D6.6: FMI Engagement Report and Updated Plan

Year2

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Throughout the second year of the project, FLAME has continued to grow and develop its infrastructure to create a Future Media Internet (FMI) ecosystem designed to ensure broad socio-economic impact creation. Drawing on FLAME's engagement strategy, which was embedded in year one, FLAME has successfully continued its ongoing schedule of dedicated community building and communication activities.

This document describes the main engagement activities pursued in year 2, the results so far, including the commencement of the First Open Call experiments, a summer school and the launch of FLAME's 2nd Open Call.

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EXECUTIVE SUMMARY

FLAME aims to establish a **Future Media Internet** (FMI) ecosystem based on the Experimentation-as-a-Service paradigm that supports large-scale experimentation of novel FMI services. This document reports on the activities undertaken in the second year of the project, showing that the FLAME ecosystem has been successfully created and the appropriate stakeholders identified, approached, and engaged.

To grow FLAME's sustainable Future Media Internet ecosystem and ensure effective impact creation, a comprehensive set of activities has been undertaken by all partners. This document outlines the measures taken, their results as of the end of Y2, and the strategies and planning for the remainder of the project. These include:

➜ Communication and dissemination activities completed

➜ Overview of events and publications

➜ KPIs and current performance metrics

➜ Strategic positioning for project and partners

➜ Forward perspective for 2019

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ABBREVIATIONS

IP   Internet Protocol

TCP   Transmission Control Protocol

1 INTRODUCTION

This document reports on the activities that have been pursued during the second year of the project to actively grow the FLAME ecosystem and enhance engagement with stakeholders the FLAME ecosystem. The FLAME ecosystem comprises key actors in the ICT innovation space in Europe as well as important players in the project's vision and work. The ongoing communication, dissemination and community building activities of FLAME are designed to ensure broad impact will be achieved beyond the end of the project's duration.

FLAME's dissemination and communication strategy aims to:

- Promote adoption of the FLAME offering

- Increase utilisation of the FLAME platform by industry, SMEs and entrepreneurs in accordance with the expected value creation

- Shift emphasis from large scale industry towards innovative SMEs and entrepreneurs throughout the lifetime of the project as the platform matures

- Align with market (WP2) and investment (WP5) strategy in order to ensure:

    - Gathering of top-notch players via the 3rd party open call mechanisms

    - Execution of 23 experiments by target stakeholders (media service providers, ISPs, vendors etc.) covering a range of sectors, content types and FMI scenarios

    - Expand the platform deployment towards 3 further FLAME Replicators

- Create mechanisms to help the FMI ecosystem sustaining beyond the FLAME lifetime

- Build-up on exploitation activities to increase impact of the project

1.1 FLAME DISSEMINATION & COMMUNICATION

After FLAME's first year, where the dissemination and communication activities involved establishing awareness, then engagement among stakeholders, in FLAME's year two, the aim was to actively grow the FLAME ecosystem and engage all stakeholders in the creative and collaborative development of novel FMI solutions and FLAME Replicator locations. Concretely, this meant the dissemination and communication focus shifted from high-level ambition to the pursuit of specific objectives. These were:

1. Ensure broad visibility of FLAME by disseminating and communicating **results** to all stakeholders

2. Reach, stimulate and engage relevant stakeholders for **participation** in FLAME's ecosystem and adoption of FLAME's approach

3. Support the **FMI ecosystem established** around FLAME and ensure liaisons with related initiatives to foster its sustainable growth

4. Facilitate exploitation of the FLAME's outcomes and support SMEs and start-ups through a set of dedicated activities **accelerating business value creation**

5. Align FLAME efforts to relevant **standards and open source** initiatives, fostering contribution to them as appropriate and relevant to planned exploitation or project's outcomes

In this report, you will find details of events where FLAME was presented, as well as events attended by FLAME representatives, such as conferences, training sessions and workshops. And we outline FLAME's first successful Summer School edition, which took place in Bristol, UK in July.

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Also in 2018, FLAME ran its first successful Open Call, the winners of which were announced mid-year and started work in December. FLAME launched its second open call in December. Both the Open Calls have attracted good interest and engagement in the FLAME ecosystem. Further, FLAME promotional materials were produced and widely used, including videos, flyers and e-communications. The website was refined and FLAME has been active on social media. There has been a steady stream of FLAME news stories, blog posts and videos produced throughout the year as well as some notable publications.

1.2 THE FLAME MARKETING AND COMMUNICATION APPROACH – OVERVIEW

In order to meet its ambitious vision, to attract newcomers to FLAME and engage them in the adoption of the project concepts, outcomes, tools and technologies, a comprehensive and well-articulated set of communication and marketing activities were planned (as presented in more details in deliverable D6.3), relying on a step-based approach, see Figure 1.

The activities undergone in Year 1, comprising Phase 1 – Stakeholders' Awareness and Phase 2 – Stakeholders' engagement – were outlined in the report D6.4 FMI Engagement Report and Updated Plan. We are now in Phase 3 – Sustainable Ecosystem and public outreach. The activities of Phase 3 will be outlined below.

Figure 1. A step-based approach to build the FMI ecosystem

2   PHASE 3: SUSTAINABLE ECOSYSTEM & PUBLIC OUTREACH ACHIEVEMENTS

The FLAME engagement approach to date has been based upon a broad platform of active outreach and communication activities, designed to target the correct stakeholders and gain their buy-in to FLAME activities and their outcomes. The previously defined stakeholder groups have been refined into four general target audiences:

- ➔ **Industry players.** Those key industry representatives with a vested interest in the technology and its growth and success, including key stakeholders in the area of standardization to which FLAME contributes.

- ➔ **SMEs and startups.** The fast-moving innovators working in the field which can benefit most from the FLAME programme and Open Calls.

- ➔ **Incubators, hubs and accelerators.** The innovation centres focused on the junction between SMEs and startups and industry.

- ➔ **Academic and civil institutions.** Those academic and civil research and innovation centres focused on media innovations and smart cities.

2.1   COMMUNICATION AND MARKETING ACTIVITIES

The set of community building and dissemination activities as originally proposed in deliverable D6.3 FMI Ecosystem Engagement Strategy and Plan reflected the anticipated nature of the FLAME project at launch. They were designed to communicate the FLAME project across the widest base of potential stakeholders, to promote the FLAME project and FMI ecosystem to these multi-faceted target communities, and to stimulate engagement and impact creation. This included a FLAME identity toolkit, presented in D6.1. The toolkit is supported by all those collateral materials necessary to promote the brand, such as an immediately identifiable logo, brand usage guidelines, and shareable templates for presentations and deliverables.

The toolkit is being used by all partners to create and disseminate their FLAME related communications in a visually-appealing, engaging and consistent manner, has proved to be a very important and useful instrument.

Figure 2. The FLAME branding toolkit

2.1.1   Website and Presence

The FLAME website, as described in D6.2, is a modern, fresh and fully functional website that serves as the entry point and source of truth for all the interested stakeholders at www.ict-flame.eu. It contains all relevant FLAME news and information; subscription, social media, and contact information; and is fully compliant with the project branding and visual identity.

Status: Created and deployed on 6 February 2017, and maintained and updated as needed. As of 31 December 2018, traffic statistics are (see Figure 3, Figure 4, Figure 5 and Figure 6):

➜   7249 unique users

➜   28181 page views (22783 unique page views)

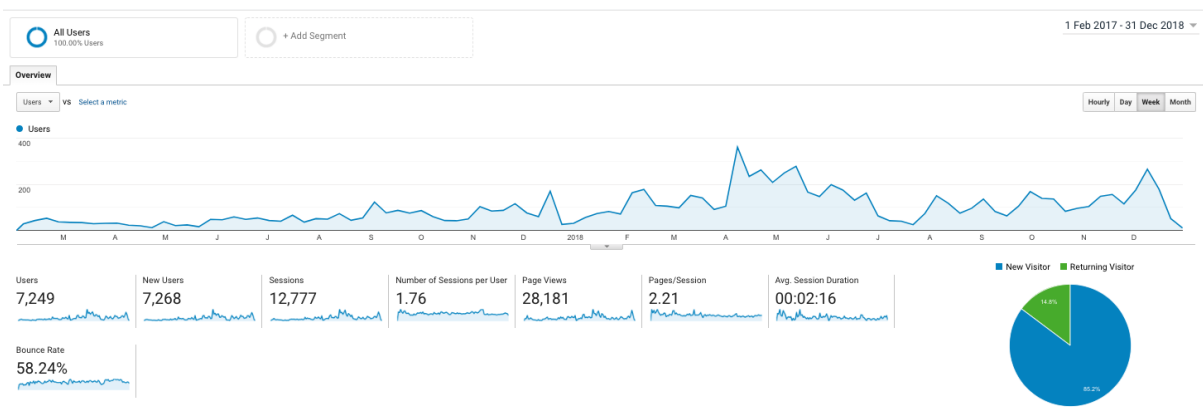➜   12777 sessions (1.76 per user | 2.21 pages/session | 00:02:16 average session duration)
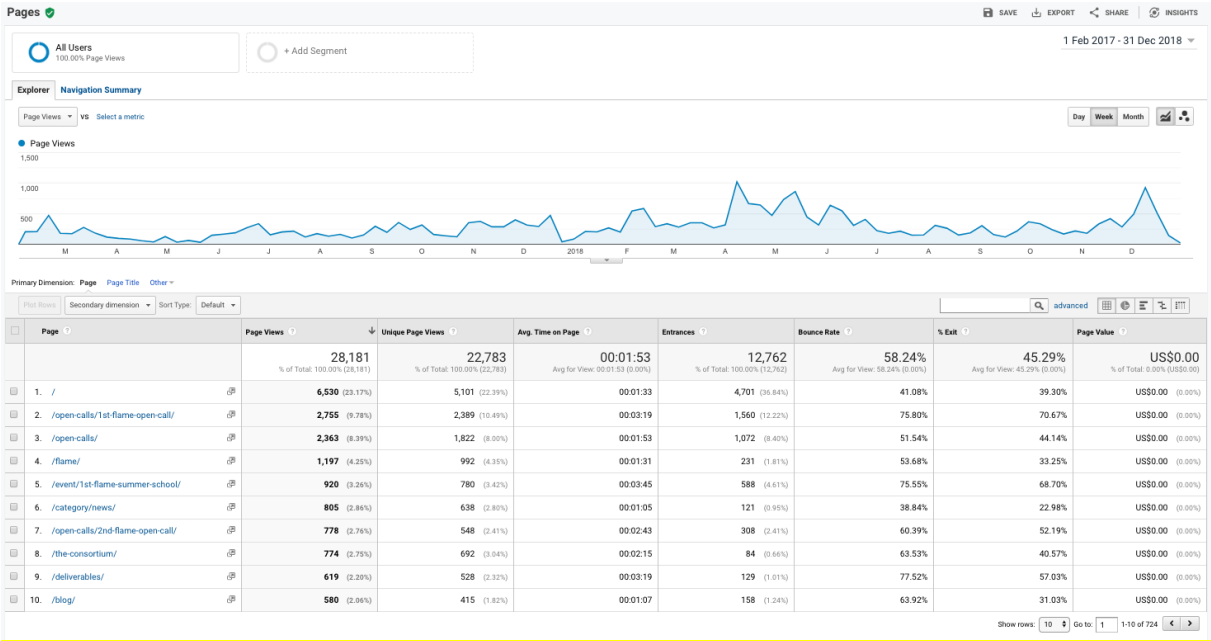

Figure 3. FLAME website analytics
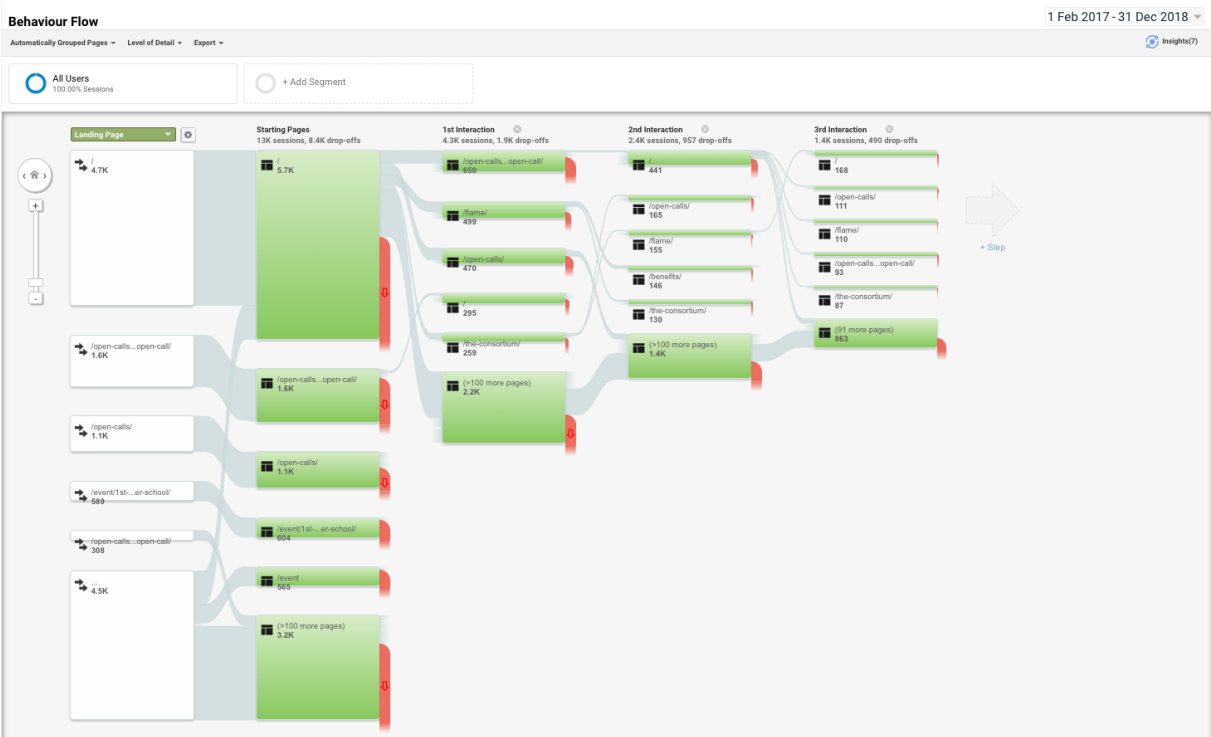
Figure 4. FLAME website: page views analytics

Figure 5. FLAME website: behaviour flow

	Acquisition			Behaviour		
	Users ↓	New Users	Sessions	Bounce Rate	Pages/Session	Avg. Session Duration
	7,249	7,268	12,777	58.24%	2.21	00:02:16
1 ◼ Direct	3,012			65.95%		
2 ◼ Organic Search	2,657			51.74%		
3 ◼ Referral	1,084			58.03%		
4 ◼ Social	784			57.22%		
5 ◼ Email	182			55.80%		
6 ◼ (Other)	1			100.00%		

Figure 6. FLAME website: acquisition overview

FLAME website downloads. The most downloaded materials from the FLAME website:

➔ 1116 downloads of D3.1

➔ 804 downloads of D6.2

➔ 770 downloads of 1st Open Call information document

➔ 688 downloads of D3.3

➔ 619 downloads of "THE FLAME PROJECT: how to get involved" presentation @ FEC3

➔ 583 downloads of D3.5.1

➔ 558 downloads of the EuCNC 2017 short paper

➔ 553 downloads of the FLAME Workshop Report @ NEM Summit 2017

➔ 463 downloads of the FLAME overview presentation

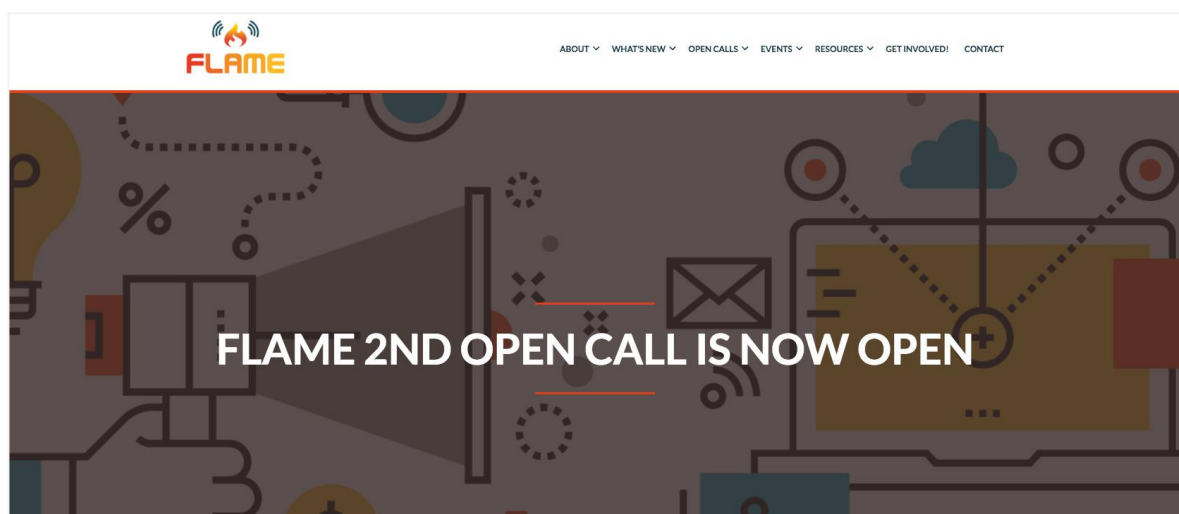➔ 436 downloads of the 1st Open Call proposal template

Figure 7. Home page of the FLAME website

2.1.2 Social Media Outreach

FLAME is present and active on all relevant social media channels, namely Twitter, YouTube and LinkedIn. These channels have been successfully initiated and are maintained and regularly populated with appropriate content. This serves to better promote the FLAME project's activities and results, drive engagement and event attendance, and increase overall visibility in the target audience.

Status: All channels activated and growing.

➔ Twitter ([@ICT_FLAME](#)). The primary channel for social dissemination, since launching in February, FLAME's twitter outreach statistics are:

- 350 followers

- 872 tweets

- Upward trending impressions and reach

  ▪ Approximately 22,900 impressions in December 2018

  ▪ 738 average impressions/day in December 2018

  ▪ Top tweet more than 1,700 impressions in December 2018

Figure 8. FLAME twitter analytics

➔ **LinkedIn** (https://www.linkedin.com/groups/8579978). LinkedIn groups are an effective forum for engaging with professional peers. Due to its nature, outreach relies more upon direct interpersonal communication than twitter. To ensure its value is maximized, a campaign is currently active within the project partners to expand the group's LinkedIn network.

  ▪ Active with 54 members

➔ **YouTube** (https://www.youtube.com/channel/UCToDRyvcoPQOPO2KxEpqsMA). Established November 2017, the FLAME YouTube channel will be the primary vehicle for disseminating broad based calls to action, as well as community engagement and event videos. Through engaging and entertaining video content, FLAME is able to access and engage with a wider audience as well as benefit from increased social media virality. In Y2, FLAME's YouTube Channel featured:

- ▪ 6 new videos launched
- ▪ 3 student videos from the 1st FLAME Summer School will be added in Feb 2019
- ▪ A "Getting started with FLAME" video to be launched in early 2019
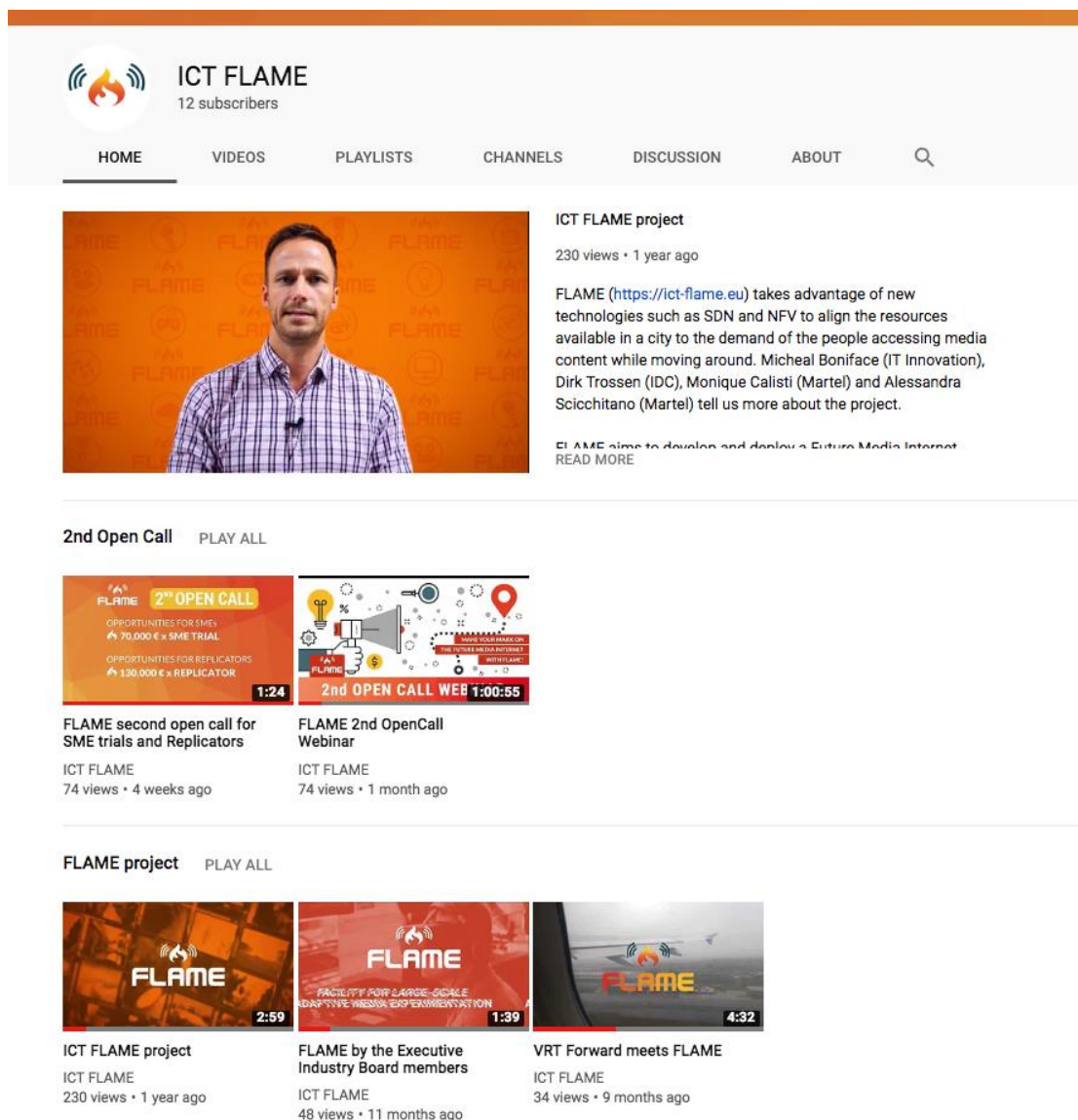- ▪ 740 total views

Figure 9. Screencap of FLAME YouTube video

2.1.3   The FLAME Blog and NEWS sections

The FLAME blog showcases technical commentary on FLAME and FMI relevant aspects, technologies, trends and more to actively engage with the FMI stakeholders beyond our own project results.

FLAME news is updated regularly with relevant news articles as well as calls-to-action for participation in related events.

In 2018 FLAME published

➜   5 Technical blogs, with 1 pending (Sandbox)

➜   15 News stories

➜   3,163 total views (1,886 from news + 1,277 from blogs)

➜   The partners that have contributed to FLAME's news and blog this year were: i2CAT, University of Bristol, IT Innovation, InterDigital, Martel, and VRT.

2.1.4   Targeted Outreach and Community Building Activities

The targeted outreach and community building activities are intended to directly access stakeholders with a direct interest in FLAME, the FMI, and how these programmes affect the European ICT landscape. The outreach consists of two parts:

Newsletter & Newsflashes

A biannual newsletter is sent to all subscribed stakeholders, to inform them of FLAME's activities and upcoming events, as well as serve as a call to action. The newsletter also links back to the website and social media platforms, to organically increase engagement across all channels. Samples of the newsletter can be seen in the Appendix 1.

➜   **Newsletter 3** was sent on September 5th, 2018 to 159 recipients. It contained a roundup of the FLAME news for the past six months, including the announcement and winners of FLAME's first open call, a report on the Summer School and a technical blog on the project's contribution to 5G Standards and an introduction FLAME's methodology.

➜   **Newsletter 4** will be sent at the end of March 2019 and will outline FLAME's 2nd Open Call, as well as covering relevant recent news.

A FLAME Newsflash is sent out on-demand when there are relevant upcoming events or Open Calls to draw attention to. In 2018:

➜   Two FLAME **Newsflashes** were sent out in April 2018. The first to highlight the FLAME Summer School, the second to announce the 1st Open Call. (A third Newsflash was sent in January 2019 for the 2nd Open Call. (

Training and Webinars

➜   **Summer Schools.** The first of two FLAME summer schools was held in July 2018 in Bristol, organised by UNIVBRIS. This used the FLAME platform to provide demonstrations. The summer school's participants were university students from both the UK and Europe.

➔ **Tutorials and webinars.** Organized specifically in regard to the planned open calls, to advertise them and inform potential applicants about the Open Calls focus and objectives, participation conditions and rules. In year two, FLAME held two webinars (one for each open call), which can be accessed via the video section of the FLAME site.

Scientific Publications and Standardization Activities

➔ **Scientific publications.** In year two, FLAME partners submitted, and published four papers (see table 1 below). We expect this number to increase in year three as the platform matures and partners can target more high-level conferences and journals such as IEEE ICC 2018, IEEE Network, IEEE Transactions on Communications, IEEE Communication magazine, and more as listed in Deliverable 6.3.

➔ **Input into standardization.** During this later stage of the project, we expect concrete activities in the service routing, orchestration and media service management areas, with target SDOs being the IETF, ETSI MEC as well as ETSI NFV.

2.1.5   Scientific Publications

Publication Title	Authors	Submission to	Leading Partner	Status
A 5G Platform for Future Interactive Media Systems	D. Trossen, S. Robitzsch, M. Boniface, S. Phillips, A. Betzler, C. Fernandez, D. Guija M. Catalan, P. S. Khodashenas	IEEE NetSoft 2019	IDE, ITInnov, I2CAT	Submitted
PICA: Proactive Intelligent Conversational Agent for Interactive Narratives	Jessica Falk, Steven Poulakos, Mubbasir Kapadia, and Robert W. Sumner	ACM, Proceedings of the 18th International Conference on Intelligent Virtual Agents (IVA '18)	Disney Research	Published
A Two-Level Planning Framework for Mixed Reality Interactive Narratives with User Engagement	Manuel Braunschweiler, Steven Poulakos, Mubbasir Kapadia, and Robert W. Sumner	IEEE	Disney Research	Published

Publication Title	Authors	Submission to	Leading Partner	Status
Challenges and opportunities for public broadcasters to facilitate citizens to engage with public data and encourage civic participation in the smart city	Sandy Claes, Marc Godon	ACM, Participatory Design Conference, PDC'18, Workshop on Ecocidal Cities	VRT	Published

Table 1. Scientific Publication

2.1.6 Miscellaneous Dissemination Material

For deployment as needed at events and conferences, a variety of engaging, FLAME-branded materials have been created and deployed, including:

➜ **Flyers.** For use in promoting FLAME at events and conferences, visually-appealing flyers have been created and distributed. Since the beginning of the project:

- **1,200 copies of FLAME postcard** flyer printed and distributed (+ 319 downloads from the website)

- **200 copies of Save the date for Workshop @ NEM** printed and distributed (+ 283 downloads from the website)

- **500 copies of FLAME OC1 promo** flyer printed and distributed (+ 235 downloads from the website)

- **200 copies of Save the date for 1st FLAME Summer School @ Bristol** printed and distributed (+ 99 downloads from the website)

- **350 copies of FLAME OC1 promo** flyer printed and distributed (+ 102 downloads from the website)

Figure 10. FLAME flyers

➔ **Rollups.** Made for events, rollups give more real estate to promoting FLAME on the event floor than the flyers. By using the FLAME visual identity joined to informative content, they bring interested stakeholders to the FLAME area to learn more.

- 1 copy printed
- 320 downloaded

Figure 11. FLAME Rollup

➔ **Twitter cards.** Designed for blogs, news, events, and specific speakers, twitter cards give visual impact to tweets.

- More than 20 created for events such as EuCNC 2018, FLAME Summer School 2018 and for blogs and news promotion.
- 200+ average impressions

Figure 12. Sample tweet cards

➔ **Presentations.** As needed, impactful and engaging presentations have been made for events and meetings.

- ▪ FEC3 – 1st Open Call – March 2018
- ▪ Edge Computing Congress – September 2018
- ▪ SCEWC – 2nd Open Call launch – November 2018

➔ **Videos.** Videos are shot to promote FLAME and document events as needed.

2.2 STANDARDIZATION ACTIVITIES

2.2.1   FLAME strategy

Figure 13 shows the strategy pursued by FLAME for standard dissemination. We separate into areas of (i) use cases, (ii) deployment, (iii) solutions, and (iv) thought leadership. For item (i), we engage into ETSI Multi-Access Computing (MEC) as well as IMT2020 and 3GPP in providing novel service-based architecture (SBA) use cases for 5G. For item (ii), we outline considerations of deployment of the FLIPS routing solution in the context of information-centric networking (ICN), while we feed protocol solutions, most notably at the service function routing level of the FLAME platform, into various working groups of the IETF. Thought leadership material is driven into the NGMN (next generation mobile networks) alliance and the ITU-T focus group for Network2030, i.e. to drive our input into the long-term research agenda.
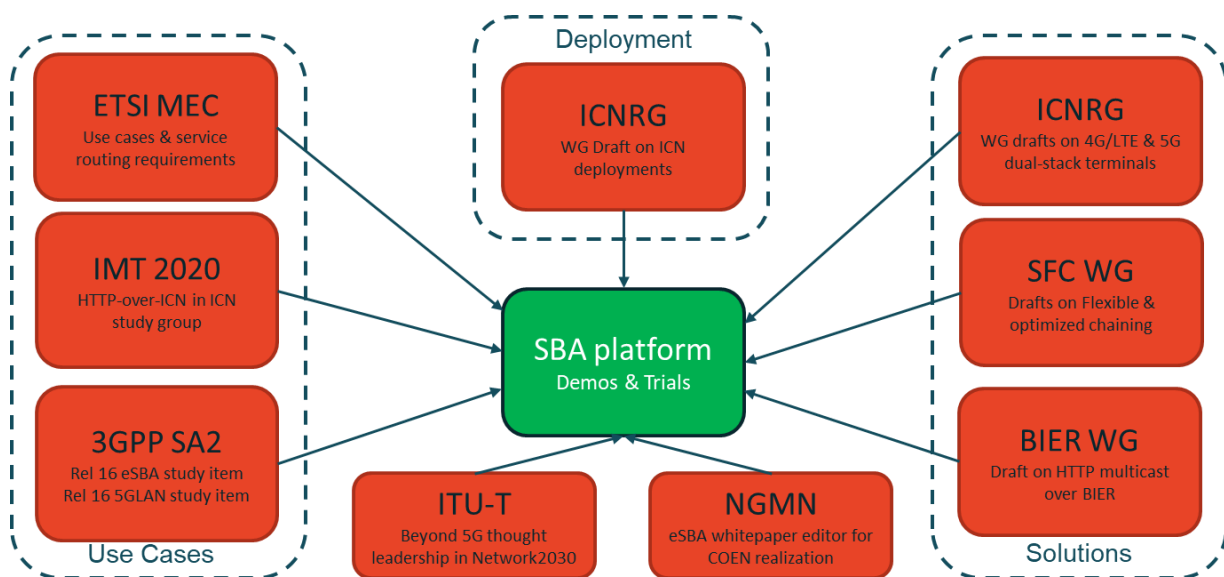
Figure 13. Standardization Strategy

2.2.2   Contributions in SDOs

In the following sub-section, we will outline the specific contributions we have made in those SDOs with links and references to the material submitted, where publicly available. Given that contributions are ongoing in many cases or have succeeded previous contributions, the reader is referred to the various SDO websites for retrieving the very last version of contribution and its history. Also, the contributions in many contain co-authors from other companies or were signed by other companies for support. We omit these details here and focus on the content and importance of those contributions.

2.2.2.1   ITU

In 2018, the ITU established the so-called 'Network2030' focus group with the goal of outlining long-term network requirements, architectures and protocols for a communication environment beyond 5G. InterDigital was invited to present their views on the evolution of the far edge of the network, including the terminal but also the mobile/fixed sub-system at the 2nd workshop for ITU-T Network2030 in Hong Kong in December 2018. The presentation was submitted later as a contribution

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I-31[1] to the Sub-group 3 on 'architecture' in January 2019. At this stage, work is ongoing on anchoring many of the insights from FLAME extensions to the terminal into future architecture requirements in planned revisions to I-31.

In 2017, InterDigital also presented and demonstrated to the IMT2020 study group on 'information-centric networking' the routing solution that is at the heart of the FLAME platform's service function routing (SFR) component [D3.3]. Said demonstration was given to the IMT2020 SG meeting in Geneva in July 2017.

2.2.2.2   3GPP

Contributions to the 3GPP are twofold. The first area is that of 'enhanced service-based architecture' (eSBA), which was established as an SA2 (system architecture 2) work item in 3GPP. InterDigital contributed a number of contributions[2][3][4] to the eSBA study item work in a number of 3GPP meetings throughout 2018. These contributions cover procedures for network function resolution, network function procedure call routing as well as mobility and roaming handling. These contributions align with the realization of the SFR component in the FLAME platform, positioning the FLIPS solution deployed as part of the FLAME platform as 3GPP Rel.16 compliant in regards to those procedures.

The second area of contributions is in the area of FS-Vert-LAN (Vertical LAN), a study item to 3GPP SA2 established in late 2017. Vertical LAN aims to provide LAN-like (i.e., Ethernet Layer 2) connectivity to wireless/cellular devices. With this, LAN connectivity would span from fixed LAN over Wireless LAN (WiFi) to cellular LAN connectivity, enabling corporate LAN like deployments of services. FLAME utilizes this paradigm in its deployment by exposing such LAN connectivity to end terminals with extensions currently developed by InterDigital and planned for integration into the FLAME platform in 2019. The contributions to 3GPP cover important aspects for the realization of Vertical LAN, specifically those of forwarding LAN-level packets in a cellular network[5][6] and the handling of multicast and mobility in those environments[7]. With the realization of those methods, FLAME like benefits such as those for ad-hoc multicast in video streaming scenarios can be realized across all current fixed/wireless and upcoming 5G cellular environments with those throughput improvements reaching down to the terminal itself rather than occurring in the network only.

2.2.2.3   IETF

The contributions to IETF are made across three main working groups:

1. **ICNRG**: the information-centric networking research group is part of the IRTF (Internet Research Task Force) with a more research-oriented charter compared to a standards WG in the IETF: Nevertheless, contributions here can reach solution level, particularly in longer lived research

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[1] https://extranet.itu.int/sites/itu-t/focusgroups/net-2030/subgroup3_workspace/NET2030_SG3_031.docx?d=w7539f94a4ba24fc49fed74f79d9e7ee3

[2] http://www.3gpp.org/ftp/tsg_sa/WG2_Arch/Latest_SA2_Specs/Latest_draft_S2_Specs/23501-140.zip

[3] http://www.3gpp.org/ftp/tsg_sa/WG2_Arch/Latest_SA2_Specs/Latest_draft_S2_Specs/23502-120.zip

[4] http://www.3gpp.org/ftp/tsg_sa/WG2_Arch/TSGS2_128_Vilnius/Docs/S2-186943.zip

[5] http://www.3gpp.org/ftp/tsg_sa/WG2_Arch/TSGS2_128_Vilnius/Docs/S2-186942.zip

[6] https://www.3gpp.org/ftp/tsg_sa/WG2_Arch/TSGS2_129_Dongguan/Docs/S2-1811015.zip

[7] contribution number not available yet but contribution made to 3GPP meeting in India in January 2019

groups. As a more community outreach activity, InterDigital has been leading the effort on documenting deployment guidelines for ICN, which forms the basis for the SFR routing used in FLAME. The latest version of the draft[8] is currently in last call as a RG work item with the expectation of Information RFC publication throughout 2019. A second contribution is placed in the solution space, describing a 4G deployment of a dual-stack terminal with IP and ICN connectivity. In this draft[9], the terminal extensions of the FLAME SFR, based on InterDigital's FLIPS solution, is described. A version for Rel.15 compliant 5G networks is described in a separate draft[10] to the ICNRG. The convergence layer described in both drafts is currently being realized in an Android-based extension to FLIPS by InterDigital with a planned release in 2019.

2. **SFCWG**: the service function chaining (SFC) WG has seen contributions in two areas by FLAME. The first is that of optimized chaining[11], which allows for reduced latency for routing packets along entire SFCs. The draft is currently expired with plans discussed for extensions in 2019. InterDigital has also contributed a solution to name-based service function chains, which form the basis for FLAME deployments. The initial draft[12] was proposed as an explicitly exposed service function solution, which was then changed towards a solution that directly integrates with the SFC architecture[13]. For the upcoming 2019 IETF in Prague, the draft is planned to be submitted to the ISE (Internet Standards Editor) route instead of following the direct WG route. This strategy allows for pursuing contributions that are not fully supported by the WG charter (as it is the case with the extension of SFC from Layer 2/3 in the charter to the proposed name level in the FLAME contribution) while possibly progressing faster to an RFC.

3. **BIERWG**: The bit indexed explicit replication (BIER) WG is working on solutions for multicast transfer over heterogenous and possible multi-domain transport networks. InterDigital contributed a typical HTTP multicast case, as seen in a number of FLAME use cases, to the BIER use draft[14] due to the compatibility of the FLIPS solution over BIER-based networks[15]. In a dedicated solution, InterDigital submitted a draft[16] for realizing HTTP response multicast to the WG, which is now in call for WG adoption as an applicability draft.

At the London IETF in March 2018, InterDigital also organized a side meeting on "Service Routing over Layer 2" which was attended by about 40 IETF participants. The side meeting, lasting about 2.5 hours, was to discuss ways forward for exploitation of service function routing solutions in the IETF. Participants included representatives from Deutsche Telekom, Huawei, Cisco, Juniper, and others. InterDigital presented work from previous H2020 projects such as POINT and RIFE but also ongoing work in FLAME, specifically those on service function routing and the planned trials.

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[8] https://datatracker.ietf.org/doc/draft-irtf-icnrg-deployment-guidelines/

[9] https://datatracker.ietf.org/doc/draft-irtf-icnrg-icn-lte-4g/

[10] https://tools.ietf.org/id/draft-ravi-icnrg-5gc-icn-02.txt

[11] https://www.ietf.org/internet-drafts/draft-khalili-optimized-service-function-chaining-00.txt

[12] https://www.ietf.org/internet-drafts/draft-purkayastha-sfc-service-indirection-01.txt

[13] https://www.ietf.org/id/draft-trossen-sfc-name-based-sff-01.txt

[14] https://tools.ietf.org/html/draft-ietf-bier-use-cases-05

[15] Note that FLAME deploys the platform over SDN-based networks only; nonetheless the solution would work over such multi-domain BIER networks, too.

[16] https://tools.ietf.org/id/draft-purkayastha-bier-multicast-http-response-01.txt

As a result of the side meeting, InterDigital was asked to present on to the Routing WG (a forum with about 200 to 300 IETF attendants with interests in the Internet routing area) the problem of service routing, possible ways forward and solutions produced so far. The outcome of that meeting was the ongoing contribution to the SFC WG as a route of exploitation.

2.2.2.4   ETSI MEC

A video orchestration as well as 3rd party service provider use case has been submitted to ETSI MEC ISG by InterDigital in early 2019. Both use cases have been accepted and will be included into the upcoming MEC002 Requirements document. A draft can be downloaded by members from the ETSI portal.

2.2.2.5   NGMN

Following the joined demonstration with Deutsche Telekom at the NGMN Forum event in Paris in April 2018, InterDigital was invited to join the (until then closed to operators) SBA (service-based architecture) WG of NGMN to edit the sub-section on 'implementation considerations for SBA' for the ongoing SBA whitepaper of the NGMN. Said section captures the insights in the development of the FLIPS solution, which is a 3GPP Rel16 enhanced SBA compliant implementation. Aligned with the roadmap perspective of the NGMN whitepaper, the sub-section outlines a number of outstanding issues with the realization of SBA for 5G at the control and user plane level. InterDigital has since contributed a number of solutions to those issues to the 3GPP as the normative standards body for 5G technology and will continue to do so.

2.3 CSI AWARD

FLAME won an award via InterDigital, when it was selected from a group of four finalists to win its category for its collaboration in the European H2020 project, FLAME (Facility for Large-scale Adaptive Media Experimentation). The award is also the company's first global recognition for technology in the increasingly important video space.

Led by a consortium of twelve partners, FLAME seeks to transform the user experience by delivering faster access to media and new services through 5G. InterDigital was recognized for its contribution to the project through its FLIPS (Flexible IP Services) technology suite utilized in the service-based architecture (SBA) platform which lies in the heart of the FLAME platform.

3   FLAME SUMMER SCHOOL AND OPEN CALLS

This section is dedicated to FLAME's major own-hosted event and the two open calls that happened in 2018. The emphasis in Y2 was on promoting uptake of the FLAME offering though a comprehensive 3rd party engagement strategy centred around the first two Open Calls, announced April and November 2018

3.1 FLAME'S FIRST SUMMER SCHOOL

The University of Bristol (UNIVBRIS) organised and hosted FLAME's first Summer School in July 2018. The three-day Summer School was attended by students and professionals from academia, SMEs and industry, aiming to combine their resources and develop innovative problem-solving skills in the Future Multimedia Internet (FMI) ecosystem, under the guidance of the Networked Media Systems.

The school was organised by Dr Aloizio Pereiera da Silva, a Research Fellow and 5G Portfolio Manager for the High Performance Network Group at the University of Bristol.

Speakers from the FLAME project introduced functionalities and capabilities of the FLAME platform in both theoretical and practical terms. Along with representation from the University of Bristol, partners included the University of Southampton, VRT, InterDigital, Disney Research, Studio Dott and ETH Zurich.

Students also participated in an interactive exercise, becoming mobile journalists and taking to the streets of Bristol to record on-camera interviews with local residents, which were then edited and uploaded in realtime using the FLAME platform.

Figure 14. Dr Aloizio Pereiera da Silva and students at 1st FLAME Summer School

FLAME's first summer school was a successful, engaging and enjoyable exercise, that not only introduced students to the platform but demonstrated its use in a fun and very hands-on way.

The students-produced three videos from the Summer School will be uploaded to FLAME's YouTube channel[17] in February 2019 and used to promote the 2nd edition of the FLAME Summer School, scheduled for June 2019.

3.2 FLAME'S FIRST OPEN CALL

The first Flame Open Call was announced in April 2018. This Open Call was for potential experimenters to design and run experiments on the first release of the FLAME platform. The stakeholder groups targeted by the call were:

➔ **Industry Trials** (duration 12 Months): technologies with large scale and significant sectorial impact on beta platform.

➔ **SME Trials** (duration 6 Months): innovative OTT media technologies, ISPs and Vendors.

To raise awareness and ensure to reach the right groups of stakeholders, the consortium and in particular WP6 was engaged in different activities to advertise the call. In particular:

➔ **FLAME web site and social media:** News and tweets were sent out regularly to bring attention to the Open Calls and to the opportunities that they represent for the whole FMI ecosystem.

➔ **FLAME Video:** First steps towards producing a video advertising the Open Calls has been taken. During the NEM Summit, the external advisors from the EIB were invited to share on video the reason why in their opinion an experimenter should participate to the FLAME Open Call. The different takes will then be used to produce a unified video that will be released early Q1 2018 to advertise the Open Call

➔ **Communication and media channels of whole FLAME partners:** All partners echoed the open calls via their channels, leveraging their network for maximum reach.

➔ **Presence with flyers and brochures advertising the Open Calls at different events:** The list of events where the Open Calls were advertised with flyer and brochures can be found in Table 2.

➔ **Presentation of the Open Calls at different events:**

● **Bristol Workshop- 19th of October 2017.**

● **Barcelona workshop - 15th of November 2017.**

Open Call One Winners:

The Winners of FLAME's first open call were notified and officially announced in July. They were:

The Call attracted 32 bids altogether, which were almost evenly split between the project's locations in Barcelona and Bristol (with 17 and 15 bids, respectively). The bids came from a good spread of organisations including SMEs, universities, research institutes and large companies (*see graph below: Participation to Open Call 1: per type of organisation*).

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[17] https://www.youtube.com/playlist?list=PLW3lG25QHO27cKlDAkqfuyorPsbaR_DW9

Participation to OC1: per type of organisation
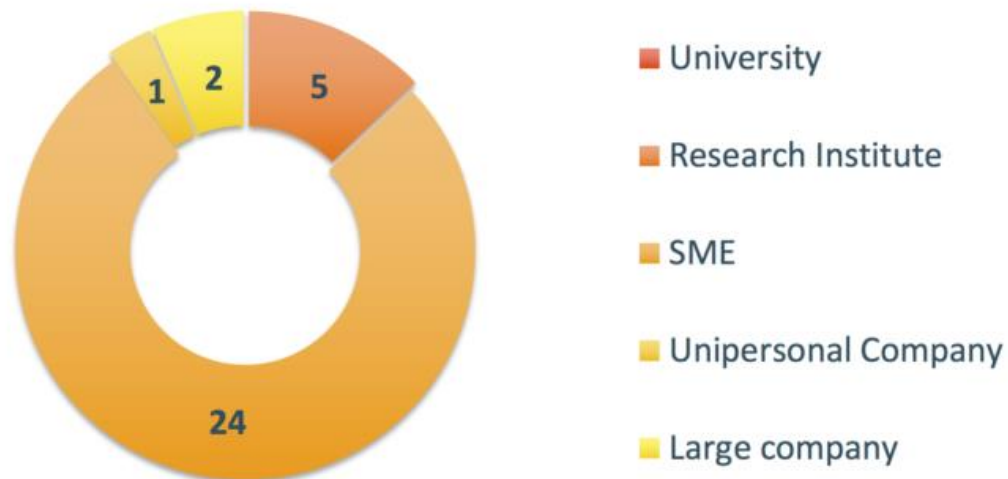
Of the six experiments to be funded, the call specified two industry trials and four SMEs trials. The call requested innovative companies or research centres that offered:

➡ **Business to Business (B2B)** media services and middleware supporting production and delivery of new forms of geo-located/localised interactive media content

➡ **Business to Consumer (B2C)** applications depending on production and consumption of highly localised VoD and live streaming services.

The winners of the funded experiments, of which at least two will be chosen each to run in Bristol and Barcelona, were:

➡ **Be-Memories**, HOP Ubiquitous

➡ **MEMPHIS**, MOG Technologies

➡ **RAISE**, Eight Bells Ltd

➡ **Prosuming live media content in 5G enabled smart cities**, TNO

➡ **EDGE-TUBE**, UBIWHERE

➡ **Video for Cellular V2X V2FLAME**, FICOSA

FLAME OC1 EXPERIMENTS BEGIN

The six winners of FLAME's first open call began their experiments at the start of December 2018 after a successful kick-off meeting in London in late November.[18]

Figure 15. FLAME's first Open Call winning projects at the kick-off meeting

FLAME OC1 MENTORS

FLAME has appointed several mentors for the OC1 experiments. The mentors are listed with a short bio on the FLAME website[19].

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[18] https://www.ict-flame.eu/news/flames-oc1-experiments-begin/

[19] https://www.ict-flame.eu/news/flame-mentors/

Figure 16. FLAME mentors' twitter card

3.3 FLAME'S SECOND OPEN CALL: ACTIVE ENGAGEMENT

FLAME's second Open Call was officially announced at the Smart Cities Expo World Congress on 14 November 2018 at the Smart City Expo World Congress in Barcelona and **opened on 5 December 2018.** The application process will close at the end of February 2019.

Prior to the announcement of the Open Call, and in between the announcement and the launch, we had a lively outreach campaign that involved:

➔ **Twitter** – regular and actively engaging tweets shared with a Call to Action to subscribe to the FLAME newsletter

➔ **News stories and blogs**: as well as a dedicated page for the 2nd Open Call, we have published three news stories pointing to FLAME's 2nd Open Call that direct interested parties to where they can get more information and apply.

4   OUTREACH AND COMMUNITY BUILDING ACTIVITIES

4.1 OUTREACH AND COMMUNITY BUILDING

In order to extend the outreach and connections of FLAME towards a broader audience, all project partners have contributed to promote their work and results towards their communities and more global initiatives at pan-European level as summarised hereby.

➜ The **5G PPP initiative**, including the 5G PPP SME Working Group, the Networld2020 European Technology Platform and the 5G Infrastructure Association via regular emails and tweets on their channels about FLAME. Moreover, direct connections with ongoing 5G PPP projects focused on media, such as 5GCity, 5G Media, 5GXcast, have led to the organisation of a joint workshop that was held in June 2018 at EuCNC 2018. At the time of writing this deliverable, discussions are ongoing for resubmitting a workshop proposal for EuCNC 2019.

➜ Although the **Future Internet Experimentation Research – FIRE** – initiative has been dismissed as such, the community of European researchers and innovators gathering around the next generation internet experimentation is still active and now led by the Fed4FIRE+ project. FLAME has closely coordinated with Fed4FIRE+ (as a matter of fact several partners are engaged in both projects ensuring close liaisons) and distribution of promo materials at the various FEC Conferences editions (FEC 3 in Paris, March 2018, FEC 4 in Bruges, October 2018). At the time of writing this deliverable, Martel and IT Innovation are discussing the colocation of a dedicated FLAME session at the FEC 5 conference planned to take place in 24 – 25 April in Copenhagen (Denmark). FLAME is currently negotiating joining the FED4FIRE+ federation as an Associated Member.

➜ The **Next Generation Internet** (www.ngi.eu) initiative has been growing and consolidating during 2018. Close liaisons between FLAME and NGI have been ensured by participation of Martel and IT Innovation in both FLAME and HUB4NGI, the Coordination and Support Action that has been coordinating efforts across the community. Cross-communication and promotion via various media channels have been ensured and will continue also in the months to come. In particular, NGI channels have largely promoted both the first two FLAME Open calls.

➜ The NEM Initiative – **New European Media Initiative** – is the European Technology Platform, fostering the convergence among Media, Content, Creative industries, Social Media, Broadcasting and Telecom sectors, as well as Consumer electronics to develop a common innovation environment for the new European media landscape. FLAME attended the NEM General Assembly and NEM workshop that was held in Brussels in May 2018 (VRT, i2CAT and Martel were there) to promote the 1st FLAME Call. Cross-communication and promotion via various media channels have also been ensured and will continue increasing the visibility of FLAME into the media and creative innovation landscape in Europe. Discussions are planned on how to possibly present FLAME at next future media/creative events within the NEM ecosystem – namely NEM Summit 2019. FLAME, through IT Innovation, is participating in the creation of a joint paper on the 5G Media Slice targeting standards and 5G initiatives targeting the media sector.

➜ The **IoT Large Scale Pilot** (IoT-LSP, https://european-iot-pilots.eu) initiative fosters the deployment of IoT solutions in Europe through integration of advanced IoT technologies across the value chain, demonstration of multiple IoT applications at scale and in a usage context, and as close as possible to operational conditions. Close connections have been ensured by Martel that is actively participating to the IoT-LSP project U4IoT. The FLAME calls have been largely

promoted via IoT-LSP media channels and at main events like the IoT Week that took place last June in Bilbao (Spain).

4.2 FLAME EVENTS

4.2.1 EuCNC

At EuCNC 2018, the project's coordinator Michael Boniface, Technical Director at the University of Southampton IT Innovation Centre, will present "**Insights into media service delivery using real-life 5G infrastructures**" at 11:30h CET at the **Workshop 1 Vertical Industries & Services for 5G (VIS5G)** taking place on Monday the 18th June in the meeting room **Štih Hall**. At the same workshop, Dirk Trossen, FLAME's Technical Manager and Senior Principal Engineer at InterDigital, will then be part of the Future Trends in Media Distribution Panel, 11:45h-13:00h.

4.2.2 FLAME at Mobile World Congress (MWC)

FLAME made a big impact at MWC 18 in Barcelona. Over the course of the event, FLAME was presented to both the Ministerial Programme and the general audience, announced the Open Calls, which in turn mark the launch of the first urban-scale 5G testbed.

"The FLAME project offers groundbreaking and unique technologies setting this 5G testbed apart from all that have come before it," said Dirk Trossen, FLAME's Technical Manager. "We're honored to be a part of the first real-life insights into the transformation of 5G media delivery and the enablement of new media services for smart cities. The launch of the urban-scale testbed is truly a milestone for the advancement of 5G."

As the first 5G testbed which will enable the first consumer-focused, real-life trial of 5G technologies to transform user experience by faster access to media and new services, FLAME is making history.

"The ambition of FLAME is to create a sustainable ecosystem in which innovative players in the media and creative industry can test and validate their offering, speeding up their time to market. Availability of funding to run experiments will also be key in gathering top-notch innovators that will contribute to enrich FLAME!"

4.2.3 FLAME at ETSI MEC Congress

InterDigital has been demonstrating mobile edge computing showcases for the past three years at the annual ETSI MEC Congress. At this year's event in Berlin, InterDigital showed aspects of the MWC 2018 demo to the technical and marketing audience with about 300 visitors overall at the event. The

demonstration followed the previous years' focus on showcasing the ability for mobile edge computing scenarios being realized with the FLAME platform in general and InterDigital's FLIPS solution specifically. Alan Carlton, the head of InterDigital's London office, also presented a keynote at the event with a reference slide to the FLAME trials planned in Bristol and Barcelona.

4.2.4   Forum 451°E

A representation of Barcelona City Council participated in Forum 451°E, organized and hosted by Lviv City council of Ukraine. These were two days of discussions about Smart Cities implementation in Europe.

Barcelona City Council explained its deployments related with Neutral Host and Neutral Operator concept as City Deployment Strategy and projects as: 5GCITY, **FLAME** and Growsmarter as drivers to test first deployments in the plenary. Furthermore, the Barcelona City Council made a meeting with cities interested in the FLAME Open Call. The event attracted a high amount of local press coverage.

4.2.5   ITU Event

A representation of Barcelona City Council (IMI) participated in the ITU Forum on 'Towards 5G Enabled Gigabit Society', co-organized and hosted by the Ministry for Digital Policy, Telecommunications and Media of Greece. These were two days of exciting discussions on the 5G implementation in Europe with the participation over 200 stakeholders from the 5G ecosystem including Policy Makers, Regulators, Regional and International Organizations, Private Sector, Non-Governmental Organizations and Academia.

Barcelona City Council explained its deployments related with Neutral Host and Neutral Operator concept as City Deployment Strategy and projects including: 5GCITY, **FLAME** and Growsmarter as drivers to test first deployments.

4.2.6   FLAME at NGMN Industry Conference and Exhibition

Through a collaboration with Deutsche Telekom, InterDigital secured an exhibition stand at the international annual conference of the NGMN alliance in Vancouver (Canada). InterDigital showcased the use of the service function routing [D3.3] component, combined with the lifecycle management components of the FLAME platform, for the realization of a 3GPP Rel 16 compliant control plane for 5G mobile networks. Although this use case lies outside of the FMI ecosystem per se, it showed the flexibility of the developed technologies as well as the platform itself for other innovative usages in 5G. The specific aspect of realizing 5G mobile network control planes is an important topic for mobile operators in the current 3GPP Rel16 specification in that it promises the realization of those control planes using so-called 'cloud-native environments', i.e., environments consisting of distributed micro data centres, interconnected through software-defined wide area networks, not unlike those environments deployed in Bristol and Barcelona. The exhibition demo was proceeded by a smaller demo at the NGMN Forum event in Paris in April 2018. Both demonstrations were complemented by press releases from InterDigital due to the 'world first' character of the demonstration.

4.2.7   FLAME at Smart Cities Expo World Congress (SCEWC)

The FLAME second Open Call was announced last week at the **Smart City Expo World Congress** in Barcelona. Dr Monique Calisti, CEO of Martel Innovate and Impact Manager for FLAME, announced the Open Call in a morning session on November 14, 2018. The call will be open for submissions from 5 December.

The FLAME session attracted a good number of interested parties and the Smart City Expo World Congress (SCEWC) was very well attended overall. The conference, now in its eighth year, had around **21,500 visitors, 850 exhibitors and 400 speakers** for the 2018 edition. The visitor list comprised people from 146 countries, with more than 700 cities represented.

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"We were pleased to launch FLAME's second Open Call at this year's Smart City World Expo Congress. With its mix of innovative ideas, future focus and attendees from across the world, SCEWC was the ideal place at which to present FLAME's latest opportunities for SMEs and replicators," says Dr Calisti.

4.2.8 FLAME events list

The events attended by FLAME partners are listed below.

Table 2. Events attended by FLAME partners

Event Name	Date / City / Country	Category of Dissemination	Type of Audience/Target Stakeholder	Partners involved
MWC 2018	February 2018 Barcelona, Spain	**Demo & presentation at IDE booth and ministerial conference**	mobile industry	IDE, IT Innovation
MWC 2018	February 2018 Barcelona, Spain	**Panel at IDE booth**	mobile industry	Martel
MWC 2018	February 2018 Barcelona, Spain	**Interview with TMN Magazine @ IDE booth**	mobile industry	IDE
MWC 2018	February 2018 Barcelona, Spain	**Demo video**	mobile industry	IDE
FEC 3	March 2018, Paris, France	FLAME presentation	FIRE/NGI researchers	Martel
EUCNC 2018	June 2018, Slovenia	**Workshop**	EU & research audience	IDE, IT Innovation, Martel
IBC 2018	September 2018	**Award**	industry	IDE
ETSI MEC Congress	September 2018	**Demo**	industry	IDE
ETSI MEC Congress	September 2018	**Presentation**	industry	
Forum 451°E	14-15 September 2018 Lviv, Ukraine	Standard Presentation (14th) & Open Call Focused (15th)	Eastern Europe Cities and EU representatives	IMI – Barcelona City council
FEC 4	October 2018, Bruges (Belgium)	Flyers	FIRE/NGI researchers	Martel
ITU Event: Towards 5G	11-12 October 2018 Athens, Greece	Session 6: 5G in Smart Cities	ITU – Standardization Body	IMI – Barcelona City council

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Enabled Gigabit Society				
Smart City Expo 2018	November 2018	OC2 Presentation. Dissemination at BCN and i2CAT booth. Replica of the FLAME lampost Infrastructure at the BCN booth	Industry	MARTEL (presentation), i2CAT, IMI
IVA 2018	November 2018	Presentation	Research & Industry	DRZ
IEEE AIVR18	December 2018	Presentation	Research & Industry	DRZ
NGMN Industrial Conference	November 2018	Demo	Industry	IDE
EBU Forecast'18	November 2018	Presentation	Industry & Research	IDE
Cambridge Wireless Virtual Networks SIG	December 2018	Presentation	Industry	IDE

4.3 LIAISONS WITH RELATED PROJECTS

4.3.1 FED4FIRE+

Fed4FIRE+ is an Integrating Project under the European Union's Programme Horizon 2020, addressing the work programme topic Future Internet Research and Experimentation. It started in January 2017 and will run for 60 months, until the end of September 2021. The Fed4FIRE+ project is the successor of the Fed4FIRE project.

Fed4FIRE+ will establish a common federation framework by developing, adapting or adopting tools that support experiment lifecycle management, monitoring and trustworthiness. A large number of existing experimentation facilities in Europe will be adapted to seamlessly integrate in the federation. Such facilities typically focus on different kinds of networking related research or on different communities regarding services and applications. Example domains are optical networking, wireless networking, software defined networking, cloud computing, grid computing, smart cities, etc. Therefore, the federation will have to support a very heterogeneous set of requirements. To guarantee that the federation framework meets all of them, representatives of all these FIRE research communities will be actively involved in the definition of the federation architecture. Each of them will also lead the uptake of the Fed4FIRE+ platform in their specific community.

FED4FIRE+ engagement is an important part of the FLAME strategy. FLAME was funded within the former FIRE+ unit and even though this unit has been dissolved and its activities integrated into other units, experimentation activities continue through the FED4FIRE+ project over the next 5 years.

FLAME intends to join the FED4FIRE+ federation as an Associated Member[20]. FLAME will then benefit through marketing within the European experimentation community and an opportunity to influence the direction European experimental platforms based on our results.

IT Innovation is negotiating joining the federation with the FED4FIRE+ coordinator IMEC as Associate Membership. Martel and IT Innovation participated in the 2nd FIRE Engineering Conference (FEC2) providing FLAME input in the area of multi-stakeholder experimental data management. Martel presented the FLAME project and open calls at FEC3 in March 2018 in Paris. FLAME believes this is a great opportunity to foster some debate, especially if there are complimentary views. Martel and IT Innovation as is continuing to engage with FED4FIRE+ and will participate in FEC5 contributing to sessions based on FLAME results and expected confirmation of Associate Membership..

4.3.2   5G-TANGO

As reported in the previous deliverable, FLAME partners have identified a possible liaison between FLAME and 5G-TANGO, which is coordinated by ATOS. 5G-TANGO is a 5GPPP Phase2 Innovation Action that enables the flexible programmability of 5G networks with: a) an NFV-enabled Service Development Kit (SDK); b) a Store platform with advanced validation and verification mechanisms for VNFs/Network Services qualification (including 3rd party contributions); and, c) a modular Service Platform with an innovative orchestrator in order to bridge the gap between business needs and network operational management systems. The ATOS team in FLAME is monitoring the progress of this project. During the last months, 5G-TANGO has evolved towards the use of CNFS (Cloudnative Network Functions). 5G-TANGO is deploying containers via Kubernetes instead of virtual machines. This fact is enabling a quicker and easier deployment of services on the edge. Precisely, ATOS is coordinating the media pilot in 5G-TANGO, which shows common aspects with FLAME. Particularly, this pilot is implementing the transmission of immersive (360) video on virtualised resources. The experience gained in this pilot will allow ATOS to consider the extension of the FLAME streaming FMS to support live content beyond VoD services.

4.3.3   5G-MEDIA

NextWorks (NXW) acted as bridging partner with the 5G PPP Phase 2 project 5G-MEDIA, which started on June 1st 2017. **5G-MEDIA** is developing a Service Virtualization Framework based on ETSI MANO architecture to program an edge-to-cloud virtualization infrastructure for media-related use cases in 5G networks. In particular, during 2018 the liaison between the two projects led to the joint organization of the workshop Workshop 1 Vertical Industries & Services for 5G (VIS5G) at EUCNC2018, and the decision to contribute with a talk on the FLAME architecture by ITinnov and the participation of IDE to the panel on *Future Trends in Media Distribution*. On the technical side, the aspects related to the monitoring approach based on telegraf has been reused in 5G-MEDIA use cases and adapted to work with the 5G-MEDIA MAPE layer (Monitor, Analyse, Planning, Execute), based on different technologies (Kafka broker and Spark data analysers on top). Also, a couple of top investigators in 5G-MEDIA have served as reviewers in the OC1 evaluation process, leveraging on the reciprocal technical awareness of the FLAME solution and benefits. For the next period, the communication between the two projects will continue with ongoing discussions for continued joint dissemination events (e.g. at EUCNC 2019).

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[20] https://www.fed4fire.eu/add-your-facility/

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4.3.4   H2020 POINT & RIFE

IDE continued its efforts with the **H2020 POINT and RIFE** projects to develop crucial solutions for the IDE FLIPS platform. IDE also conducted a trial at Bristol-is-Open (BRISTOLOPEN) during June and August 2017 to showcase the FLIPS capabilities, albeit still based on the original POINT proof-of-concept, the predecessor to the FLIPS platform that is being utilized in the FLAME project. IDE also contributed to the RIFE trial at guifi.net, conducted in Tarragona, Spain, showcasing the software-only innovation of FLIPS based on SW-based rather than HW-based SDN switching.

4.4 KEY PERFORMANCE INDICATORS

The status of project's dissemination and communication KPIs is shown below.

Table 3. Key Performance Indicators

Measure	Indicator	Target value	Value at the end of Y2	Source and Methodology
Project Brochure	No of brochures created (updated once a year) and distributed	At least 3500 copies by the end of the project	FLAME Flyers produced for Y2 - general FLAME: 500cps - OC1: 500cps - FSS: 100cps - OC2: 300cps	Distribution via participation to and organisation of dedicated events and electronically via the FLAME website
Press Releases	No of Press Releases published	5 by the end of the project	3	Engagement with the press by partners and the project
FLAME Poster	No of poster created (updated as appropriate)	At least 3 by the end of the project.	1 poster and 1 roll up created so far	Presentation via participation to and organisation of dedicated events and electronically via the FLAME website
FLAME presentations	No of presentations (updated as appropriate) to be made available	At least 4 per year	More than 7 presentations (also available from the web)	Presentation via participation to and organisation of dedicated events and electronically via the FLAME website
Videoclips / Creative storytelling videos	No of videos published on the FLAME YouTube channel and average number of views	5 by the end of the project, with 200 views per video	6 videos in 2018 (740 views in total)	Creative story telling through involvement of both FLAME partners and FLAME Champions and experimenters
Project Website	No of unique visitors to the website (average	At least 2000 unique visitor to the	1753 unique users, 9040 page views, and 6784 unique page	News, Publications, Videos, Newsletter, Technical blogs

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	per year)	web site per year on the average	views	
Social networks	No of followers in Facebook, LinkedIn, Twitter, YouTube (average new followers per year)	Number of followers > 100	Twitter: 350 followers and 872 tweets LinkedIn: 54 members	Keeping FLAME profiles on such networks alive via regular posting and monitoring
Newsletters	No of subscribers (by the end of the project)	At least 500 subscribers	3 Newsletters and 2 newsflashes published, 172 subscribers	Recording of subscribers to the electronic newsletter
Publications	No of peer-reviewed publications in journals, conferences and workshops	3 per year	2	Articles and papers presented and published in high-quality venues
Technical Blogs	No of blogs published via the FLAME website	10 in year 1	6 at time of submission, 7th to be published before 31/12	Short articles and technical news from ongoing project's activities published via the technical blog
Webinars	No of webinars No of participants	1per year >15 participants per webinar	2 (one per Open Call)	Advertisement of offered webinars via project web-site and social media channels
Startup Events Media Hackathons	Average number of participants per each organised stakeholders' engagement event	3 hackathons to be organised in year 2 and 3	1 (FLAME Summer School in Bristol)	Attendance proof, presented material, photos, animation of social media channels, events' reports
Outreach / community building workshops	Average number of participants per workshop	One per year with more than 50 participants per workshop	1 workshop co-located with NEM Summit and more than 50 participants	Attendance proof, presented material, photos, animation of social media channels, events' reports
Co-creative / user requirements workshops	Average number of participants per workshop	2 workshops with at least 15 participants	1 workshop in Bristol (Oct 2017) and 1 workshop in Barcelona (Nov 2017)	Attendance proof, presented material, photos, animation of social media channels, events' reports
Educational / training events	Average number of participants per summer school edition (UNIVBRIS)	2 editions with at least 40 participants, one in year 2 and one in	1st FLAME Summer School in Bristol (2nd edition scheduled for mid July 2019)	Attendance proof, presented material, photos, animation of social media channels, events' reports

		year 3		
Attended external events	No of events where FLAME is presented, demonstrated, promoted	At least 4 per year	15 events attended in 2018 (see Table 2)	Attendance proof, presented material, photos, animation of social media channels, events' reports

4.5 LOOKING FORWARD TO 2019

Experimentation Impact Board: Inputs and suggestions to feed into the plan

The Experimentation Impact Board (EIB), which includes various Consortium Partners from Industry as well as External Advisors, is responsible for providing external steering on vision, priorities and challenges for the FMI ecosystem. The EIB is expected to meet to provide feedback on the effort made by the project to establish strategic priorities for FMI experimentation and impact.

As reported, last time the EIB was consulted during the Research Foundations phase of the project which resulted in a need to sharpen to focus and offering, and with a recommendation to engage directly with existing accelerators to increase SME engagement. These recommendations have been considered and used to tailor the 2nd open call for experiments and replicators. The EIB will be engaged again in preparation for the final year of the project as the consortium works towards exploitation and sustainability of results. FLAME will use the experimentation outcomes from validation and 3rd party experiments to engage the EIB in the next conversation. The goal is the evaluate the results so far and provide guidance on the final phase of the project.

Events - 2019

➔ Looking forward, FLAME's continued participation in relevant events throughout 2019 is expected. These events provide an excellent opportunity to spread the FLAME message with demonstrations and presentations about FLAME progress, offering and funding opportunities. A refined list of which events will be attended by FLAME is continuously maintained by the consortium partners. As of today, we can anticipate that during year 3, the plan is to ensure presence of FLAME at selected future events:

- **Mobile World Congress 2019. 25-28 February, Barcelona.** The FLAME platform will be on display at the IDCC booth in Hall 7 booth 7C61 with a demo showcasing the FLIPS part of the FLAME platform (including the terminal extensions, i.e., more forward looking stuff). IDCC will also have a panel on verticals/testbeds as well as another on edge, featuring Monique Calisti (Martel) and Dirk Trossen (IDCC) as panelist and moderator.

- **FLAME's Second Summer School & Hackathon: 17-20 June, 2019, Bristol, UK**. The Second FLAME Summer School and Hackathon will take place in Bristol in June.

- **Fed4Fire+ FEC5 Engineering Conference . 24-25 April, Copenhangen, Denmark.** The **Fed4FIRE+ project** offers the largest federation worldwide of Next Generation Internet (NGI) testbeds, which provide open, accessible and reliable facilities supporting a wide variety of different research and innovation communities and initiatives in Europe. The Fed4FIRE+ Engineering Conferences are 2/3-day events (organised twice a year) with a **mix of plenary and parallel sessions**. This is a great opportunity for researchers and developers, to exchange experiences and inspire each other.

- **EuCNC 2019. 18-21 June, Valencia** EuCNC 2019 is the 28th edition of a successful series of a conference in the field of telecommunications, sponsored by the IEEE Communications Society and the European Association for Signal Processing, and supported by the European Commission. This conference is one of the most prominent communications and networking conferences in Europe, which efficiently brings together cutting-edge research and world-renown industries and businesses.

- **IBC 2019. 12-17 September, Amsterdam** (Participation to be confirmed at FLAME meeting in Pisa, 2019). IBC is the world's most influential media, entertainment and technology show. In 2018 IBC attracted more than 55,000 attendees from 170 countries around the world, exhibiting more than 1,700 of the world's key technology suppliers and showcasing a debate-leading conference.

- **SCEWC 19. 19-21 November, Barcelona.** The City Expo World Congress is a key event for smart cities around the world.

5 CONCLUSIONS AND NEXT STEPS

FLAME aims to establish and grow a sustainable Future Media Internet, FMI, ecosystem to ensure effective impact creation through a comprehensive and well-articulated set of activities which all partners are pursuing. Through the development of a platform seeding strategy, FLAME intends to create demand for services for the FMI ecosystem. The strategy is designed to grow the FLAME FMI ecosystem throughout the project in accordance with market positioning, infrastructure sustainability models and platform exploitation.

FLAME's approach is to put marketing, communication and dissemination at the service of the engagement activities. To this purpose, dedicated measures have been implemented from the very beginning of the project and are being refined according to the partner needs, according to the feedback from the broad community and to suit the overall promotional opportunities as they arise.

In Year 2, Phase 3 [M13, M36], started in January 2018 and marked a transition towards the creation of the FMI ecosystem as a sustainable and larger community that will be able to use, validate and exploit the FLAME outcomes and create impact at various levels both in a scientific and socio-economic perspective. While stakeholders' awareness and creation remain key for the whole project's duration, the emphasis in Y2 was on promoting uptake of the FLAME offering though a comprehensive 3rd party engagement strategy centred around the first two Open Calls, announced April and November 2018.

Year two saw the organisation of the 1st FLAME Summer school in July 2018 in Bristol, the organisation of a FLAME session at FEC3 in March, and organisation of the 2nd FLAME outreach/community building workshop at EuCNC 2018 . FLAME also participated in a number of important events (e.g., MWC 2018, IBE 2018, SCEWC18 and Media Fast Forward) where the project was promoted. FLAME also gained recognition via the CSI award won by InterDigital for its participation in the project.

In 2019, FLAME will again participate in and organise events, including the 2nd FLAME Summer School and Hackathon (June 17th to 20th, 2019). FLAME's 3rd open call will be conducted in Spring 2019.

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[2] Adriano Galati, Margherita Facca (Martel), D6.1: FLAME Brand Identity Toolkit, 28/02/2017

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APPENDIX 1: FLAME NEWSLETTER SAMPLE

APPENDIX 2: FORUM 451°E PRESS COVERAGE

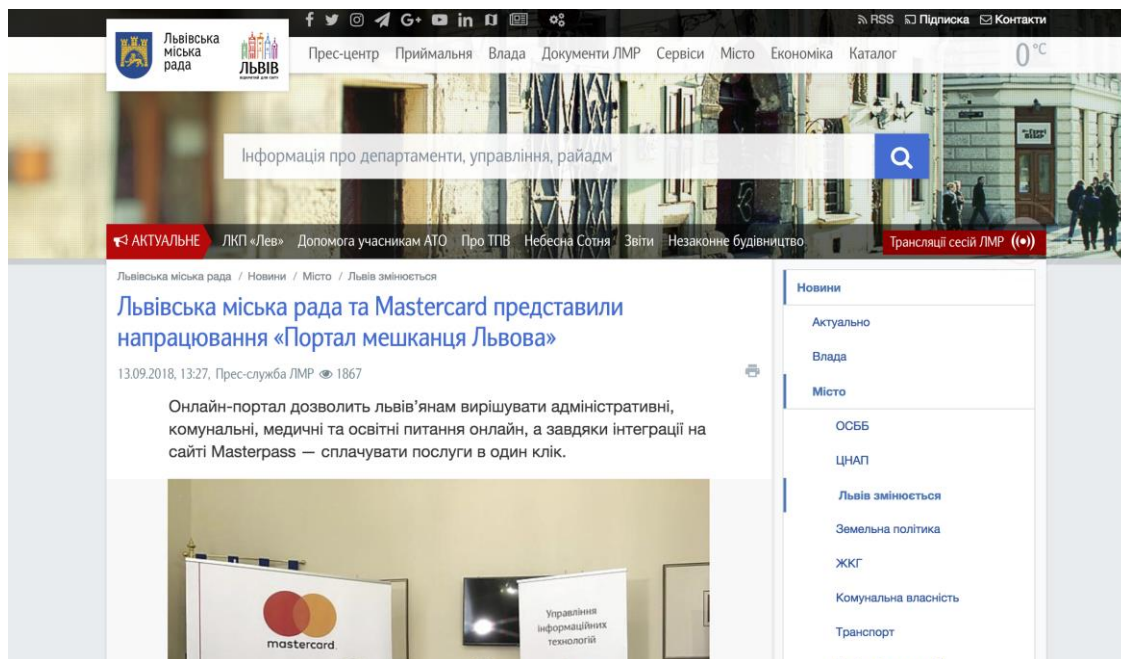http://www.mediastar.net.ua/73204-na-forum-451e-diskutuvali-pro-nov-vikliki-mozhlivost-dlya-lyudini-v-suchasnomu-mst.html

https://city-adm.lviv.ua/news/city/lviv-changes/255073-pid-chas-forum-451-e-spikery-podilylysia-dosvidom-vtilennia-proektiv-u-sferi-elektronnoho-uriaduvannia-u-ikh-krainakh
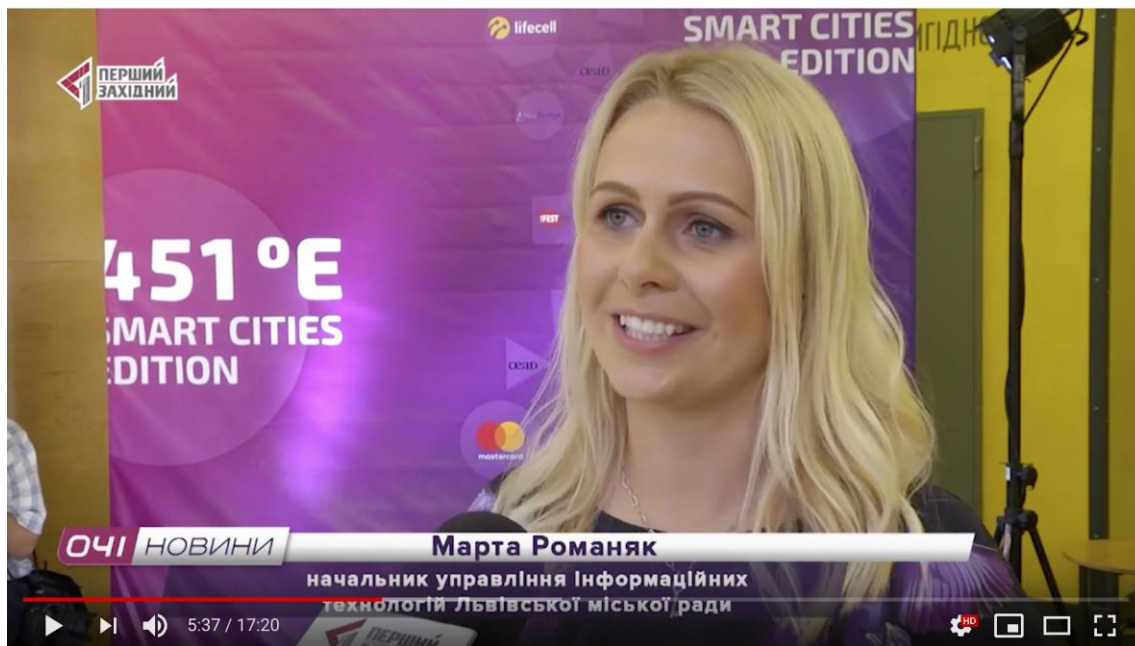
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https://city-adm.lviv.ua/news/city/lviv-international/255109-miskyi-holova-lvova-zustrivsia-z-inozemnymy-spikeramy-forum-451-e

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https://www.youtube.com/watch?v=FqZoCuCVYG0

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