YOUR FRIEND**

**FOLLOW US**  
To get more hot job, please follow us on

**FAVORITE JOB**

<https://www.science.hr/jobs/43207/15-phd-positions-in-software-engineering-throughout-europe-lowcomote-marie-skłodowska-curie-msca-itn-project>

**Science Human Resources**

**scienceHR**

**15 PhD positions in Software engineering throughout Europe - LOWCOMOTE Marie Skłodowska-Curie (MSCA) - ITN project**  
PhD student | Posted on Apr 03, 2019

**Applications**  
SHR application system is switched off. Candidates will apply using your guidelines.  
Application deadline is May 31, 2019.

**Employer**  
**Job description**

**The LOWCOMOTE Marie Skłodowska-Curie (MSCA) project is pleased to announce the**

**DISCIPLINES**  
Computer science  
Software engineering

**TYPE**  
PhD student

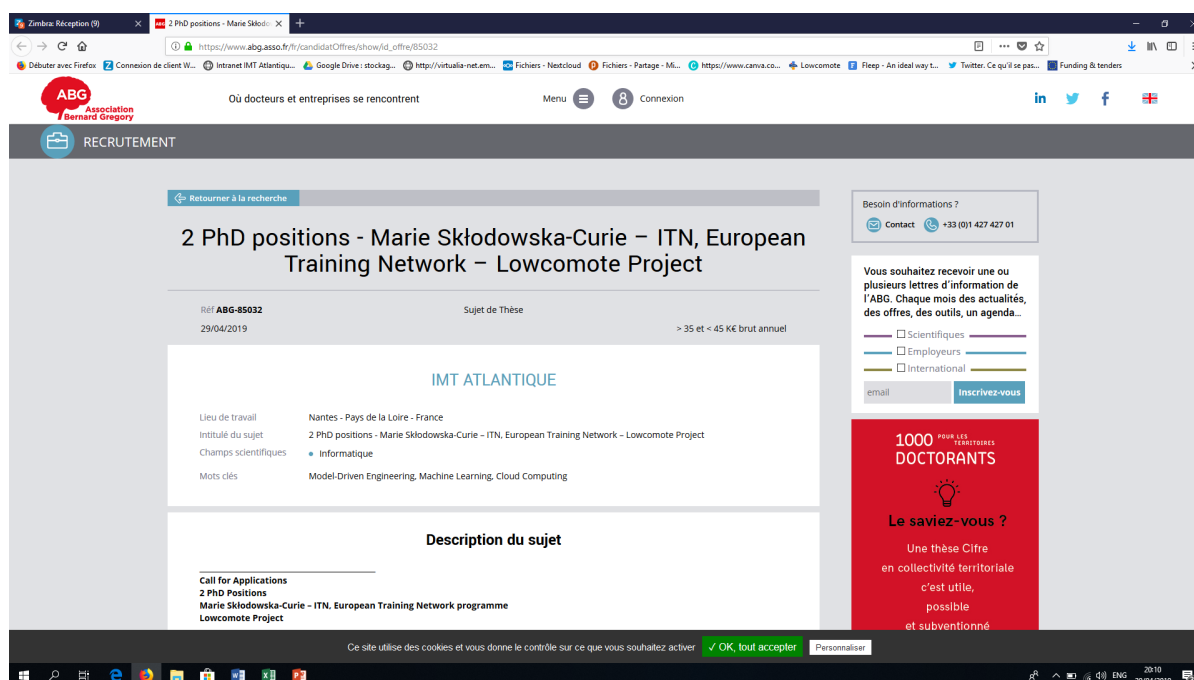
**Edit rights (1)**  
SHOW ALL  
REQUEST RIGHTS  
+ Add new job

**Need help with organising a scientific conference or workshop?**  
**Science Events**  
custom event page  
configurable registration  
interactive features

<http://muchong.com/t-13319724-1>



Advertisement on Association Bernard Gregory Website, e.g.:



ScienceHR:

<https://www.science.hr/jobs/48937/1-phd-position-deploying-and-scaling-knowledge-mod/>

Grant Agreement n°813884 – Lowcomote – Horizon2020 – MSCA – ITN – 2018

The screenshot shows the Science HR website interface. The main heading is "1 PhD position - DEPLOYING AND SCALING KNOWLEDGE MODELS IN DATA SCIENCE - at BT (Ipswich, UK) starting September 2019". Below the heading, it says "PhD student | Posted on Jul 09, 2019". There is an "Apply" button and a note: "SHR application system is switched off. Candidates will apply using your guidelines. Application deadline is Sep 01, 2019." The employer is listed as "British Telecom, Ipswich, United Kingdom". The job description includes a "Call for Applications" for a "1 PhD Position" under the "Marie Skłodowska-Curie - ITN, European Training Network programme" and "Lowcomote Project". It states that BT (UK, Ipswich) is pleased to announce the recruitment of 1 Marie Skłodowska-Curie (MSCA) PhD position within the framework of Lowcomote project. The project is titled "Lowcomote: Training the Next Generation of Experts in Scalable Low-Code Engineering Platforms, and it has 1 PhD position in the areas of Model-Driven Engineering, Machine Learning and Cloud Computing starting 1st September 2019 for a duration of 36 months." The thesis topic is "3 - Deploying and Scaling Knowledge Models in Data Science". On the right side, there are sections for "Edit rights (1)", "Add new job", "Science Events", and "STATS" showing recommendations and views.

## Scholarship DB

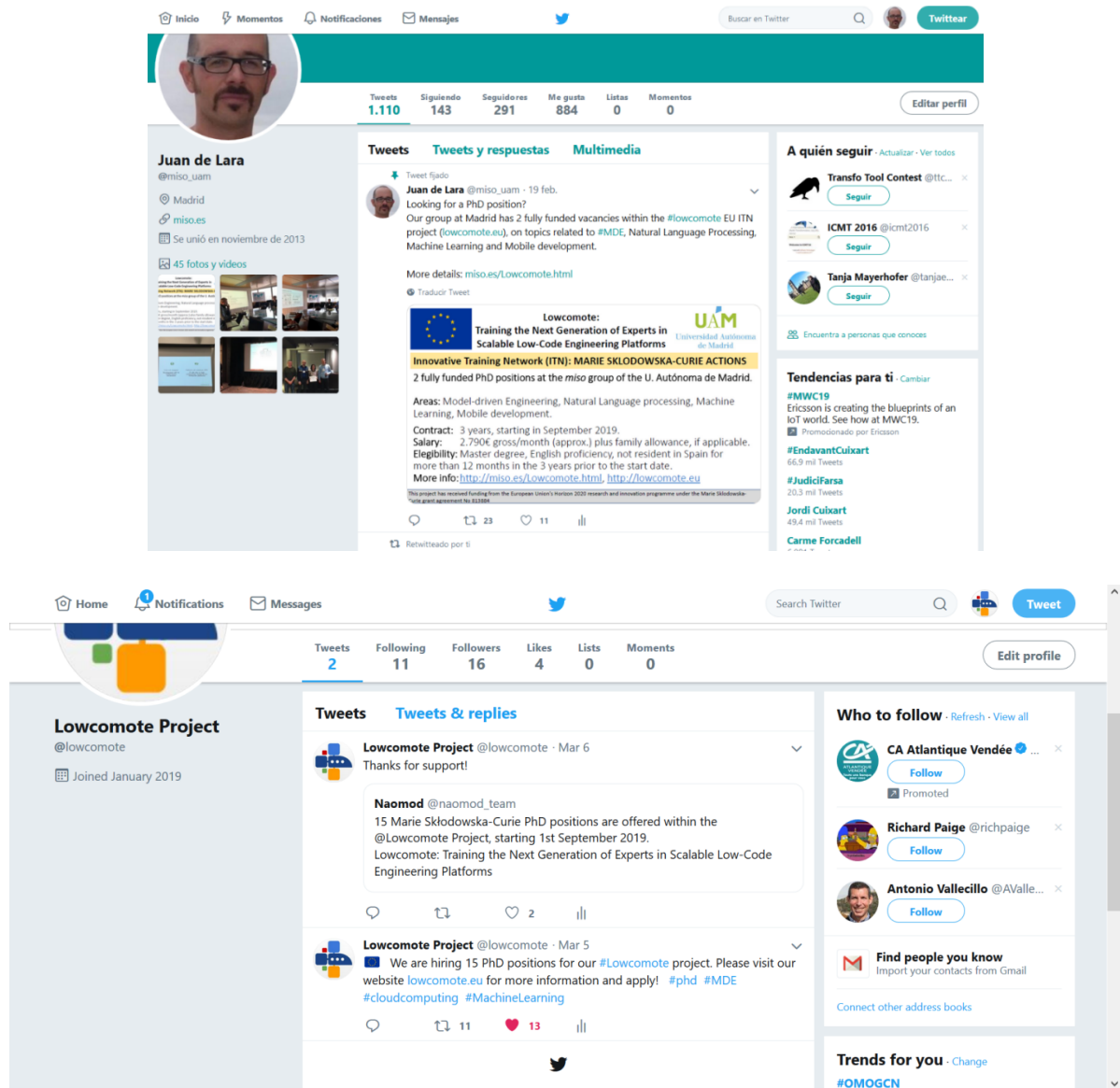
<https://scholarshipdb.net/scholarships-in-United-Kingdom/One-Ph-D-Position-Deploying-And-Scaling-Knowledge-Models-In-Data-Science-At-Bt-Ipswich-Uk-Starting-September-2019-Bt=hec1aTupSLHoJGPb5XJHdn.html>

The screenshot shows the ScholarshipDb.Net website interface. The main heading is "One PhD position - DEPLOYING AND SCALING KNOWLEDGE MODELS IN DATA SCIENCE - at BT (Ipswich, UK) starting September 2019". Below the heading, it says "BT, United Kingdom". There is a "Like" button and an "Email" button. The updated date is "about 14 hours ago" and the deadline is "09 Sep 2019". There is an image of a hand holding a fan of Euro banknotes. The job description includes a "Call for Applications" for a "1 PhD Position" under the "Marie Skłodowska-Curie - ITN, European Training network programme" and "Lowcomote Project". It states that BT (UK, Ipswich) is pleased to announce the recruitment of 1 Marie Skłodowska-Curie (MSCA) PhD position within the framework of Lowcomote project. The project is titled "Lowcomote: Training the Next Generation of Experts in Scalable Low-Code Engineering Platforms, and it has 1 PhD position in the areas of Model-Driven Engineering, Machine Learning and Cloud Computing starting 1st September 2019 for a duration of 36 months." The thesis topic is "3 - DEPLOYING AND SCALING KNOWLEDGE MODELS IN DATA SCIENCE". On the right side, there are sections for "CV Templates", "CV Examples", and "CV Builder".

## 5.3.3 Advertisement on Twitter

Here are samples of tweets published to advertise PhD positions:

Grant Agreement n°813884 – Lowcomote – Horizon2020 – MSCA – ITN – 2018



### 5.3.4 Advertisement on LinkedIn

Here are samples of LinkedIn posts published to advertise PhD positions:

Accueil
Réseau
Emplois
Messagerie
Notifications
Vous
Produits
Essai de Premium gratuit d'un mois

Don't Be The Next Breach - The best online practices for protecting customer data across industries. Pub ...

**Jean-Marie Mottu** Propriétaire

Posts en attente 0  
Demandes d'adhésion 0

Gérer l'abonnement  
Modifier les détails du groupe

Récents

- Lowcomote - EU H2020 Proj...
- IUT de Nantes
- Alumni Informatique Univer...
- DIIC - ESIR alumni - membre...
- Domaine Qualité des logiciels

Groupes

- Lowcomote - EU H2020 Proj...
- IUT de Nantes
- Alumni Informatique Univer...
- Voir plus

Hashtags suivis  
En découvrir plus

**Lowcomote - EU H2020 Project**  
Groupe répertorié

Lancer une discussion de groupe

**Jean-Marie Mottu**  
Associate Professor - LS2N - Université de Nantes  
9 mois

**Pedro J. Molina** • 1er  
Metadev, Founder / OpenAPI Initiative Member  
9 mois

The #Lowcomote project is looking for 15 PhD candidates to work in MDE and Low Code Platforms in Europe.  
3 years paid position + family allowance.

Voir la traduction

**Pedro J. Molina on Twitter**  
twitter.com

1

J'aime Commenter

**Jean-Marie Mottu**  
Associate Professor - LS2N - Université de Nantes  
9 mois

**Davide Di Ruscio** • 1er  
Associate Professor at University of L'Aquila  
9 mois

15 PhD Positions in Computer Sciences for MSCA ITN Lowcomote Project (Europe) <https://lnkd.in/g/12EVW11>

24 membres  
Tous les voir

Inviter des membres

À propos du groupe  
Training the Next Generation of Experts in Scalable Low-Code Engineering Platforms  
MSCA-ITN-ETN - European Training Networks - European Union's Horizon 2020 research and innovation programme under the Marie Skłodowska-Curie grant agreement n° 813884.

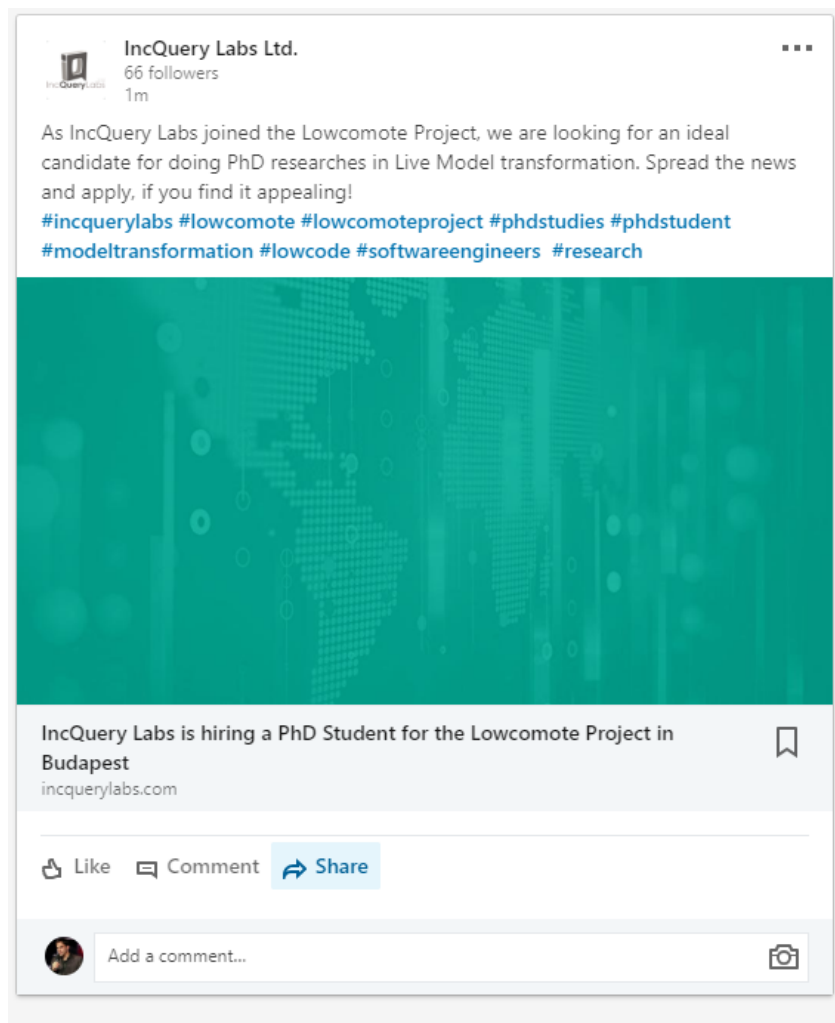
administrateurs de groupes

**Jean-Marie Mottu**  
• Vous Propriétaire  
Associate Professor - LS2N - Université de Nantes

**Marie Chastanet**  
• 1er Administrateur  
Coordinatrice du Projet Lowcomote chez IMT Atlantique

Infos Assistance clientèle  
Conditions générales et confidentialité  
Publicité Solutions professionnelles

<https://www.linkedin.com/groups/13683688/>



### 5.3.5 Other Social Network Communication

Partner Facebook Accounts:



### 5.3.6 Communication through mailing lists

- [ecoop-info@ecoop.org](mailto:ecoop-info@ecoop.org)
- [planetmde@imag.fr](mailto:planetmde@imag.fr)
- [gdr.gpl@imag.fr](mailto:gdr.gpl@imag.fr)
- [bsd.albonico@gmail.com](mailto:bsd.albonico@gmail.com) (contact in Brazil)
- [mda-discussion@yahoogroups.com](mailto:mda-discussion@yahoogroups.com)
- [rsd-forum@cines.fr](mailto:rsd-forum@cines.fr)
- [distjisbd@lcc.uma.es](mailto:distjisbd@lcc.uma.es)
- [red-dsdm@lcc.uma.es](mailto:red-dsdm@lcc.uma.es)
- [gratra@upb.de](mailto:gratra@upb.de)
- [SIGIR@listserv.acm.org](mailto:SIGIR@listserv.acm.org)
- [IR@jiscmail.ac.uk](mailto:IR@jiscmail.ac.uk)
- [um@di.unito.it](mailto:um@di.unito.it)
- [CHI-ANNOUNCEMENTS@listserv.acm.org](mailto:CHI-ANNOUNCEMENTS@listserv.acm.org)
- <https://listserv.uni-heidelberg.de/science-jobs-de/sjd-e.html>
- Mails sent to 76 Master Coordinators in Computer Science and Software Engineering in France and Europe
- TU Kaiserslautern
- <https://research.cs.wisc.edu/dbworld/messages/2019-07/1563007569.html>
- <https://research.cs.wisc.edu/dbworld/messages/2019-08/1566484602.html>
- [seworld@sigsoft.org](mailto:seworld@sigsoft.org)
- [distjisbd@lcc.uma.es](mailto:distjisbd@lcc.uma.es)
- [wi-request@lists.kit.edu](mailto:wi-request@lists.kit.edu)
- <https://research.cs.wisc.edu/dbworld/browse.html>



## 5.4 Scientific paper

An article introducing the project has been published in the STAF 2019 Co-Located Events Joint Proceedings and presented:

<https://hal.archives-ouvertes.fr/hal-02363416v1>

Lowcomote: Training the Next Generation of Experts in Scalable Low-Code Engineering Platforms

Massimo Tisi<sup>1</sup>, Jean-Marie Mottu<sup>1</sup>, Dimitrios S. Kolovos<sup>2</sup>, Juan de Lara<sup>3</sup>, Esther Guerra<sup>3</sup>, Davide Di Ruscio<sup>4</sup>, Alfonso Pierantonio<sup>4</sup>, and Manuel Wimmer<sup>5</sup>

<sup>1</sup> LS2N, IMT Atlantique, Université de Nantes, France

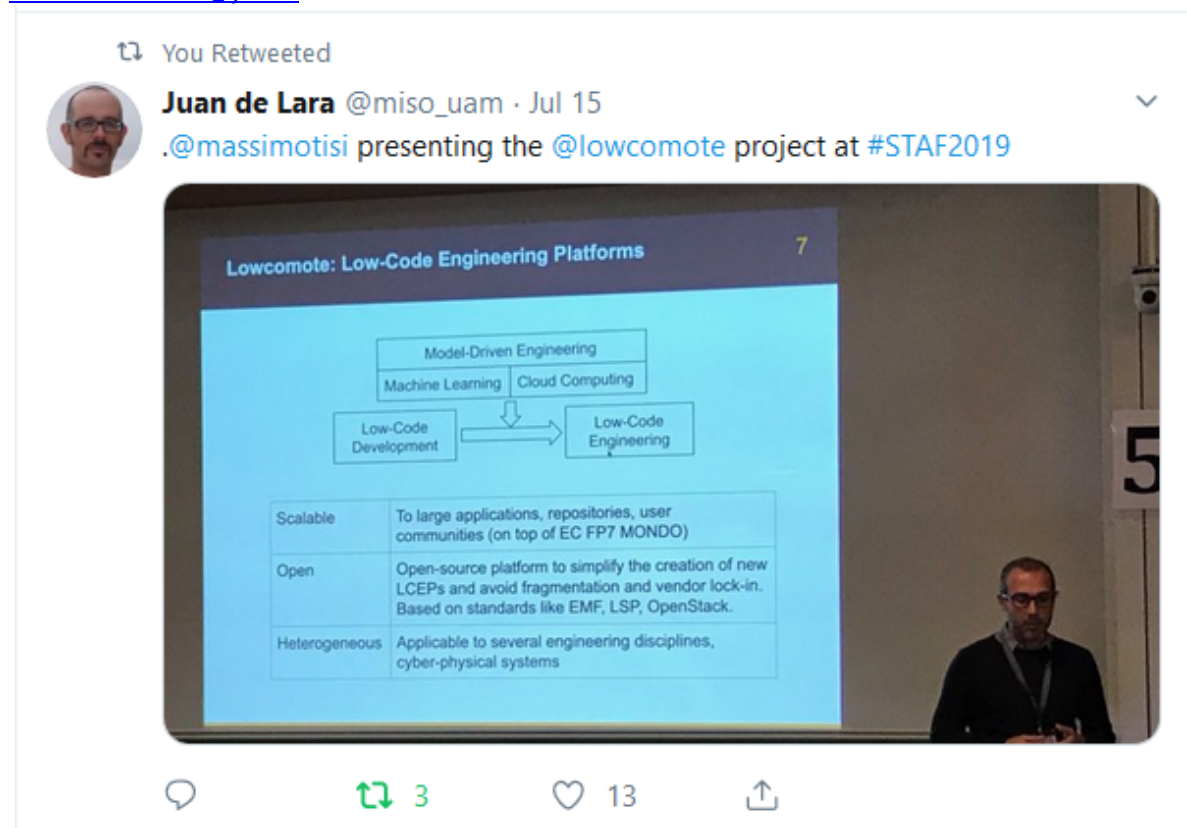
<sup>2</sup> University of York Helsington, UK

<sup>3</sup> Universidad Autónoma de Madrid, Spain

<sup>4</sup> Università degli studi dell'Aquila, Italy

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## 5.5 Recruitment flyer

<https://www.lowcomote.eu/data/flyer.pdf>



## MARIE SKŁODOWSKA-CURIE EUROPEAN TRAINING NETWORK

Creative and entrepreneurial early-stage researchers, able to convert knowledge and ideas into products and services for economic and social benefit

## LOWCOMOTE 15 PHD POSITIONS

**Starting September 2019**

Training the Next Generation  
of Experts in Scalable Low-  
Code Engineering Platforms

- **Model-Driven Engineering**
- **Cloud Computing**
- **Machine Learning**

This project has received funding from the European Union's Horizon 2020 research and innovation programme under the Marie Skłodowska-Curie grant agreement No 813884



### PARTNERS

IMT Atlantique (FR)  
University of York (UK)  
Universidad Autónoma de Madrid (ES)  
University of L'Aquila (IT)  
JK University of Linz (AT)  
British Telecom (UK)  
Intecs (IT)  
Uground (ES)  
CLMS (UK / GR)  
IncQueryLabs (HU)  
SpanxSystems (AT)  
Metadev (ES)  
The Open Group (UK)  
Amazon Web Services (LU)



**LOWCOMOTE is an Innovative Training Network - European Training Network project, funded under the Marie Skłodowska-Curie grant agreement No. 813884.**

This four year network will recruit outstanding candidates and allow them to master the different competences needed in the field of model driven engineering, machine learning and cloud computing.

### THESIS TOPICS

- Scaling Up Citizen Development with Recommender Chatbots
- Scalable Cloud-Based Heterogeneous Modelling
- Deploying and Scaling Knowledge Models in Data Science
- Urban Area Management in Smart Cities
- Low-code Development of Rich Collaborative Mobile Apps using Active DSLs
- Scalable and Extensible Cloud-based Low-Code Model Repository
- Mining Interaction Processes in Low-Code System Models
- Capability Discovery and Reuse in Low-code System Models
- DevOps Support for Low-Code Engineering Platforms
- Cloud-Based Testing Workbench for Low-Code Engineering
- Intelligent Run-Time Partitioning of Low-Code System Models
- Heterogeneous Low-Code Model Query Optimisation
- Live Model Transformation for Distributed Low-Code Platforms
- Multi-Paradigm Distribution for Model Management Operations
- Cloud-Based Low-Code Model Transformations Composition and Execution

### ELIGIBILITY CRITERIA

**Career:** candidates must not have performed research for more than four years (full-time equivalent) after their degree. Candidates must not have been awarded a prior doctoral degree.

**Mobility:** At the time of recruitment, researchers must not have resided, or carried out their activity in the country of the hiring institution for more than 12 months in the 3 years prior to recruitment date.

Attractive remuneration including a living, mobility and family allowances (if applicable). All relevant expenses linked to the research and training activities paid by the project budget.



**INTERESTED?**

**<http://www.lowcomote.eu>**



## 5.6 Presentation Layout



