A Model-driven development framework for highly Parallel and
EneRgy-Efficient computation supporting multi-criteria optimisation

D7.2 Initial Communication and Dissemination Report

Version 1.0

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Version	Description Change
V0.1	Initial version released by Dayana Fernandes Muzzetto (BSC)
V0.2	Contribution by (SYS)
V0.3	Review by (ISEP)
V0.4	First version peer review
V1.0	Final version with changes accepted

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Executive Summary

This report defines the dissemination activities carried out by the AMPERE project from January 2020 to December 2020.

This report includes a complete list of publications and conferences as well as of presentations made at various events and workshops related to the project. Furthermore, additional coverage of the project in press and social media is also presented in this document, as well as other dissemination activities such as collaborations with other projects.

Over the first year of the project, the consortium participated in a total of 10 conferences, workshops or seminars disseminating the project. With the aim to raise awareness and interest in the developed technologies and solutions among the target groups, the dissemination team posted regular updates on the project's dedicated LinkedIn and Twitter channels.

The dissemination team has successfully carried out the dissemination plan (D7.1).

1. Introduction

The objective of this report is to present a detailed list of dissemination activities, which took place during the 12-month initial period, as planned in deliverable D7.1. The activities were carried out to disseminate results in order to connect with and receive the attention of stakeholders about the AMPERE technology.

2. General objectives

The main purpose of the Communication, Dissemination and Exploitation work package (WP7) is to maximize the visibility of the project as well as to transfer knowledge and technology created in the project out of the AMPERE industrial ecosystem.

In order to accomplish this, the general objectives of WP7 are:

- Raise awareness about the project and its results reinforcing the message about the key role of the AMPERE in building European expertise in the design of dependable and physically entangled systems and bolstering competitiveness in productive parallel programming.
- Update key stakeholders on project progress.
- Build a strong community around the AMPERE technology.

The exploitation strategy will build a deep understanding of the project market and exploitation context, aiming at providing a solid base for further exploitation actions. It will be described in a separate deliverable D7.3 "Initial exploitation report", which will be updated in yearly reports D7.5 "Intermediate exploitation report" and D7.7 "Final exploitation report".

3. Corporate image

In accordance with deliverable D7.1 Communication and Dissemination Plan, the first step was to define a common graphic identity. The brand of AMPERE project (including brand and style, Calibri font chosen, project templates defined for presentation, poster, etc.) was established and its guidelines have been correctly implemented by all partners in this first year.

4. Dissemination tools

During the first year of the project, the dissemination tools have consolidated as visible part of AMPERE. The main dissemination activity is the creation of the website, as the main hub for all AMPERE dissemination activities.

4.1. AMPERE website

In this first project year, the overall performance of the website [1] has been satisfactory. The website, built in Drupal (an open-source Content Management System), satisfied the technical requirements of performance and security. In addition, the website is prepared to host the intranet, supporting members' accounts, allowing an effective management by the dissemination team and a seamless access by all consortium members.

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[1] https://ampere-euproject.eu/

Figure 1: Main indicators of the AMPERE website for 2020. Source: Google Analytics

The main indicators of AMPERE show that the website is attaining the main objectives. The total unique users are 680 (as shown in Fig. 1), since the launching of the website in June 2020 (due to delays produced by the Covid-19 outbreak). The established KPI in the D7.1 "Communication and Dissemination Plan" for this metric is 1,000 sessions per year.

The total users fulfilled 5,409 page views. The average duration is 5:39 min. which, translates into long sessions.
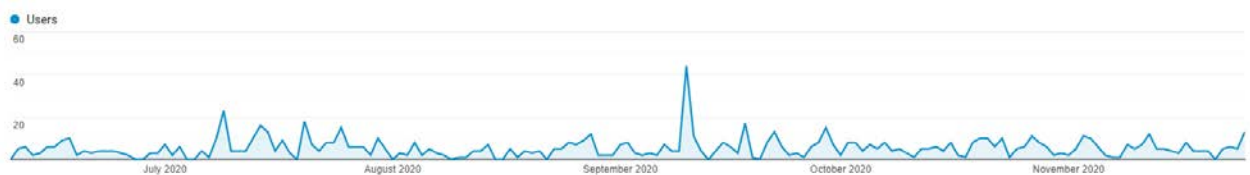

Figure 2: Users on the AMPERE website for 2020. Source: Google

To understand the flow of users, Figure 2 states the progression of users' total number along 2020. The peaks are related to specific disseminations activities such as a news article about the implementation of OpenMP support for PikeOS during the first project months (21 September) as well as the participation in particular events such as a workshop that provides advice to the EC on the engineering practices and tools needed to support applying SoS to CPS (5 September).

Figure 3: New visitors vs returning visitors to the AMPERE website for 2020. Source: Google Analytics

AMPERE sessions show a very high number of new visitors (Fig. 3). However, the trend in the acquisition of visitors is turning from over the 50% direct source visits to a balanced flow with increasing indicators such as organic search and referral. This performance shows the settlement of the project, with a growing number of links pointing to the AMPERE website and increasing hits from search engines (Fig. 4).
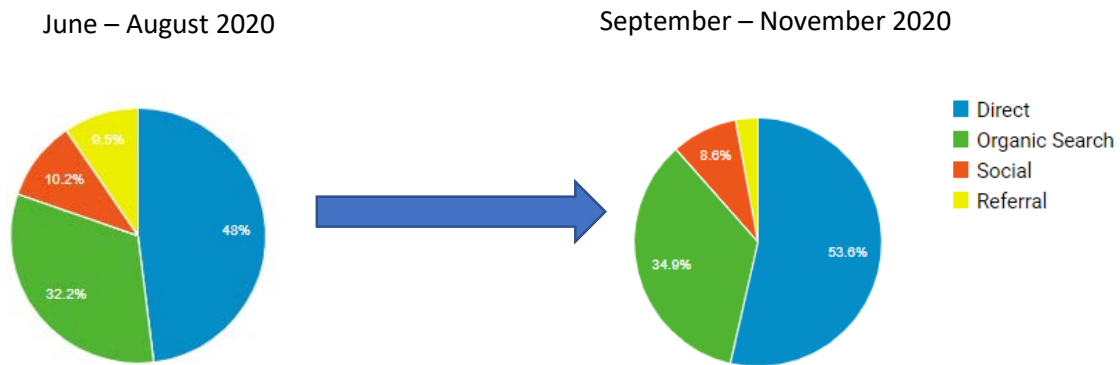
Figure 4: Traffic source channels for the AMPERE website. Comparison June to August vs September to November 2020. Source: Google Analytics.

Social media is also increasing as traffic source. Nevertheless, the indicator stays under 10% of total sessions (Fig. 4), a low value but with a high quality of sessions, with only a 34.09% of bounce rate (Fig. 5).

	Acquisition			Behaviour		
	Users ↓	New Users ↓	Sessions ↓	Bounce Rate ↓	Pages/Session ↓	Avg. Session Duration ↓
	680	680	1,144	58.39%	4.73	00:05:39
1 ■ Direct	356			54.81%		
2 ■ Organic Search	173			75.77%		
3 ■ Referral	110			97.35%		
4 ■ Social	61			34.09%		

Figure 5: Traffic source channels and bounce rate for the AMPERE website in 2020. Source: Google Analytics

The most engaging pages are the 'Home' section, followed by 'News' and 'Events', both generating similar interest (Fig. 6).

Page		Page Views	% Page Views
1. /		1,211	22.39%
2. /media/news		510	9.43%
3. /events		434	8.02%
4. /results/publications		213	3.94%
5. /intranet		196	3.62%
6. /user/login		153	2.83%
7. /events/isc-2020		139	2.57%
8. /about/objectives		113	2.09%
9. /about/partners		112	2.07%
10. /use-cases		110	2.03%

Figure 6: Views and average time on the AMPERE website content in 2020. Source: Google Analytics

Regarding visits by country, most of users originate in China, Spain and France (Fig. 7). In the last two countries, BSC and Thales (part of the consortium) are located.
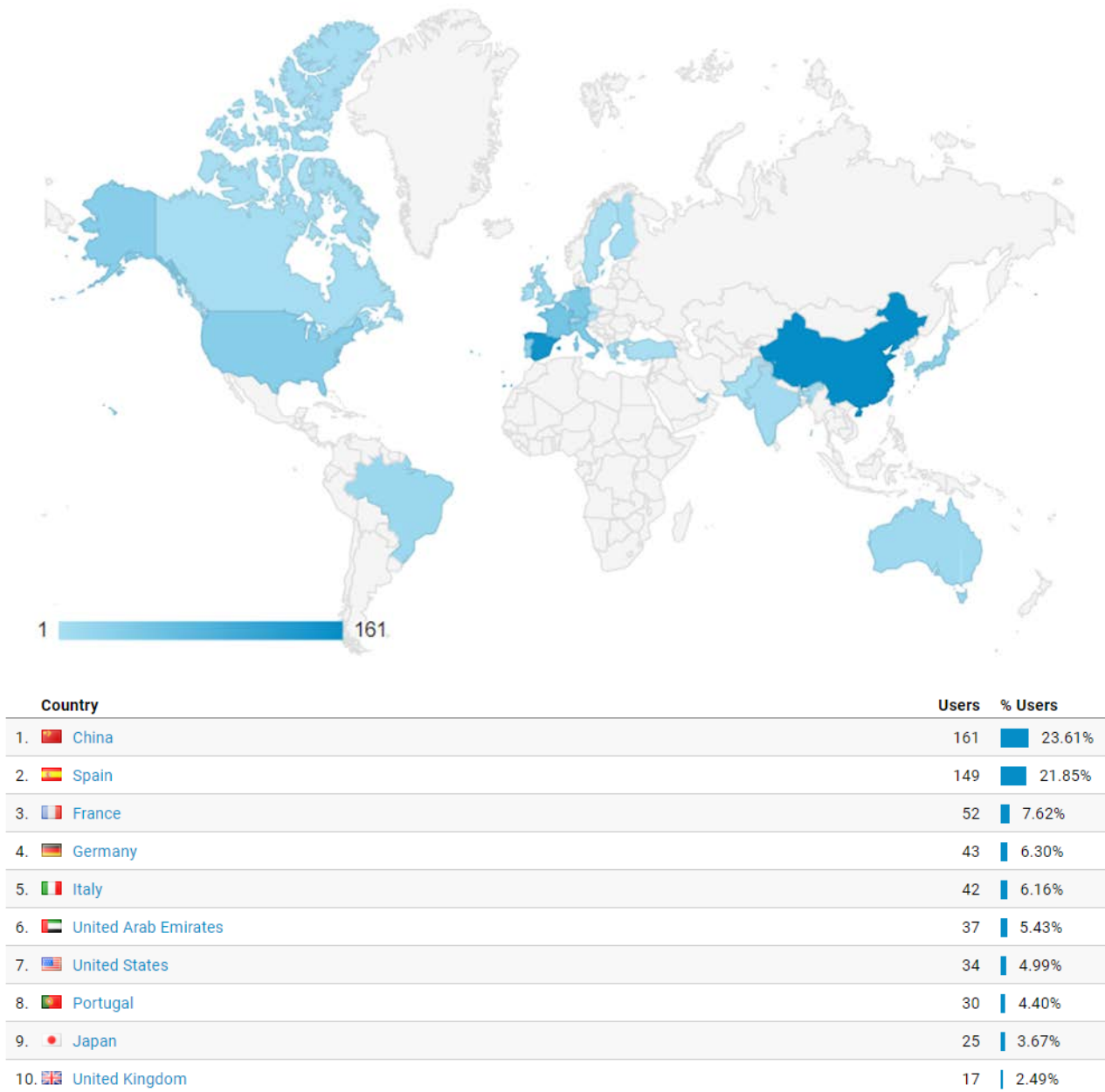

Country	Users	% Users
1. 🇨🇳 China	161	23.61%
2. 🇪🇸 Spain	149	21.85%
3. 🇫🇷 France	52	7.62%
4. 🇩🇪 Germany	43	6.30%
5. 🇮🇹 Italy	42	6.16%
6. 🇦🇪 United Arab Emirates	37	5.43%
7. 🇺🇸 United States	34	4.99%
8. 🇵🇹 Portugal	30	4.40%
9. 🇯🇵 Japan	25	3.67%
10. 🇬🇧 United Kingdom	17	2.49%

Figure 7: Visits to the AMPERE website by countries in 2020. Source: Google Analytics

4.2. Social media

As shown in Fig. 4, social media channels provide nearly 10% of the website sessions. The Twitter account generates 57.95% of the traffic to the website. The LinkedIn group provides a 41.67% of the traffic. (Fig. 9)

Social Network		Sessions	% Sessions
1. Twitter		153	57.95%
2. LinkedIn		110	41.67%

	Social Network	Acquisition			Behaviour		
		Users	New Users	Sessions	Bounce Rate	Pages/Session	Avg. Session Duration
		61 % of Total: 8.97% (680)	56 % of Total: 8.24% (680)	264 % of Total: 23.08% (1,144)	34.09% Avg for View: 58.39% (-41.62%)	7.27 Avg for View: 4.73 (53.74%)	00:12:03 Avg for View: 00:05:39 (113.35%)
	1. Twitter	48 (78.69%)	46 (82.14%)	153 (57.95%)	42.48%	5.73	00:10:00
	2. LinkedIn	12 (19.67%)	9 (16.07%)	110 (41.67%)	21.82%	9.47	00:15:01

Figure 8: Traffic to the AMPERE website referred from social media. Source: Google Analytics

4.2.1. Twitter

Figure 9: AMPERE Twitter account

Originally, the strategy in Twitter [2] targets academia and industry. During the development of AMPERE, the audience has been broadening to general public by including informative tweets about more general subjects, such as #IoT #Embedded #CPSoS (Fig. 11). As result, we see a steady increasing in followers (total: 122, see Fig. 10) and more impressions in the tweets related to these topics (Fig. 12), strategically positioning AMPERE in this knowledge area. We have 122 followers out of the 250 stated in the KPIs.

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[2] https://twitter.com/ampereproject

Your Tweets earned **27.2K impressions** over this **91 day** period
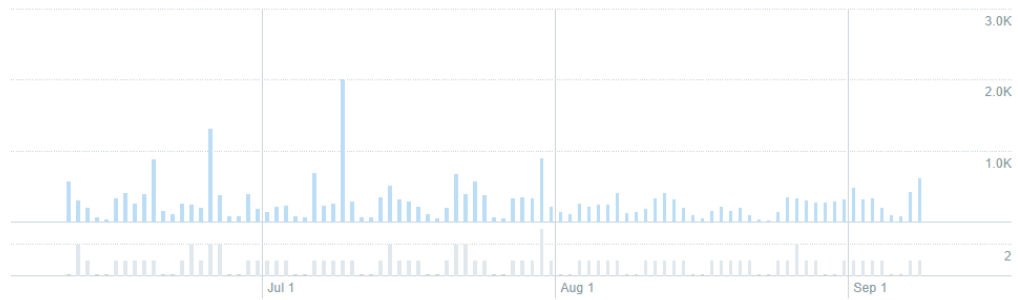
Your Tweets earned **21.5K impressions** over this **78 day** period
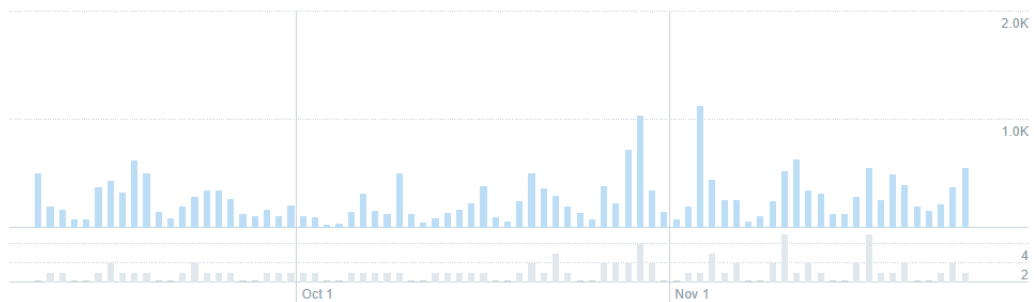

Figure 10: Tweets impressions from June-August and from September to November 2020. Source: Twitter Analytics
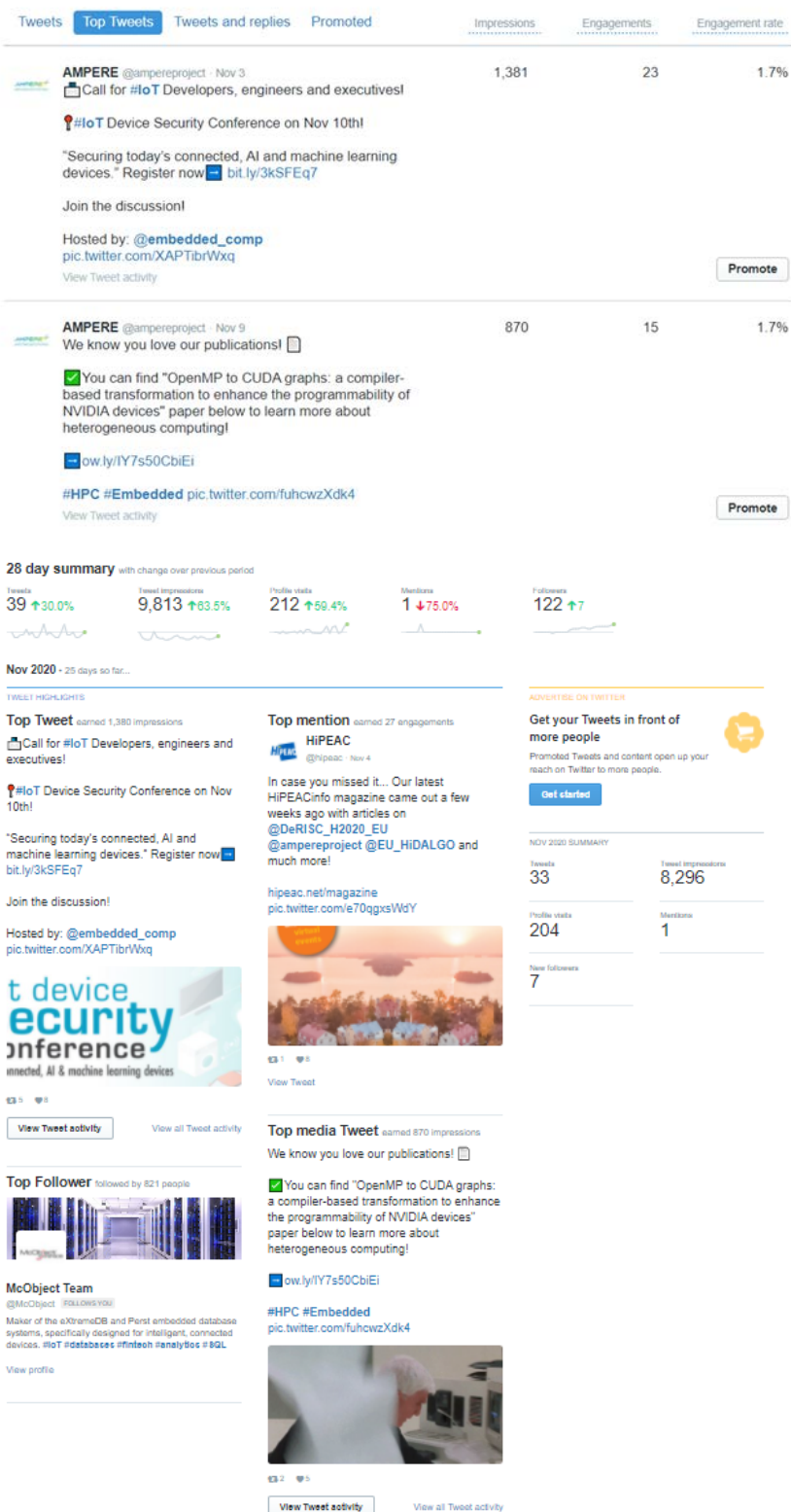
Figure 11: Examples of top tweets in November 2020. Source: Twitter Analytics

4.2.2. Linkedin

The AMPERE LinkedIn [3] company page has 143 followers, this platform targets mainly industry, not scientific audiences and academia. Metrics are displaying a trend that increases over time, also the AMPERE website analytics show that LinkedIn is the second social media network directing traffic to the website (Fig. 9). We have 133 followers out of the 150 in the KPIs.
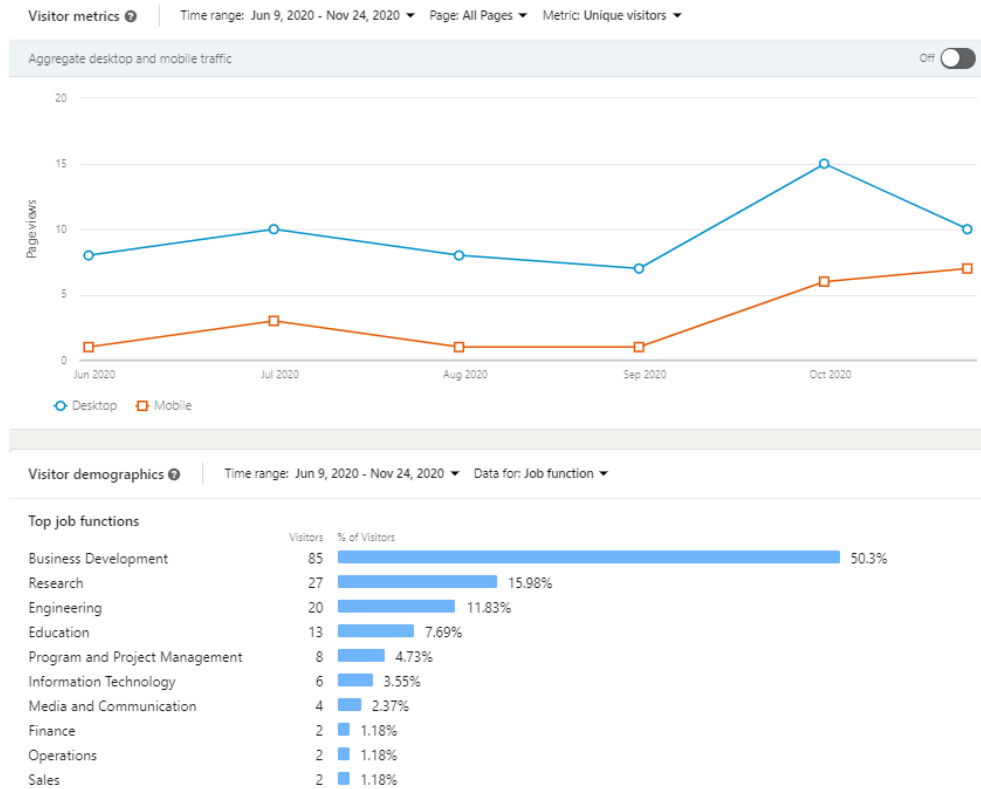

Figure 12: LinkedIn analytics. Source: LinkedIn analytics.

4.3. Events

All consortium partners attended events, workshops, conferences, etc., to disseminate the project. The full list of all dissemination activities is included below. The consortium attended a total of 10 events and disseminated the project at national and international events, which are key for AMPERE targeted audiences (see Table 1).

Table 1: AMPERE events during the first year

Type of event	Title	Date	Audience type	Audience size
Exhibition	DATE 2020 poster	10/03/2020	Application developers, Research community,	500

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			industry stakeholders, policy makers and general public.	
Participation to a conference	DATE 2020	10/03/2020	Application developers, Research community, industry stakeholders, policy makers and general public.	1300
Participation to a conference	ISORC 2020	19/05/2020	Application developers, embedded research community and industry stakeholders.	400
Participation to a conference	SCOPES 2020	25/05/2020	Application developers, embedded research community and industry stakeholders.	400
Participation to a conference	LCTES 2020	16/06/2020	Application developers, embedded research community and industry stakeholders.	81
Participation to a workshop	ISC 2020	25/06/2020	Application developers, Research community, industry stakeholders, policy makers and general public.	60
Participation to a workshop	ISC 2020 CSPO	25/06/2020	Application developers, Research	150

			community, industry stakeholders, policy makers and general public.	
Participation to a workshop	ECRTS 2020	10/07/2020	Application developers, embedded research community and industry stakeholders.	400
Participation to a workshop	HiPEAC SoS Integration CPS	10/09/2020	HPC/embedded research community and policy makers.	15
Participation to a workshop	SPLASH 2020	16/11/2020	Application developers, embedded research community and industry stakeholders.	30

4.4. Dissemination pack

4.4.1. Flyer

The general brochure provides information about AMPERE: its vision, objectives, and features. The format of the brochure is a double-sided A5 sheet, so that interested project partners can easily download and print for their own dissemination activities. It has been printed to distribute in events or local actions defined by each partner. It is also available on the MEDIA > BRANDING [4] page of the AMPERE website.

Logo with URL   All logos in ZIP file   Flyer

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[4] https://ampere-euproject.eu/media/branding
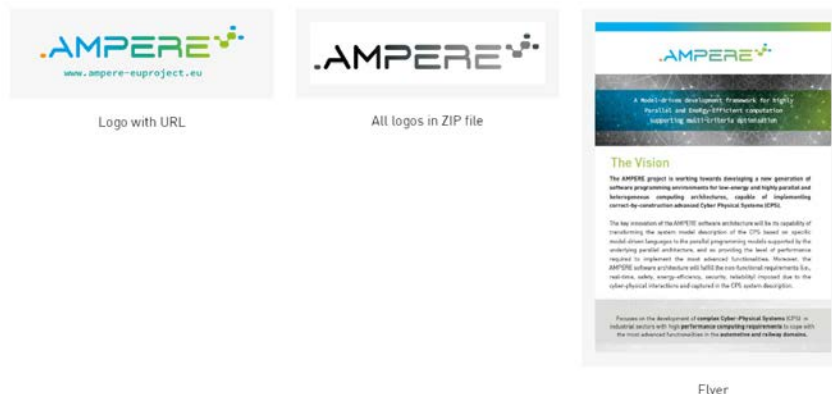
Figure 13: Screenshot of the AMPERE website with downloadable flyer

Figure 14: Front and back sides of AMPERE flyer

Due to the Covid-19 outbreak and the lack of face-to-face meetings the flyer has not been printed. However, it had 90 views on the website.

4.4.2. Poster

The AMPERE poster, as agreed by the consortium, can be downloaded and printed out from the intranet and website [5], as well as the template to produce further posters.

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[5] https://ampere-euproject.eu/results/publications/ampere-model-driven-development-framework-highly-parallel-and-energy-efficient
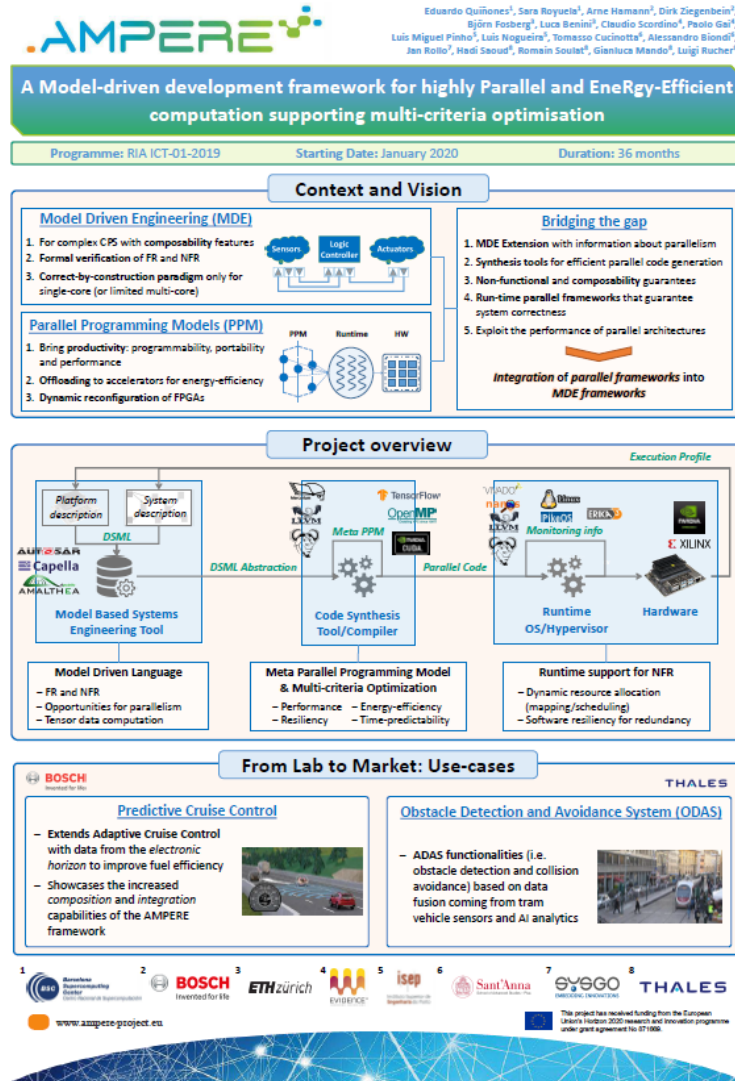
Figure 15: AMPERE poster

4.4.3. Presentation

The project presentation has also been distributed among the partners and is available to download in the Intranet. The templates are also available to elaborate new presentations. The aim of this presentation is for all partners to present the AMPERE project in a similar way and align key project messages.

Figure 16: AMPERE project presentation

5. Press strategy

In March 2020, a first press release titled "AMPERE: Strengthening European Leadership in Energy Efficiency and Parallel Computing" was sent to technical media to emphasize its aim is to provide the high-performance capabilities needed for the most advanced functionalities of cyber-physical systems (CPS). This novel technology will be employed in the automotive and railway domains. This press release was approved by all partners. The dissemination leader encouraged the AMPERE partners to replicate this on their own partners' channels, as well as the press release was sent to the AMPERE Project Officer to disseminate it among its own channels. In total, 15 press impacts in technical media have been documented.

Table 2: AMPERE impacts in technical media

Media	Date	Link
Sant'Anna Magazine	21 January 2020	https://www.santannapisa.it/en/news/engineering-computing-and-technology-santanna-school-retis-lab-researchers-participate-eu
BSC	18 March 2020	https://www.bsc.es/news/bsc-news/bsc-researchers-create-software-architecture-refine-energy-efficient-cyber-physical-interactions
HPC Wire	18 March 2020	https://www.hpcwire.com/off-the-wire/bsc-researchers-create-software-architecture-to-refine-energy-efficient-cyber-physical-interactions/

News Break	18 March 2020	https://www.newsbreak.com/news/1529651548657/ampere-strengthening-european-leadership-in-energy-efficiency-and-parallel-computing
HPC Wire	18 March 2020	https://www.hpcwire.com/off-the-wire/ampere-strengthening-european-leadership-in-energy-efficiency-and-parallel-computing/
eeNews Europe	18 March 2020	https://www.eenewseurope.com/news/ampere-project-deliver-energy-efficient-parallel-computing
Cordis	20 March 2020	https://cordis.europa.eu/article/id/415533-ampere-project-strengthening-european-leadership-in-energy-efficiency-and-parallel-computing
Primeur Weekly Magazine	20 March 2020	http://primeurmagazine.com/weekly/AE-PR-04-20-93.html
Tecnonews	24 March 2020	https://www.tecnonews.info/tecnonewsworld/strengthening_eu_leadership_in_energy_efficiency_and_parallel_computin
L'Embarqué	30 March 2020	https://www.lembarque.com/apercu-le-projet-ampere-ambitionne-de-renforcer-le-role-de-leurope-en-programmation-des-systemes-cyberphysiques_009814
Embedded Computing Design	06 April 2020	https://www.embedded-computing.com/home-page/ampere-project-from-barcelona-supercomputing-center-bsc
Embedded Computing Design blog	21 April 2020	https://www.embedded-computing.com/guest-blogs/the-ampere-project-approaches-in-a-holistic-manner-the-development-and-execution-of-advanced-cyber-physical-systems-cps
Embedded Executives Podcast	27 May 2020	https://www.embedded-computing.com/home-page/embedded-executives-eduardo-quinones-senior-researcher-barcelona-supercomputing-center
The Real-Time Systems Laboratory (ReTiS Lab)	22 June 2020	http://retis.santannapisa.it/ampere-project/
HiPEAC info 61 Magazine	14 October 2020	https://www.hipeac.net/magazine/7155/

6. Related projects and organizations

6.1.1. HiPEAC

AMPERE is part of the HiPEAC network [6] (Fig. 20) and they have published a presentation of the project both on its website and in its magazine, October 2020 issue (see Fig. 21).

Figure 17: AMPERE page on the HiPEAC website [7]

Figure 18: AMPERE article in HiPEAC magazine 8

6.1.2. AMALTHEA

AMALTHEA is an open-source tool platform for engineering embedded multi- and many-core software systems, which is currently provided as the Eclipse APP4MC [9] platform. The platform enables the creation and management of complex tool chains including simulation and validation. As an open platform, proven in the automotive sector by Bosch and their partners, it supports interoperability and extensibility and unifies data exchange in cross-organizational projects.

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[7] https://www.hipeac.net/network/projects/7012/ampere/
[8] HiPEAC Info, 61, October 2020, https://www.hipeac.net/magazine/7155/
[9] https://www.eclipse.org/app4mc/

As described in D1.1 "System models requirement and use case selection", for the automotive use-case by BOS, the AMALTHEA framework is used as modelling backbone. Moreover, in the scope of AMPERE project, we will extend AMALTHEA to model publish-subscribe messaging dependencies between the different involved sub-systems.

6.1.3. Elastic

ELASTIC [10] is an H2020 project which involves some of the AMPERE partners, intending to develop a novel software architecture for extreme-scale analytics, for advanced mobility systems and autonomous transport networks. AMPERE is working on the same use case scenario as ELASTIC, but from a different perspective.

6.1.4. CAPELLA

Capella [11] is an open-source tool for model-based systems engineering developed by Thales. It provides SysML-inspired diagrams for graphical modelling of systems, hardware and software architectures. It implements the principles and recommendations defined by Arcadia, the Thales standard systems engineering method.

Capella is implemented on top of the Eclipse IDE platform, based on the PolarSys solution. It is mainly used for modelling complex and safety-critical systems in embedded systems development for industries such as aerospace, avionics, transportation, space, communications and security and automotive.

Capella is chosen as a system modelling for the AMPERE railway use-case by THALIT.

7. Publications

AMPERE has published 3 papers during its first year. All publications can be found on the AMPERE website under the "Publications" [12] section to display all publications (see Fig. 23) as soon as they are published.

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[10] https://elastic-project.eu/
[11] https://www.eclipse.org/capella/
[12] https://ampere-euproject.eu/results/publications

Figure 19: "Publications" section in the AMPERE website

In addition, a document containing the publication procedures has been distributed internally to all partners in order to accommodate the H2020 Publications rules [13].

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[13] http://ec.europa.eu/research/participants/data/ref/h2020/grants_manual/hi/oa_pilot/h2020-hi-oa-pilot-guide_en.pdf

8. Key Performance Indicators

All dissemination activities and tasks are carefully monitored with Key Performance Indicators (KPI). The metrics defined in D7.1 "Communication and Dissemination Plan" show the progress of the project.

Table 3: List of KPIs. Source: AMPERE D7.1 "Dissemination and Communication Plan"

Key performance indicator	Explanation	Achieved (M1-M11)	Total target (by the end of the project)
Scientific Publication	Papers published in scientific venues and journals	3 publications	At least four publications per year
Academic and Industrial Events	• Participation in events • Events organized, including conference booths, tutorials and workshops (with significant attendance, i.e. above 30 people)	• 10 participations • n/a	• At least 10 participations • At least one event organized and a booth in smart mobility related event
Press Strategy	• Number of press releases • Press clippings	• 1 press release • 15 press clippings	• One press release per year • At least 25 press impacts
Whitepapers and Factsheet	Number of business and scientific whitepapers or factsheets published	n/a	At least one business and one scientific whitepaper or factsheet
Website	Visitor statistics (number of unique website visitors and their location captured by Google Analytics)	680 (M6-M11)	At least 1000 unique visitors per year
Social Media Channels	• Number of followers in Twitter • Number of LinkedIn group members	• 122 • 133	• Twitter: At least 250 over the project • LinkedIn: At least 150 over the project
Dissemination Materials	• Number of posters • Number of project videos	• 1 • n/a	• At least two posters • At least two videos

The monitorization and contingency plan for the activities measured by the KPIs (Table 4) comprises the next actions:

- Scientific publications

  As noted in the table, 3 publications have been published up to date (3 out of 4 per year). As scientific results of AMPERE become available, the number of publications will rise.

- Events and conferences attended

  The project has been presented in ten events so far (10 out of 10 participations, as stated in the AMPERE document D7.1 "Communication and Dissemination Plan"). AMPERE will continue participating in events scheduled for 2021, such as DATE 2021. AMPERE plans to organize a stand or booth to display posters, demos and other disseminations materials.

- Press releases

  One press release (1 out of 3 for the whole project) was sent in the beginning of the project. Once the project starts generating results, more press releases will be prepared accordingly.

- Media clippings

  15 press impacts (out of 25) have been documented. The action plan to increase the KPIs includes more frequency in sending press releases, inviting personalized interviews and news to specialised media.

- Whitepaper and factsheets

  As there are not public technical and scientific results yet, no whitepaper or factsheet has been produced to date. The idea is to produce a final factsheet summarizing all scientific results towards the end of the project.

- Website sessions

  The website users are almost attaining the expected outcome (Table 3). The website was published in June 2020 due to delays related to the Covid-19 outbreak. However, dissemination actions such as the project video campaign, tweets and press releases will be distributed to drive traffic into the AMPERE website.

- Twitter

  Twitter followers (122 out of the 250 expected at the end of the project) are increasing in a steady manner. As seen in Table 1, Twitter works for a general audience as well as for specialized audience. For that reason, the next steps in Twitter will include broader information about cyber-physical systems, embedded systems, and Internet of Things to disseminate AMPERE among a wider public.

- LinkedIn

  The LinkedIn profile followers (133 out of 150) are increasing slowly. LinkedIn social media channel is especially suitable to target a professional and industrial target, which is strategic to the dissemination and exploitation plan.

- Project posters

  Another project poster (1 out of 2 has been created to date) will be elaborated showing the first scientific results of the project.

- Project videos

  The first video of the project has not been developed yet (0 out of 2). This video will involve its own dissemination actions and will disseminate the key messages of AMPERE to a general audience. It

is a dissemination material that can be used for the website, social media, exhibitions and presentations.

9. Next actions

AMPERE shows a satisfactory progress in its first year whose aim was to maximize the visibility of the project. The exploitation activities also started in this first year, and will be analysed in the deliverable D7.3 "Initial exploitation report".

The main dissemination tasks in this first year has been the definition of the brand, creation of the main communication channels such as website, social media channels, launch of a first press release, participation in key scientific events, and collaboration with other European project. These will raise awareness about the project and its results reinforcing the message about the key role of the AMPERE in building European expertise in the design of dependable and physically entangled systems and bolstering competitiveness in productive parallel programming.

The second year of the project will bring specific results after one year of research. These results will be conveniently disseminated and strategically presented in events. These efforts will update key stakeholders on project progress.

In addition of the KPIs further actions (detailed in section 8), the main key message is that AMPERE will attain a stage of maturity during its second year of existence. Consequently, the communications efforts will be focused in increasing the visibility and engagement of the project to build a strong community around the AMPERE technology.

The project impact after the initial phase is an optimal opportunity to disseminate the first project findings and the early scientific production, preparing the background to a next phase focused in transferring and exploiting the results of AMPERE.

10. References

[1] https://ampere-euproject.eu/

[2] https://twitter.com/ampereproject

[3] https://www.linkedin.com/company/ampere-project

[4] https://ampere-euproject.eu/media/branding

[5]   https://ampere-euproject.eu/results/publications/ampere-model-driven-development-framework-highly-parallel-and-energy-efficient

[6] https://www.hipeac.net/

[7] https://www.hipeac.net/network/projects/7012/ampere/

[8] HiPEAC Info, 61, October 2020, https://www.hipeac.net/magazine/7155/

[9] https://www.eclipse.org/app4mc/

[10] https://elastic-project.eu/

[11] https://www.eclipse.org/capella/

[12] https://ampere-euproject.eu/results/publications

[13]   http://ec.europa.eu/research/participants/data/ref/h2020/grants_manual/hi/oa_pilot/h2020-hi-oa-pilot-guide_en.pdf