D6.4 Intermediate Communication and Dissemination Report

Version 1.0

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Change Log

Version	Author	Description of Change
V0.1	Nikoleta Kiapidou	Initial Draft
V0.2	Ana Belén González Méndez	Internal review
V0.3	Nikoleta Kiapidou	Updated version
V0.4	Ana Belén González Méndez, Erez Hadad, Eduardo Quiñones	Comments and minor contributions
V1.0	Nikoleta Kiapidou	Final version

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Executive Summary

This document reports on the dissemination activities carried out by the CLASS project from January 2018 to December 2019.

This report includes a complete list of events, presentations, publications and promotional material related to the project during this period. It also includes detailed information on the website and social media performance, any coverage in the press, as well as activities about collaborations with other projects and initiatives.

Over the duration of the first two years of the project, the website and social media have grown significantly. In addition, the consortium participated in a total of 27 events, including 1 keynote speech, 16 presentations, 6 exhibitions and 4 pitch events, communicating the CLASS technology. Several collaborations took place in order for CLASS to become a point of reference in the field and to build a wider community around it.

The dissemination team has successfully carried out the tasks outlined in the Communication and Dissemination plan (D6.1).

1   Introduction

The objective of this report is to present a detailed list of the communication and dissemination activities, which took place during the project's two-year period, as planned in the D6.1 Communication and Dissemination plan. After establishing the project's brand and presence in the community, the dissemination team and project partners continued their activities in order to make CLASS even more known in the fields of big data analytics and smart cities by growing the website and social media, participating in numerous events and publishing scientific papers.

2   General objectives

The main purpose of the Dissemination and Exploitation work package (WP6) is to maximise the visibility of the project to multiple target audiences in order to foster possible uptake and support CLASS partners in the exploitation of the project results.

For that purpose, the general objectives of WP6 are:

1. Identify and perform communication and dissemination activities in order to maximise the impact of the project, in collaboration with other EU research activities, scientific audiences, and industry forums.
2. Identify the exploitable results of the project and define the potential commercial products and commercial strategies for these results (target market, business model(s), distribution channels and promotional strategy) to reach the market.

The present report will only consider point 1, described above, which is related to communication and dissemination.

The exploitation strategy (point 2), was described in a separate deliverable D6.3 Initial exploitation report, and any updates will be reported in the D6.5 Intermediate exploitation report and D6.7 Final exploitation report.

3   Corporate image

In accordance with deliverable D6.1 Communication and Dissemination Plan, the first step was to define a common graphic identity. The branding of the CLASS project (including logo and style, font, project templates, poster, etc.) was established and its guidelines have been shared with all partners via email and the project Intranet and correctly implemented by all partners in this first year. The branding material of CLASS can be found on the dedicated Branding page on the project website.

4   Dissemination tools

During these first two years of the project, the dissemination tools supported the establishment and growth of CLASS through the project's website and social media channels, participation in events, and the communication and dissemination pack that

consists of several promotional materials, such as the poster, presentation, roll-up, and videos.

4.1 CLASS website: https://class-project.eu/

The CLASS website is the main dissemination and communication channel of the project, where all project updates, news and technical information are published. During the first year of the project, the website consisted of overview pages (including about, partners, publications, media, and contact). In the second year of the project when more information about the CLASS software architecture and use case was provided by the technical partners, the website was substantially updated and populated with more pages.

These were the Industrial Advisory Board (IAB) page that includes details on the IAB members, the architecture page that contains a description of the CLASS software architecture along with a full list of the components and link to the dedicated CLASS GitHub channel, and the use case page that provides an overview of the CLASS smart city pilot as well as details on the four use case applications.

Figure 1: Layout of the new architecture and use case pages of the CLASS website

During the reporting period, the overall performance of the project website has been satisfactory. The website, built in Drupal (open source CMS), complied with the technical requirements of performance and security. In addition, the website hosts the intranet and several members, allowing effective management by the dissemination team and seamless access by all consortium members.
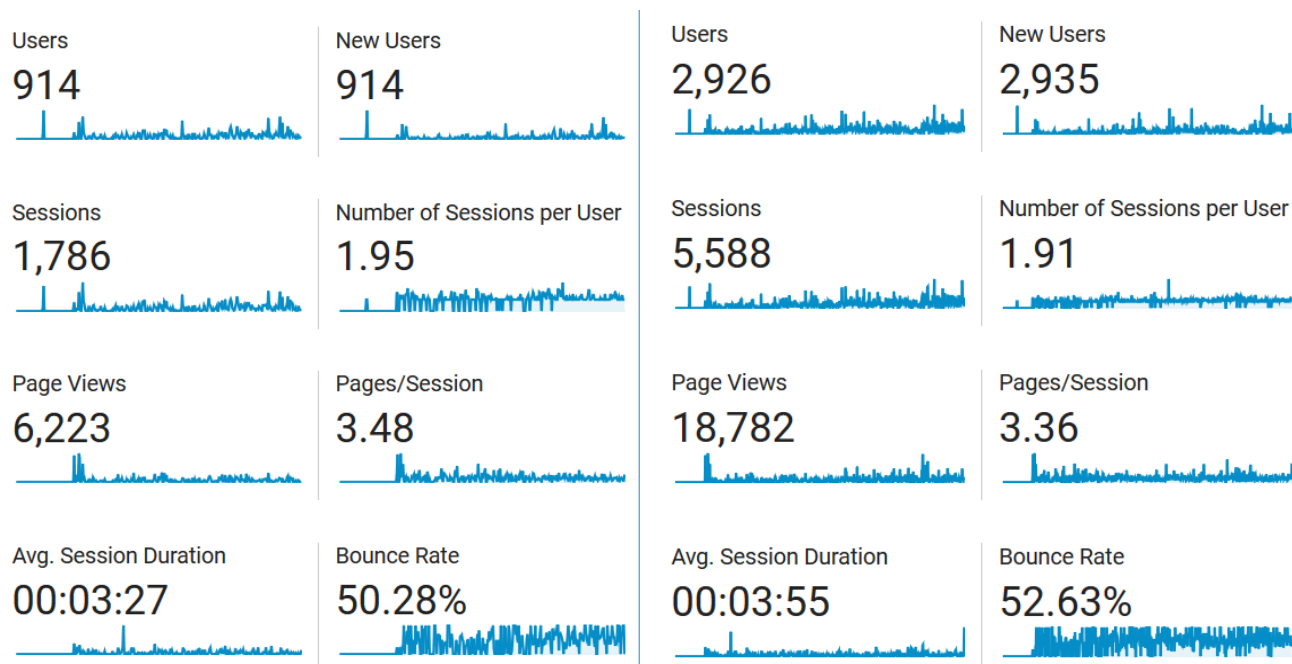
Figure 2: Main indicators of the CLASS website in Dec **2018** (left) and in Dec **2019** (right). Source: Google Analytics

The main indicators of the CLASS website, as collected by Google Analytics, show that the website is attaining the main objectives and has also improved significantly its performance in terms of the number of users, sessions, and page views. As shown in Fig. 2, the total number of users and sessions during the first year were 914 and 1,786[1] respectively, while these number almost doubled in 2019 reaching 2,926 users and 5,588 sessions[2].

The established KPI in the D6.1 Communication and Dissemination Plan for this metric is 1,000 website sessions per year.

The total number of page views was 6,223 in 2018, which similarly rose in the next year to 18,782. The bounce rate (50.28% in 2018 and 52.63% in 2019) ranges in good values: over 60% would indicate that the website is not sufficiently engaging with the audience. The average duration, 3:27min in 2018 and 3:55 in 2019, reinforces this idea, with visitors having long sessions on the CLASS website (Fig. 1).

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[1] These numbers are slightly different than the ones reported in the D6.2 Communication and Dissemination Report, as that report was submitted just before the end of December 2018, while these numbers here reflect the statistics of the full December 2018 month. The same applies to all 2018 website statistics included in this document.
[2] Reported as of 17 December 2019.
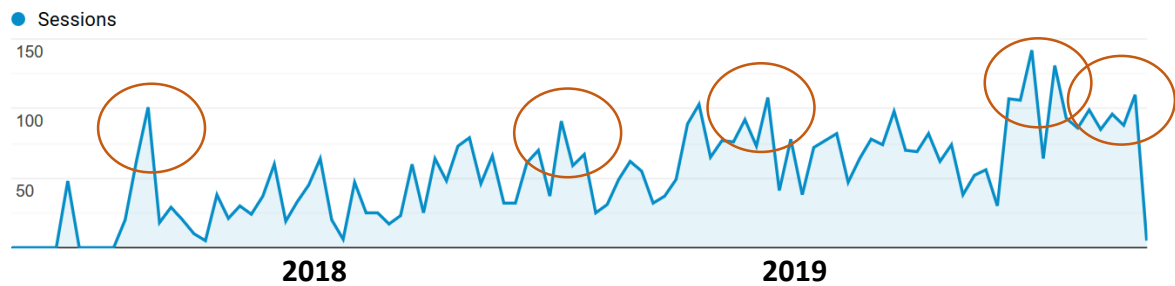
Figure 3: Sessions on the CLASS website for the period January 2018 - December 2019. Source: Google Analytics

To understand the flow of sessions, Fig. 3 demonstrates the progression of the total number of sessions along the two years 2018 and 2019. The peaks are related to specific disseminations activities such as the press release (launched in March 2018) and the participation in various events such as the ICT 2018 conference, EUCAD 2019 conference, Modena Smart Life 2019, and Smart City Expo 2019 (as circles in chronological order in the time range in Fig. 2). The overall growth during the second year also reflects the website update that was employed in order to include much more technical information about the CLASS technology, software architecture components, and use case on the website.
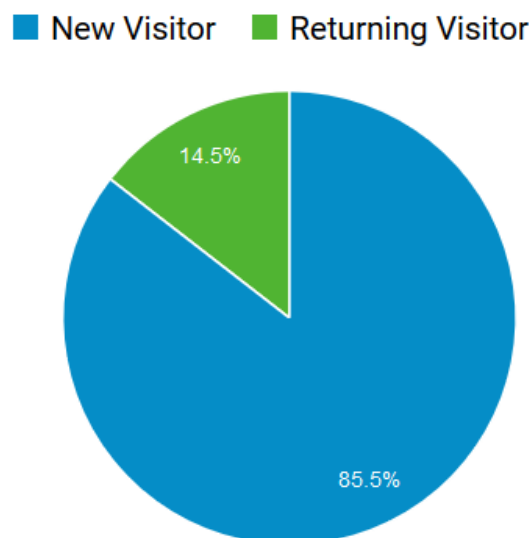
Figure 4: New visitors vs Returning visitors to the CLASS website from January 2018 - December 2019. Source: Google Analytics

CLASS sessions show a very high number of new visitors at 85.5% (Fig. 4), which explains the increased number of users and sessions in the second year of the project, as more and more people are becoming aware of CLASS through the various dissemination activities.
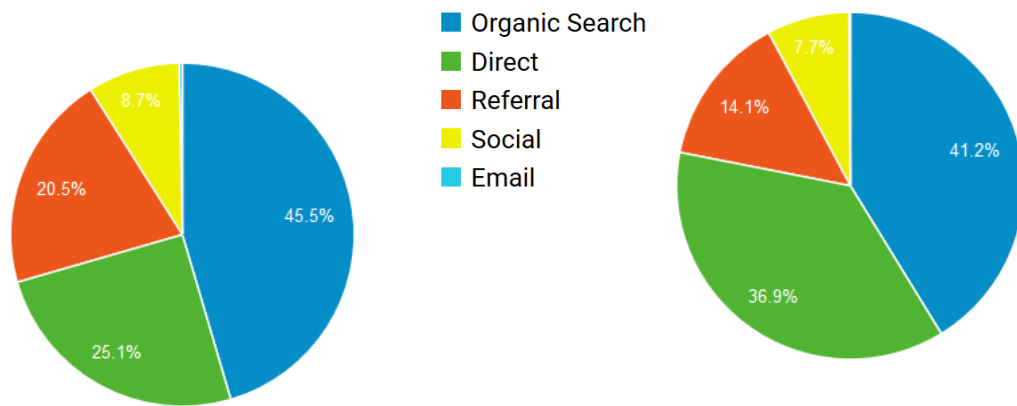
Figure 5: Traffic source channels for the CLASS website, comparing 2018 (left) to 2019 (right) data. Source: Google Analytics.

Furthermore, this trend is reinforced by the data on the traffic source channels (Fig. 5). We see that the percentage of direct visitors has risen from 2018 to 2019 by 11.8%, which again demonstrates that new audience is informed about CLASS and directly goes on the project website. At the same time, we see that the percentage of the rest of the categories has decreased (organic search, referral, social media, etc.).

Although social media became a less significant traffic source, the detailed data on the traffic sources overall shows that the users that visit the website from social media accounts have the lowest bounce rate of all the other categories (Fig. 6). This means that the sessions originating from social media users are of high quality.

		Users	New Users	Sessions	Bounce Rate	Pages/Sess…	Avg. Session Duration
		2,926	2,935	5,588	52.63%	3.36	00:03:55
1	Direct	1,262			58.51%		
2	Organic Search	1,128			56.92%		
3	Referral	432			42.53%		
4	Social	235			38.17%		
5	Email	4			60.00%		

Figure 6: Traffic source channels and bounce rate for the CLASS website in 2018. Source: Google Analytics

Going into more detail regarding the website engagement that social media offer, we saw in Fig. 5 above that social media channels provided around 8.2% of the website sessions during 2018 and 2019. As demonstrated in Fig. 7 below, Twitter account generates the highest number of sessions among the social media channels with 66.7%, while the LinkedIn group provides a 27.9% of the traffic.

9

Social Network	Sessions ⌄ ↓	Sessions
1. ■ Twitter	634	66.67%
2. ■ LinkedIn	265	27.87%
3. ■ Facebook	42	4.42%
4. ■ YouTube	9	0.95%
5. ■ LiveJournal	1	0.11%
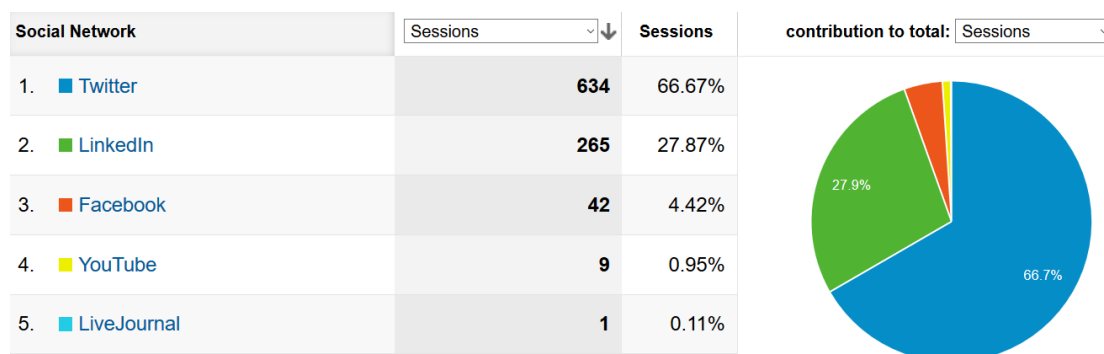
Figure 7: Traffic to the CLASS website referred from social media. Source: Google Analytics

At the same time, the most popular pages on the CLASS website indicate that visitors are particularly interested in the dissemination activities of the project. As Fig. 8 demonstrates, after the Homepage, the most visited pages are the News & Press Releases and Events ones, followed by the About, Partners, and Publications pages.

	Page Title	Page Views	% Page Views
1.	CLASS: Edge and Cloud Computation: A Highly Distributed Software for Big Data Analytics	4,646	24.74%
2.	News & Press releases | CLASS: Edge and Cloud Computation: A Highly Distributed Software for Big Data Analytics	1,189	6.33%
3.	Events | CLASS: Edge and Cloud Computation: A Highly Distributed Software for Big Data Analytics	1,044	5.56%
4.	About | CLASS: Edge and Cloud Computation: A Highly Distributed Software for Big Data Analytics	927	4.94%
5.	Partners | CLASS: Edge and Cloud Computation: A Highly Distributed Software for Big Data Analytics	870	4.63%
6.	Publications | CLASS: Edge and Cloud Computation: A Highly Distributed Software for Big Data Analytics	806	4.29%

Figure 8: Most popular CLASS pages and their page views. Source: Google Analytics

4.2 Social media

4.2.1 Twitter

The CLASS Twitter account is used as a platform to share any dissemination activities of the project and create synergies with other stakeholders in the field (Fig. 9). Originally, the strategy on Twitter was to target the sectors of academia and industry. During the development of the project, the audience has broadened to the general public by including informative tweets about more general subjects, such as events and news in the field of connected cars, autonomous driving and smart mobility.

Figure 9: CLASS Twitter account

Tweets and retweets are posted daily and concern not only events and news of the project, but also conferences and activities related to the general field of smart cities, smart mobility, urban mobility, as well as more particularly technical fields of big data, cloud computing, and edge computing. The most used hashtags on the CLASS Twitter and the ones followed mostly are #bigdata, #bigdataanalytics, #smartcity, #smartmobility, #urbanmobility, #cloudcomputing, and #edgetocloud.

The number of followers on the CLASS Twitter account has increased vastly during the second year of the project. In particular, the number of followers has increased from 102 in December 2018 to 285 in December 2019, surpassing the KPI originally set at 250 followers. The engagement rate of the CLASS tweets also increased from 0.47% in 2018 to 0.6% in 2019. This shows the successful strategy of the communication and dissemination team as well as the communication efforts taken by all partners in terms of providing presentations, attending events, writing news, etc.

4.2.2   LinkedIn

An initial CLASS LinkedIn group was created at the beginning of the project. However, this was not considered an appropriate medium at the second stage of CLASS. This was because LinkedIn groups are rather closed, not allowing for much engagement from users and with limited analytics data. Therefore, the dissemination team decided to delete the group and create the CLASS LinkedIn page in July 2019.

The CLASS LinkedIn group is used as a channel of communicating actions and updates of the CLASS partners to a professional and industrial network. The posts refer to the dissemination activities of CLASS as well as events of the relevant fields. Users have engaged primarily with posts about CLASS news pieces and events.

The page consists of 81 followers currently. As seen in Fig. 10 below, the number of LinkedIn page views increased right after the page was created. The various events in which CLASS partners participated during the following months further helped to raise the number of page views. These events include the Modena Smart Life 2019 in September 2019 as well as the HiPEAC Computing Systems Week in October and the Smart City Expo in November 2019.

The number of page views shows a positive trend which indicates that followers will also increase as the project will produce more technical results and scientific publications which will be shared on the LinkedIn profile.
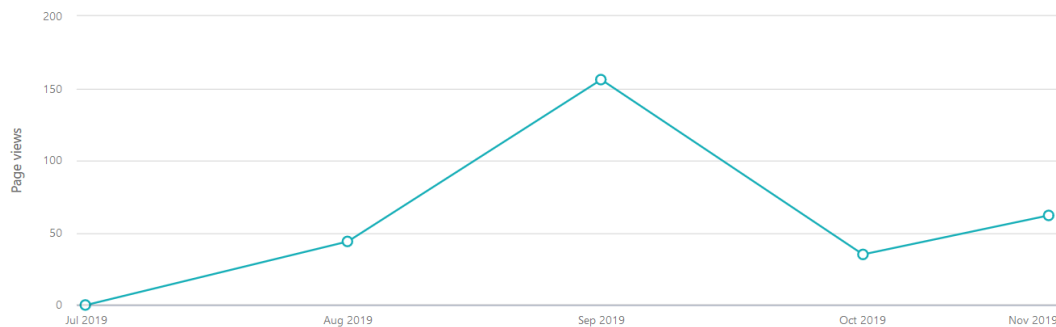
Figure 10: Page views of the CLASS LinkedIn page

As Fig. 11 below shows, the top fields of the visitors of the CLASS LinkedIn page are research, engineering, information technology and education. These backgrounds are highly relevant to the project and higher numbers in industrial sectors, apart from research and academia, will be achieved during the following phase of the project when even more technical content will be created and shared.
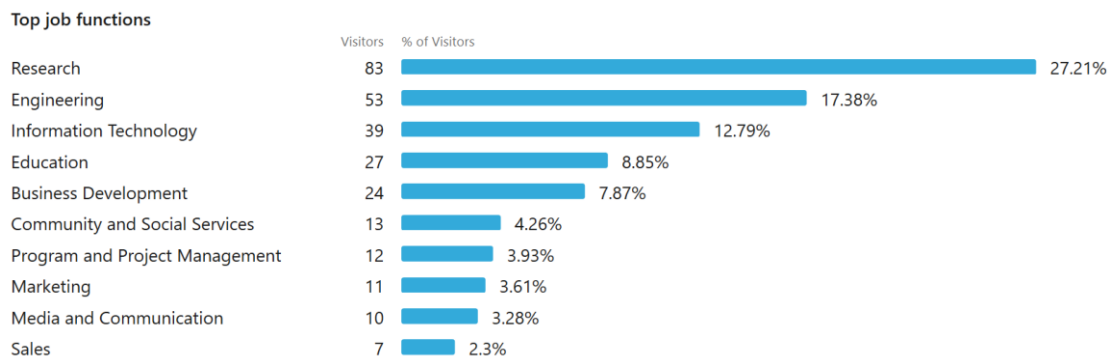
Figure 11: Top industries of the CLASS LinkedIn page visitors

4.2.3   Social media KPIs

The overall performance of the social media accounts of CLASS during these two years of the project shows an increasing growth in the number of followers and engagement of the users (Table 1). The Twitter account is performing very well, while the LinkedIn page, created only in July 2019, is performing slowly but with a steady growth.

More followers are needed for LinkedIn, which will be succeeded by further engagement of the users and more technical content and scientific results deriving from the project during its next stage. In addition, the continuous implementation of

the editorial plan as well as the future events that the CLASS partners will attend will increase the number of followers in both social media channels even more.

CLASS social media key performance indicators	First year (2018)	Second year (2019)	Target for project
Number of Twitter followers	102	285	250
Number of LinkedIn page followers	27	81	150

Table 1: CLASS social media indicators. Source: Twitter Analytics and LinkedIn

4.3 News pieces

The dissemination team also populates the CLASS website with news pieces according to the editorial calendar and guidelines written by the WP6 team and shared with the partners during the first year of the project.

These news pieces are written either by the dissemination team and concern events that partners attend, general news and updates about the project, or they are technical pieces composed by the technical WPs and contain information on the progress of the project's technology and use case applications. The aim of this news is to keep the CLASS news page updated, drive traffic to the website and share content on the social media channels in order to increase the number of followers its engagement.

During the reported period, there were 21 project-related news pieces published on the CLASS website and shared on the CLASS social media but also through the media channels of the partners. A detailed list can all be found on the CLASS News page and in the Annex of this document.

4.4 Events

During the first two years of the project, the partners have been particularly active in attending several events in order to present CLASS, communicate its technology, establish collaborations, and help make the project a point of reference among initiatives in the field. The consortium attended a total of 27 events (including 1 keynote speech, 16 presentations, 6 exhibitions and 4 pitch events) in total in 2018 and 2019.
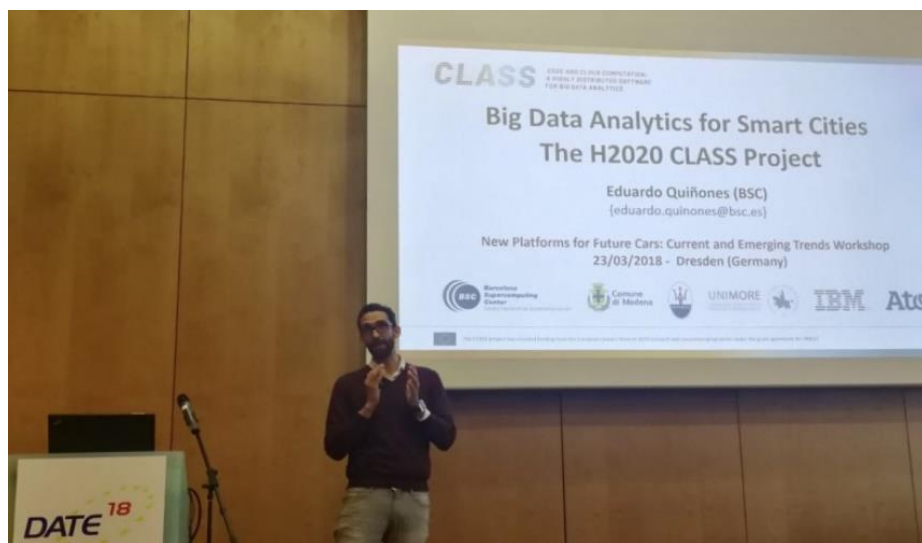
Figure 1: CLASS coordinator Eduardo Quiñones presenting the project at DATE 2018 in March in Dresden, Germany

Noteworthy events include the DATE 2018 and 2019 conferences, Smart City Expo 2018 and 2019, and the EUCAD 2019 conference where the CLASS researchers gave talks about the project, took part in exhibitions with a popular booth and also showcased demonstrations of the CLASS technology. Presentations and booths at these events attracted numerous participants and helped communicate the project in different audiences, for example academics and researchers at DATE, industries and customers at the Smart City Expo, and researchers and policy makers at EUCAD 2019.

Figure 2: CLASS experts showcasing the CLASS real time demo at the Smart City Expo 2019 in November at Barcelona, Spain

The full list of the specific events that CLASS partners attended can be found on the project's Events page. Details on the events' audience type and size can be found in the Annex of this document.

4.5 Dissemination pack

The CLASS dissemination pack is a number of material prepared by the communication and dissemination team with the help of the partners for informative and promotional

purposes. They are handed out in events that project partners take part in, used for presentations and booths, and communicated on the CLASS website, social media, and wide dissemination activities. They consist of a brochure, poster, PowerPoint presentation, roll-up and the project videos.

4.5.1 Brochure

The general brochure provides information about CLASS: its vision, main characteristics and capabilities of the software architecture, and the project use case. The format of the brochure is a double-sided A4 sheet and folds in three parts, so that interested project partners can easily download and print for their own dissemination activities. It was updated in mid-2019 to include the link to the new CLASS LinkedIn page.
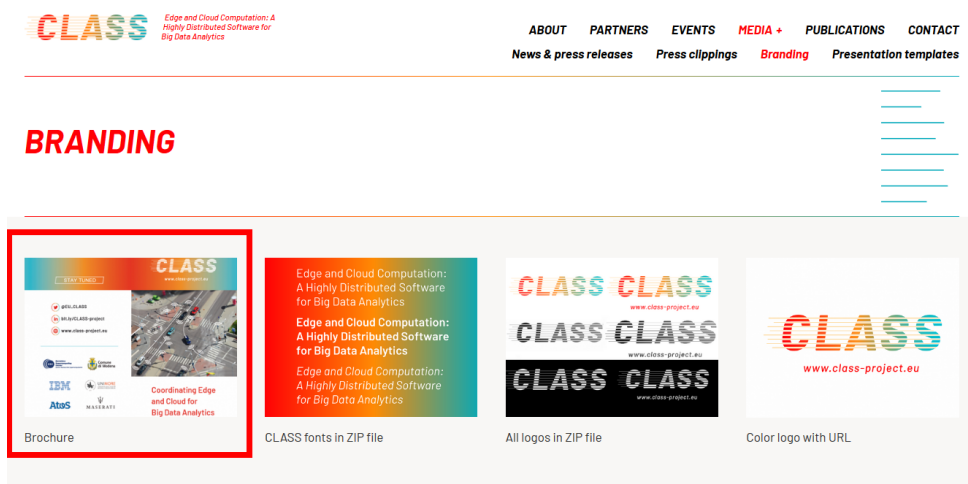
Figure 3: Screenshot of CLASS the website with downloadable Brochure (highlighted in red)

The brochure has been printed out, shipped to the CLASS partners and handed out at several events, in particular the booth exhibitions and demonstrations done by the partners at local and international events. It is also available on the Branding page of the CLASS website.

Figure 4: The CLASS brochure printed

4.5.2 Poster

The CLASS poster, agreed by the consortium, provides an overview of the project. Similarly to the brochure, it includes details on the CLASS vision, technology and use case.
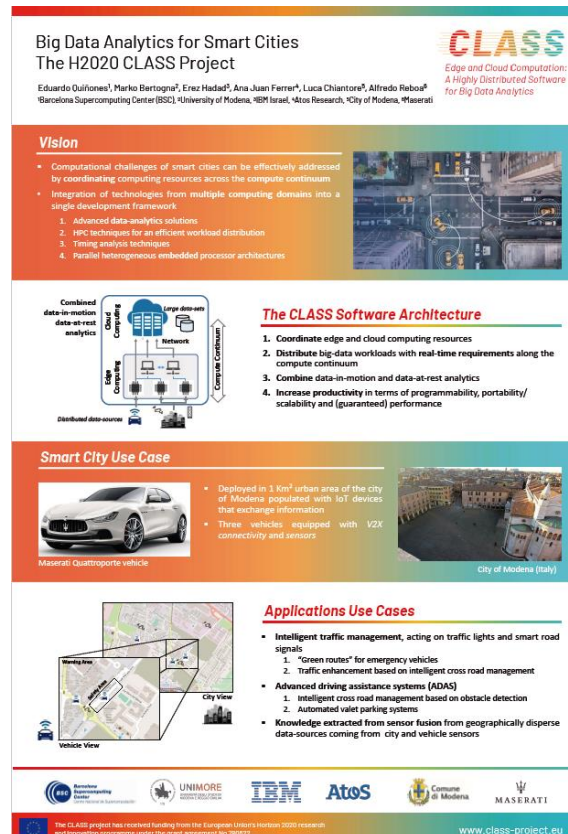
Figure 5: The CLASS poster

It can be downloaded and printed out from the intranet along with the template to produce further posters with more specialised information depending on the nature of each event or presentation and type of audience.

4.5.3   Presentation

In the same vein, the CLASS generic presentation was produced in the first year of the project and offers a more detailed overview of the project. The aim of this presentation is for all partners to present the CLASS project in a similar way and align key project messages. It has therefore been distributed among the partners and is available to download from the website intranet. The templates are also available for partners to use in order to elaborate new presentations.
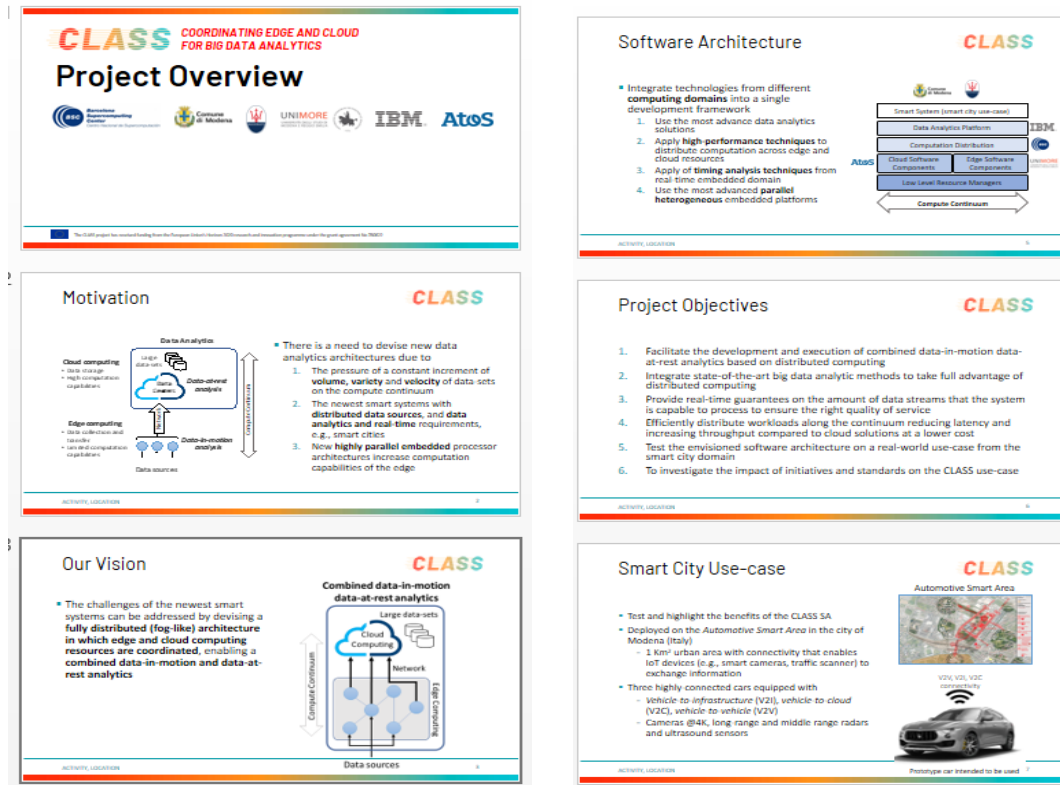
Figure 6: The CLASS generic presentation

4.5.4   Roll Up

A roll up has been created and displayed in events where CLASS had a presence. Its aim is to make the project's branding and key messages more visible at booths, stands and general project displays. It is available on the CLASS branding page and intranet.

Figure 7: CLASS roll up at "Smart Roads" (left) and   "Smart City Expo 2018" (right)

4.5.5 Videos

The first CLASS video was posted online in December 2018. This first video aims to present in 2 minutes the project with the major key facts so that the targeted audiences gets a broad idea of CLASS project. The main targets of this video are scientific audiences as well as industry, to raise the awareness of the CLASS project. The video has a voice over, as well as some key words appearing on screen and animation that helps reflecting the CLASS use case of connected cars.
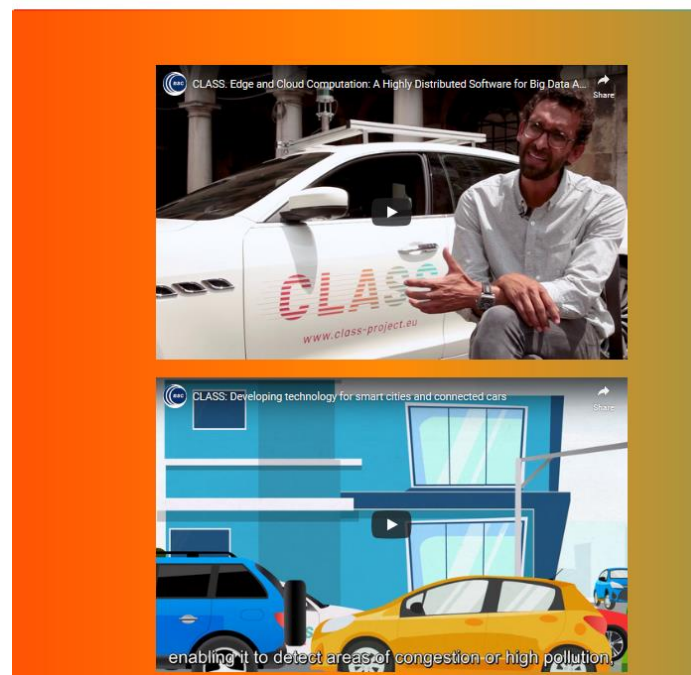
Figure 8: The CLASS videos on the project website

The second CLASS video was posted online in March 2019. This is an animation video that explains the CLASS technology in a more understandable manner by describing how smart communication between vehicles and cities is moving forward thanks to the project. The main audience type that this video is targeting is knowledge communities interested in smart cities and big data analytics in more general terms as well as the general audience.

Both CLASS videos were posted on the YouTube channel of BSC, which is an already established channel with 1.12K subscribers. They are also available on the dedicated videos page on the project website. They represent dissemination material that can be used for the website, social media, exhibitions and presentations.

The following communications actions were implemented for both videos:

- News to be posted on the website and shared with technical media
- Promotion of the videos via the partners' media channels linking to the video
- Dissemination on the CLASS social media channels

This resulted in 369 views for the first video and 376 views for the second video so far. The number increases as the events that CLASS experts take part in multiply along with the extended promotion on the project's media channels. The views are expected to rise even more as they will keep being promoted by the partners.

5   Press strategy

In March 2018, a first press release titled "Developing the technology for future smart cities and connected cars" was composed and sent to technical media to emphasize the need of HPC for smart cities and connected cars. This press release was approved by all partners. The dissemination leader encouraged the CLASS partners to replicate this on their own media channels, while the press release was sent to the CLASS Project Officer to do the same. In addition, BDVA also included it in its newsletter for big data experts, due to the close collaboration with the CLASS project.

A second press release titled "CLASS software framework makes Modena smarter in real-life setting" was launched in December 2019. This press release focused on how the CLASS software architecture is being implemented in the MASA area of Modena, the specific smart city use-case applications, and the software architecture components that have been publicly available on the dedicated CLASS GitHub channel. The piece was validated by all partners and was sent out to the CLASS project officer. It was then distributed to HPC media channels, as well as smart city and embedded computing media outlets.

Apart from the press releases, further efforts to maximise the project's media coverage were made during the two years. Two main strategies were employed: dissemination of the project to local media through the partners and coverage of the CLASS technology by smart city media and other technical press outlets in the related fields. Indeed, partners helped to disseminate the project through local media, such as in Modena Today (Italian medium) and El Pais (Spanish medium). In addition, CLASS also began to gain press coverage among smart city related media, such as the Smart City Media website and the Intelligent Transport website.
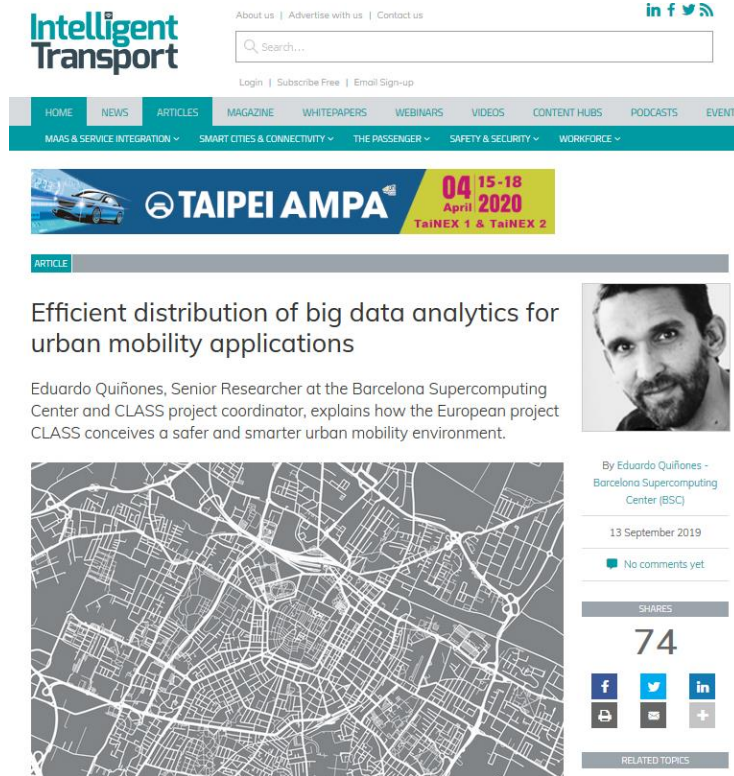
Figure 20: View of the CLASS article written by the project coordinator Eduardo Quiñones on the Intelligent Transport website

In total, 24 press clippings have been documented during the reporting period. They can all be found on the CLASS press clippings page as well as in the Annex of this document.

6   Related projects and organisations

6.1 HiPEAC

CLASS is part of the HiPEAC network and makes use of HiPEAC's communication channels and events. In particular, HiPEAC has published a presentation of the project both on its website and magazine, May 2018 issue (see Table 3 and Fig. 21). Furthermore, CLASS experts have participated with a poster in the ACACES 2019 Summer School, co-organised by HiPEAC, as well as the HiPEAC Computing Sytems Week Autumn 2019 with a keynote speech.
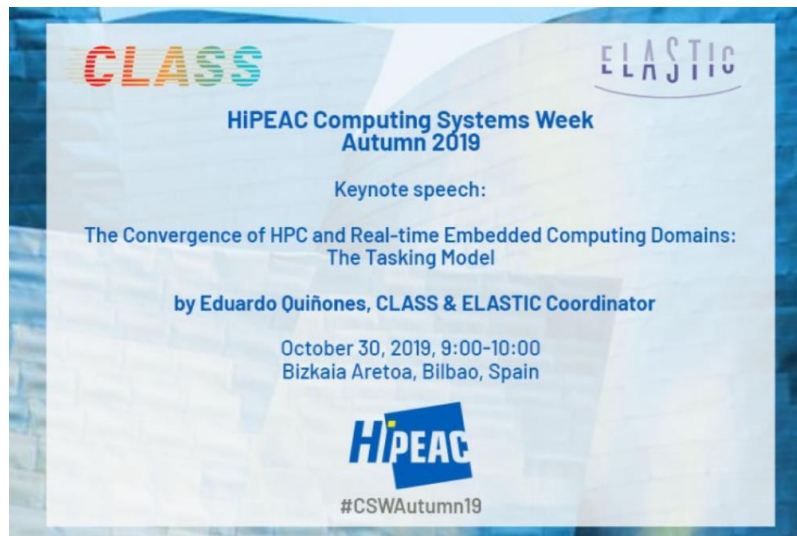
Figure 21: Banner made to promote the CLASS keynote speech at the HiPEAC CSW Autumn 2019

6.2 BDVA

CLASS is a member of the Big Data Value Association (BDVA) and participates regularly in the BDVA newsletter and in the network's events and conferences, such as the BDV PPP Summit 2019. The CLASS project has also been added to the BDVA Landscape, an online map of big data projects, institutions, and use cases, while an extended description of the CLASS pilot use case has been published on the BDVA list of pilot studies.

Figure 9: The CLASS pilot use-case on the BDVA website

6.3 MASA

CLASS automotive tests take place on the Modena Automotive Smart Area, a testing urban area of one square kilometer with features such as 5G connectivity, big data and data analytics techniques. Apart from the use case applications being applied in the MASA, the partners also participated in MASA-related events, such as the Smart Roads: The Digital Revolution, the Motor Valley Festival 2019, and the Smart Building Expo 2019.
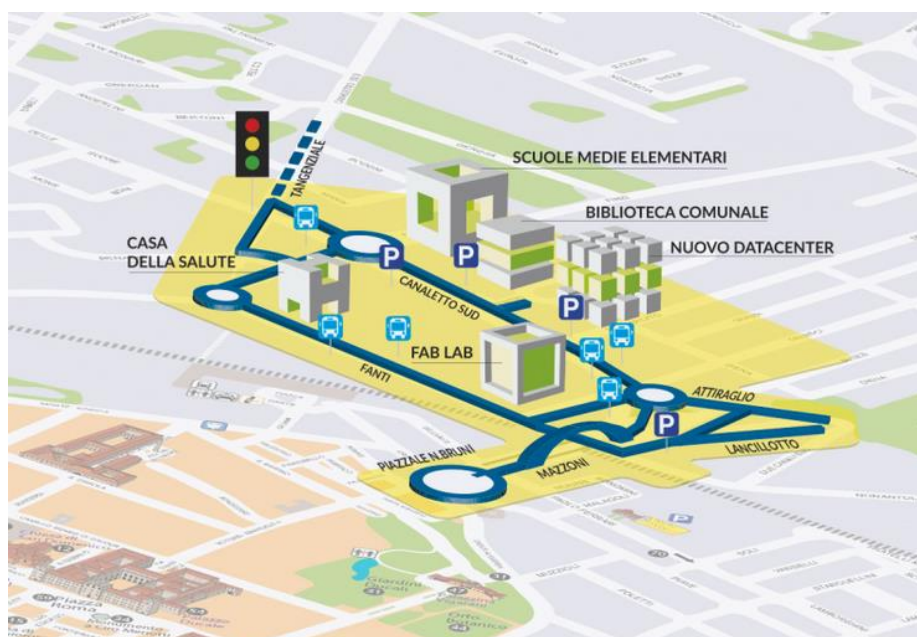
Figure 10: Map of the MASA area as shown on the CLASS use case page

6.4 European projects

CLASS has had interactions with other European projects in an attempt to both communicate the project to a wider audience but also to explore potential synergies and share technical knowledge on relevant use cases. The table below lists these projects and the type of the particular interactions with CLASS.

Project	Description	Interactions with CLASS
ELASTIC	A Software Architecture for Extreme-ScaLe Big-Data AnalyticS in Fog CompuTIng ECosystems	Sharing expertise and knowledge on the software architecture and use case. Co-organising booths and stands at events (DATE 2019, BDV PPP Summit 2019, HiPEAC Computing Systems Week Autumn 2019, Smart City Expo 2019). Disseminating each other's news and updates on their media channels.
LEGaTO	Low Energy Toolset for Heterogeneous Computing	Exploring edge-computing synergies on the smart city use cases. Exchanging industrial knowledge and contacts (two meetings

LEGaTO		occurred so far between the projects' coordinators).
Trafair TRAFAIR	Understanding traffic flows to improve air quality	Co-participating in events (Modena Smart Life 2019). Interacting on social media.
DataBench DataBench	Providing certifiable benchmarks and evaluation schemes of BDT performance of high business impact and industrial significance	Exploring possibilities to test benchmarking solutions of DataBench in CLASS. Both projects are under the umbrella of BDVA.
5G-MEDIA 5G●MEDIA	Capitalizing and properly extending the valuable outcomes of the running 5G PPP projects to offer an agie programming, verification and orchestration platform for services	Exploring the similarities of the Serverless concept developed in the cloud infrastructure of the 5G-MEDIA project, and the exploratory activities regarding the use of Serverless in the CLASS project.

Table 2: Interactions between CLASS and other European projects

6.5 Open Communities

CLASS is actively involved with open communities. One major route of this is involvement with open-source projects, by consuming, adapting and contributing back to a project's code base. More specifically, WP5 (Analytics Layer) employs OpenWhisk as a foundation for CLASS' event-driven and inclusive programming model. In that capacity, CLASS has contributed a new performance evaluation tool to OpenWhisk, called owperf. This new tool is quite comprehensive, featuring testing capabilities that were missing from previous tools, such as the ability to thoroughly test event-driven performance of OpenWhisk applications, combining both arrival process generation for events and analysis of OpenWhisk's activation records. The tool has been presented to the community, gained a welcoming response and was eventually merged into the code base of OpenWhisk.

A second, smaller contribution was made by CLASS to the open-source project of PyWren (also used by CLASS), of detailed architecture diagram and technical documentation that were missing. Such contributions exemplify CLASS' commitment to promoting the open-source culture which underlies the thriving of large and valuable public software projects.

Following this vein, the project has created a dedicated GitHub channel where one can find links to all the software components of the CLASS architecture. All partners contributed to this channel and populated it with the corresponding data and also

included the EU project acknowledgment. The GiHub channel along with an explanation of each software component and its category have been published on the CLASS website and social media profiles.

7 Publications

At an earlier stage of the project, a document containing the publication procedures and guidelines has been distributed internally to all partners in order to accommodate the H2020 Publications rules and be compliant with the Open Access policy.

There have been five scientific publications related to CLASS thus far published in the form of conference proceedings. They are all either Green or Gold Open Access, published under the CC-BY license, and include the EU acknowledgment and project number.

Type of publication	Title	Authors	Date
Conference proceedings	Novel Methodologies for Predictable CPU-To-GPU Command Offloading	Cavicchioli, R., N. Capodieci, M. Solieri, and M. Bertogna	2019
Conference proceedings	Mise en abyme with Artificial Intelligence: How to Predict the Accuracy of NN, Applied to Hyper-parameter Tuning	Franchini, G., M. Galinier, and M. Verucchi	2019
Conference proceedings	Artificial Neural Networks: The Missing Link Between Curiosity and Accuracy	Franchini, G., P. Burgio, and L. Zanni	2019
Conference proceedings	Towards an OpenMP Specification for Critical Real-Time Systems	Serrano, M. A., S. Royuela, and E. Quiñones	2018
Conference proceedings	Big Data Analytics for Smart Cities: The H2020 CLASS Project	Quiñones, E., M. Bertogna, E. Hadad, A. Juan Ferrer, L. Chiantore, and A. Reboa	2018

Table 3: List of CLASS scientific publications in 2018 and 2019

Full details on the current CLASS publications as well as any future ones can be found on the CLASS publications page that is regularly updated. This page includes metadata of the publications and links to the published and deposited versions.

8 KPIs

All dissemination activities and tasks are carefully monitored. The metrics defined in D6.1 Communication and Dissemination Plan show the progress of the project.

KPI	Explanation	Total until Dec 2018	Total until Dec 2019	Total Target (M36)

Press releases	At least 1 in a year	1	2	3
Media clippings	Articles appearing in the press about CLASS	11	24	50
Whitepaper and factsheets	Number of business and scientific whitepapers or factsheets published	0	0	1 business and 1 scientific whitepaper/factsheet
Project presentation	General overview presentation regularly updated	1	1	1
Project posters	Number of posters	1	1	2
Project videos	Number of project videos	1	2	3
Website sessions	Number of sessions registered by Google Analytics	1,786	5,588	1,000 sessions / year
Events and conferences attended	Keynotes and events organised, including conferences booths, tutorials and workshops (with significant attendance, i.e. above 30 people)	5	27 events attended (1 keynote speech, 16 presentations, 6 exhibitions and 4 pitch events)	2 keynotes 1 event organized/year 2 booths in conferences
Scientific publications	Peer-reviewed journals, conference proceedings, etc. – in green open access. At least 4 per year.	0	5	12
Twitter	Number of followers	101	285	250
LinkedIn page	Number of followers	27	81	150

Table 4: List of KPIs as outlined in the CLASS D6.1 Dissemination and Communication Plan

The monitoring of the dissemination activities, as shown above, indicate the following:

- **Press releases**
  Two press releases (out of 3 for the whole project) were published so far. One was sent in the beginning of the project, while the second one was launched at the end of the second year of the project. Both press releases were shared with the appropriate technical media outlets in order to be disseminated as widely as possible.
- **Media clippings**
  24 media clippings (out of 50) have been documented so far. The two press releases and the efforts to push for more publications on local media as well as smart city media channels have contributed to this number. More efforts will be taken during the last year of the project and when more results are out in order to increase the press coverage.
- **Whitepaper and factsheets**

No whitepaper/factsheet has been produced to date. The plan is to produce a final factsheet summarising all scientific results towards the end of the project.

- **Project presentation**
  The project presentation (1 out of 1) has been already distributed to all partners and will be updated accordingly according to the development of the project.

- **Project posters**
  A project poster (1 out of 2) was created to give an overview of the project. One more poster will be elaborated during the upcoming phase to show the scientific results of CLASS.

- **Project videos**
  Two videos (out of 3) have been produced during the reporting period. Both videos have been communicated through various channels depending on the audience that they target (research and industry, and knowledge communities and general public). A third video will be produced during the upcoming stage of the project.

- **Website sessions**
  The website sessions have risen significantly throughout the duration of the project by increasing from 1,786 in December 2018 to 5,588 in December 2019, surpassing by much the KPI of 1,000 sessions/year. Further participation in events and publication of scientific results will attract even more visitors to the CLASS website during the third year.

- **Events and conferences attended**
  Up to date, project experts were involved in 27 events, including talks, demos, booths and posters in exhibitions, conferences, and pitch events. CLASS partners will keep taking part in key events in order to communicate the project to the different audiences.

- **Scientific publications**
  There have been five scientific publications so far (out of 12) in the form of conference proceedings. More publications (journal articles and conference papers) are expected to come out when more results are produced by the project.

- **Twitter**
  Twitter followers (285 out of the 250) have increased radically during the second phase of the project due to the large number of events as well as communication activities that took place. The number is expected to grow even more, as these activities continue (for example with the third CLASS video, the upcoming press release, etc.).

- **LinkedIn**
  The new LinkedIn page that was created in July 2019 when the LinkedIn group was closed, has managed to attract a sufficient number of followers in a short period of time (81 out of 150 expected by the end of the project). As the project evolves even further and communication activities continue, the number of LinkedIn followers will also grow.

9 Conclusions and next actions

CLASS has shown satisfactory progress in the communication and dissemination activities during the first and second year of the project, as also demonstrated by the KPI monitoring in Table 4. The activities during 2018 (M1-M12) were focused around defining the brand, creating the main communication channels (website, social media), participating in key events, and establishing initial collaborations. The main aim of this strategy was to launch the project successfully and to build a community around it. The exploitation activities also started from an early stage of the project, as reported in the D6.3 Initial exploitation report.

The communication and dissemination during the second phase of the project in 2019 (M13-M24) were aimed at communicating the development of the technology and the use case as well as establishing CLASS as one of the leading projects in the field of big data analytics and smart city applications. The activities were concentrated on updating the website with technical information, growing the social media, producing a second video, attending numerous events to showcase the project's initial results and demos, publishing the first scientific papers and a second press release, and securing further collaborations with relevant organisations and European projects.

It should also be mentioned that dissemination activities are closely connected with exploitations tasks in this common WP. The team has been in close collaboration with the Exploitation task leader from the consortium partner Atos. The exploitation tasks are focused on the identification of exploitation routes or business opportunities for project outcomes, target markets as well as Intellectual Property Rights (IPR) management activities. In addition, the CLASS IAB has been established in order to get feedback from experts outside of the project, and a dedicated IAB page has been published on the CLASS website with information on the IAB members and activities.

During the remaining period, communication and exploitation teams will work together to promote the project results within the SMEs ecosystem in the smart cities and connected cars sectors.

The full exploitation activities will be reported in detail in the Deliverable D6.5 Intermediate exploitation report. Dissemination and exploitation leaders will keep working closely to maximise the opportunities to communicate the project and utilise its outcomes in the research and industry.

In the following months, CLASS researchers are planning to join more key events in the field, such as a workshop in the HiPEAC 2020 conference and the University Booth at DATE 2020, and publish more scientific papers putting out the project results. The third press release will be produced towards the end to explain further the project results. A third video will be produced to expand on the project results and special focus will be put on disseminating the project in more technical press outlets. Further collaborations with the European projects ELASTIC and LEGaTO are planned as well as the continuation of utilising the BDVA network to communicate CLASS even more.

Overall, the dissemination actions of the first year set a solid ground for the project to hit a good start and be able to grow more during the second stage. This sufficient start
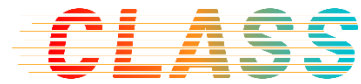
was well utilised in 2019 when CLASS indeed grew significantly in terms of the website, social media, events, publications, press coverage, etc. With this background, the third year of CLASS is expected to be adding to the initial 2-year communication and dissemination outcomes.

10 Annex

A detailed list of the CLASS dissemination activities, M1 (January 2018) – M24 (December 2019):

Partner	Type of activity	Details	Starting Date	Total Size Audience	Size of audience by type								
					Scientific Community	Industry	Civil Society	General Public	Policy Makers	Media	Investors	Customers	Others
BSC	Other	CLASS Kick-Off meeting	10-01-18	20	15	5							
BSC	Other	Press clipping - BSC	16-01-18	2462	2000	300	50	20	50	30	5	5	2
Modena	Other	Press clipping - Modena Today	19-01-18	18500	400	400	400	16000	700	300	100	100	100
BSC	Website	CLASS website	10-02-18	5291	810	810	120	20	25	24	30	30	13
BSC	Video / film	CLASS 1st video	14-12-18	367	150	150	15	8	10	10	3	2	
BSC	Participation to an event other than conference / workshop	CLASS presentation in a MOVECIT meeting	12-02-18	30	20	5	5						
IBM	Other	CLASS presentation at IBM Haifa	14-02-18	20		20							
IBM	Pitch event	CLASS presentation at Cellnex	15-02-18	20		20							
BSC	Other	Press clipping - BDVA Newsletter	09-03-18	1000	430	430	50	20	20	20	10	10	10
BSC	Other	Press clipping - BSC Newsletter	13-03-18	1294	600	400	200		50	20	10	10	4

BSC	Participation to a Workshop	Oral presentation at workshop at the DATE18 Conference	23-03-18	30	30								
BSC	Press Release	Developing the technology for future smart cities and autonomous cars	27-03-18	42	20	12				10			
BSC	Other	CLASS presentation at BDEC meeting	27-03-18	20		20							
BSC	Other	Press clipping - Primeur magazine	27-03-18	25000	8250	8250	1000	1500	1500	1500	1450	1450	500
BSC	Non-Scientific and non-peer reviewed publication	News piece on CLASS website	28-03-18	10	5	5							
BSC	Other	Press clipping - BDVA	28-03-18	1250	550	550	30	20	35	35	10	10	10
BSC	Flyer	Class flyer	16-04-19	440	200	200	10	5	10	10	3	2	
BSC	Other	Press clipping - HiPEAC Magazine	15-05-18	1167	767	300	50		25	10	5	10	
IBM	Participation to a conference	CLASS poster at SYSTOR 2018	04-06-18	50	35	15							
BSC	Non-Scientific and non-peer reviewed publication	News piece on CLASS website	07-06-18	18	10	8							
Atos	Exhibition	CLASS booth at Smart Agrifood Summit	20-06-18	20	10	8	2						
BSC	Non-Scientific and non-peer	News piece on CLASS website: CLASS	29-06-18	8	5	3							

	reviewed publication	networking at Smart Agrifood Summit											
BSC	Participation in activities organised jointly with other H2020	Organisation of a panel together with BDVA at IoT Week 2018	06-07-18	10	7	3							
Modena	Other	F2F meeting in Módena	09-07-18	20	13	5	2						
IBM	Pitch event	CLASS presentation at SEAT headquarters	09-07-18	20	20								
BSC	Non-Scientific and non-peer reviewed publication	News piece on CLASS website	10-07-18	9	5	4							
UNIMORE	Non-Scientific and non-peer reviewed publication	News piece on CLASS website	12-07-18	136	56	80							
BSC	Non-Scientific and non-peer reviewed publication	News piece on CLASS website	27-08-18	23	13	10							
BSC	Other	Press clipping - BDVA Website	03-09-18	1250	550	550	30	20	35	35	10	10	10
Atos	Non-Scientific and non-peer reviewed publication	News piece on CLASS website	21-09-18	276	200	176					2	2	

UNIMORE	Participation to a conference	CLASS presentation at MASA 2018 conference	27-09-18	300	100	200							
Modena	Non-Scientific and non-peer reviewed publication	News piece on CLASS website	01-10-18	13	7	6							
BSC	Other	Press clipping - BDV	08-10-18	1000	430	430	50	20	20	20	10	10	10
IBM	Non-Scientific and non-peer reviewed publication	News piece on the CLASS website	15-10-18	96	60	36							
Modena	Exhibition	Smart City Expo Congress	13-11-18	350	180	150	20						
BSC	Non-Scientific and non-peer reviewed publication	News piece on the CLASS website	15-11-18	32	22	10							
BSC	Exhibition	ICT 2018	04-12-18	300	200	70				2		28	
BSC	Video / film	Video "CLASS. Edge and Cloud Computation: A Highly Distributed Software for Big Data Analytics"	14-12-18	359	85	85	15	10	8	3	2		
UNIMORE	Non-Scientific and non-peer reviewed publication	News piece on the CLASS website	10-01-19	11	6	5							
IBM	Pitch event	Presentation of owperf to OpenWhisk community	19-02-19	30	15	5	5						

Atos	Non-Scientific and non-peer reviewed publication	CLASS Cloud Computing Platform - first integration in the City of Modena Data Center news piece	28-02-19	29	20	9							
BSC	Exhibition	DATE 2019	25-03-19	400	250	100	20			10	10	10	
BSC	Non-Scientific and non-peer reviewed publication	News piece about DATE 2019	28-03-19	19	10	9							
BSC	Exhibition	EUCAD 2019	02-04-19	200	100	80	20						
BSC	Non-Scientific and non-peer reviewed publication	News about EUCAD 2019	11-04-19	13	9	4							
UNIMORE	Participation to a conference	Motor Valley Festival 2019	17-05-19	105	25	45	5	25		5			
BSC	Participation to a conference	Major Cities conference, Venice, Italy	13-06-19	200	50	150							
BSC	Other	Press clipping - BDV	29-04-19	1250	550	550	30	20	35	35	10	10	10
Atos	Pitch event	ATOS Research & Innovation Hub	29-05-19	25		25							
BSC	Other	Press clipping - CLASS video on the Smart City Media	13-06-19	5000	1500	1500	600	1000	100	100	100	50	50
UNIMORE	Participation to a conference	WETICE 2019	13-06-19	35	25	2	3						

BSC	Non-Scientific and non-peer reviewed publication	New piece about CLASS demo at the Motor Valley Fest	11-06-19	7	4	3								
BSC	Participation to a conference	Presentation at BDV PPP Summit	26-06-19	40	25	15								
IBM	Non-Scientific and non-peer reviewed publication	News piece on CLASS website	26-06-19	65	40	25								
BSC	Other	Press clipping - BDVA newsletter	01-07-19	1000	430	430	50	20	20	20	10	10		10
BSC	Other	Press clipping - H2020 EU funded Projects YouTube channel	04-07-19	300	150	100			50					
IBM	Other	CLASS flyers added at a public brochure station in IBM lab for other employees and visitors	07-07-19	50	45									
BSC	Non-Scientific and non-peer reviewed publication	News piece on CLASS website	15-07-19	14	10	4								
UNIMORE	Participation to a conference	Presentation at ECRTS 2019 conference	12-07-19	80	60									
BSC	Participation to a conference	Poster presentation at ACACES 2019 Summer School	17-07-19	70	70	10								

Partner	Type	Title	Date										
IBM	Other	CLASS blog post projected on the lab's TV screen for a week - for IBM employees and visitors	27-07-19	300	250	80	50		70	20			
UNIMORE	Participation to a conference	Talk about MASA and CLASS at the Smart China Expo	28-08-19	300	80	20	10		150	20	20		
BSC	Non-Scientific and non-peer reviewed publication	Technical news piece on CLASS website	03-09-19	43	23	20							
Modena	Other	Press clipping - Forum MPA	11-09-19	1200	200	200	200	200	200	200			
UNIMORE	Participation to a conference	Poster presentation at Summer School on Applied Harmonic Analysis and Machine Learning	12-09-19	150	150								
BSC	Other	Press clipping – Intelligent Transport	13-09-19	10000	2000	5500	500	500	500	500	200	200	100
BSC	Other	Press clipping – El Pais	20-09-19	500000	100000	100000	100000	50000	50000	10000	50000	30000	10000
Modena	Participation to a conference	Talk about CLASS at the Modena Smart Life 2019 conference (presentation with Trafair project)	27-09-19	50	30	20							
UNIMORE	Participation to a Workshop	Presentation at the 1st CoRAI Summit on the Future of the Autonomous Mobility	09-10-19	50	20	20			10				

Modena & UNIMORE	Non-Scientific and non-peer reviewed publication	News piece on CLASS website	14-10-19	4	2	2							
Atos	Participation in activities organised jointly with other H2020	CLASS flyers at the BDVA Booth of the BDV Forum in Helsinki	14-10-19	50	20	30							
BSC	Participation to a conference	Keynote speech at the HiPEAC CSW Autumn 2019	30-10-19	40	30	10							
UNIMORE	Non-Scientific and non-peer reviewed publication	News piece on the CLASS website	6-11-19	29	20	9							
Modena	Participation to a conference	Talk about CLASS at the Milan Smart Building Expo	14-11-19	60	10	20	5	5	10	10			
Modena	Other	Press clipping – Comune di Modena	14-11-19	5000	500	1000	1000	1000	1000	500			
BSC	Exhibition	Smart City Expo Congress 2019 booth	19-11-19	550	100	350	20		20	20	20	20	
BSC	Non-Scientific and non-peer reviewed publication	News piece about CLASS at the Smart City Expo	22-11-19	10	8	2							
BSC	Other	Press clipping - CLASS use case details published on BDVA bid data pilots catalogue	26-11-19	100	50	50							

Modena	Participation to a conference	Talk about CLASS at the Forum PA Citta event	26-11-19	40	5	5	5		20	5			
BSC	Press release	CLASS software framework makes Modena smarter in real-life setting	12-12-19	100000	25000	25000	15000	5000	15000	2000	5000	5000	3000
BSC	Other	Press clipping - Embedded Computing Design	12-12-19	25000	5000	11250	1000	1500	1500	1500	1450	1450	500
BSC	Other	Press clipping - Science Business	12-12-19	20000	5000	5000	1000	1000	4000	1000	1000	1000	1000
BSC	Other	Press clipping - Traffic Technology Today	16-12-19	10000	1000	5000	1000		1000	1000	500	500	
BSC	Other	Press clipping - Primeur Magazine	16-12-19	25000	8250	8250	1000	1500	1500	1500	1450	1450	500
BSC	Other	Press clipping - BDV	17-12-19	1250	550	550	30	20	35	35	10	10	10
BSC	Other	Press clipping - Intelligent Transport	17-12-19	10000	2000	5500	500	500	500	500	200	200	100