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Report

D5.6 Yearly Dissemination Report 2018

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1 INTRODUCTION

In the frame of the Electric Propulsion Innovation & Competitiveness (EPIC) project, (grant number 640199) and more specifically it's Work Package 5 "Dissemination Education and Outreach", this document has been produced with the aim to describe the activities performed in by the EPIC PSA regarding Dissemination, Education and Outreach (Task T5.1 and Task T5.2) during the fourth year of execution of the project. These activities are in line with the agreed Dissemination plan RD1 containing the dissemination objectives, target groups identified, and the structure, means and activities to ensure successful and wide dissemination of project results as well as maximising the project visibility.

The present document is the deliverable D5.6: *Yearly Dissemination Report 2018*.

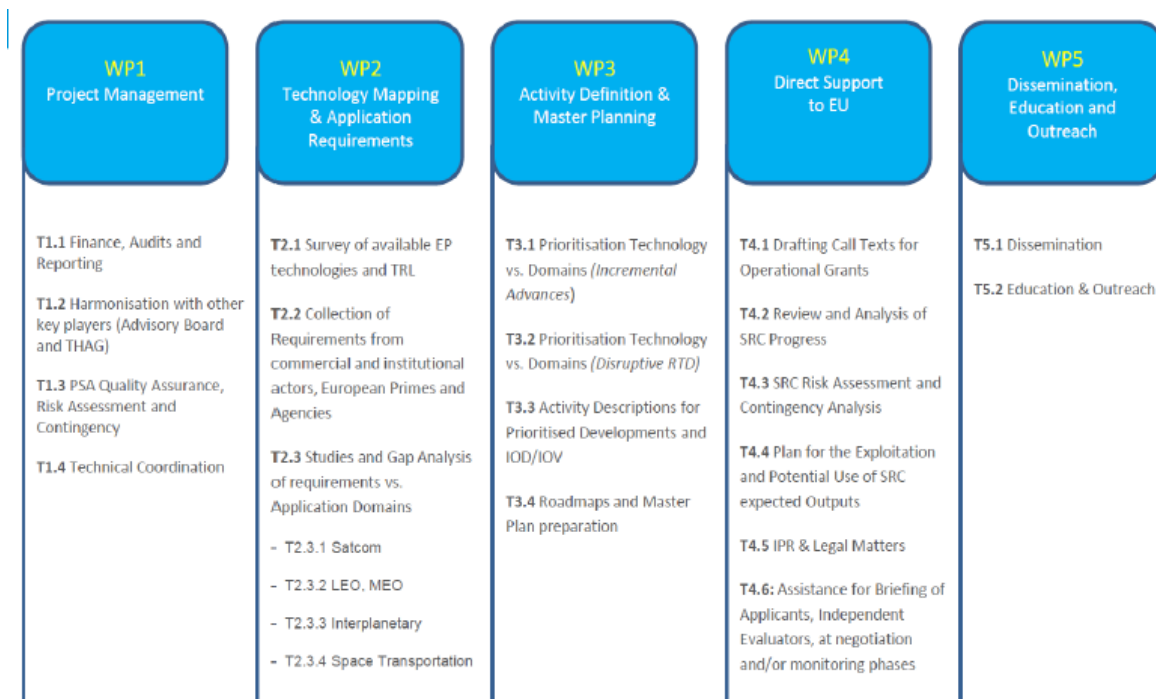


Figure 1.1: EPIC Work Package Structure



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2 REFERENCE DOCUMENTS

[RD1] EPIC-CDTI-5.1-RP-D5.1 Dissemination plan

[RD2] EPIC-CDTI-5.1-RP-D5.2 Web Portal for EPIC

[RD3] EPIC Grant Agreement: COMPET-03-2014 EPIC Grant Agreement for: Coordination & support action (Ref. Ares(2014)3706837)

[RD4] EPIC-CNES-2.2-RP-D2.3 Workshop 1 Report (Brussels 2014)

[RD5] EPIC-DLR-3.4-RP-D3.4 Workshop 2 Report (Stockholm 2015)

[RD6] EPIC- CDTI-5.1-RP-D5.3 Yearly Dissemination Report 2015

[RD7] D4.3 SRC Collaboration Agreement (CoA)

[RD8] EPIC- CDTI-5.1-RP-D5.4 Yearly Dissemination Report 2016

[RD9] EPIC- CDTI-5.1-RP-D5.8 Workshop 3 Report (Madrid 2017),

[RD10] EPIC- CDTI-5.1-RP-D5.5 Yearly Dissemination Report 2017

[RD11] EPIC- CDTI-5.1-RP-D5.9 Workshop 4 Report (London 2018),

3 ACRONYMS & ABBREVIATIONS

ASI	Agenzia Spaziale Italiana
BELSPO	Belgian Science Policy Office
COSMOS	Continuation of Cooperation Of Space NCPs as a Means to Optimise Services
CDTI	Centro para el Desarrollo Tecnológico Industrial
CNES	Centre National d'Études Spatiales
DLR	Deutsches Zentrum für Luft- und Raumfahrt
EC	European Commission
EPIC	Electric Propulsion Innovation and Competitiveness
ESA	European Space Agency
EU	European Union
H2020	Horizon 2020
IEPC	International Electric Propulsion Conference
NCP	National Contact Points
OG	Operational Grant
PSA	Project Support Activity
SRC	Strategic Research Cluster
UKSA	UK Space Agency
WP	Work Package



4 DISSEMINATION EDUCATION AND OUTREACH OBJECTIVES AND STRUCTURE

In line with [RD1], the EPIC PSA dissemination and exploitation activities are aimed at:

- Promoting the EPIC PSA project, its progress and results.
- Improving access to useful inputs from the SRC Operational Grants.
- Contribute to ensuring that the EPIC and Electric Propulsion SRC achievements are known to the potential users and future potential bidders for SRC Operational Grants.
- Improving the knowledge and acceptance of the SRC and therefore contribute to the subsequent exploitation of the project results by end-users or by a potential next SRC phase beyond 2020.
- Guaranteeing that the EPIC project is exploited to its full potential.

The dissemination activities are the responsibility of and coordinated by CDTI (as leader of Task 5.1 “Dissemination” and of WP 5), but this task includes the participation of all PSA Partners.

EPIC Dissemination activities will be performed as far as possible in coordination with the COSMOS network which is the network of National Contact Points (NCP) for the Space theme under the EU’s Horizon 2020 (<http://ncp-space.net/>); and in collaboration with the PSA Partner organisation NCPs for Space.

The EPIC PSA will also encourage the dissemination of results by the SRC Operational Grants holders, in a united and coordinated way as much as possible, so that all possible channels are exploited, always under the coverage of the SRC Collaboration Agreement (CoA) [RD7].

In line with [RD3], the main education and outreach activities planned are:

- To reach grade-school and high-school students, in order to increase the interest in STEM (science, technology, engineering and math) and of female students in particular.
- Organisation of educational material, trainings or contests, making use of the ESA and National Agencies educational programmes and resources.
- Exchange and network with non-space sectors to identify opportunities outside the space field, presenting the PSA work at non-space events when possible.
- Preparation of education material related to space and EP especially aimed at promoting the interest in science, technology, engineering and mathematics in grade- and high-school students; and sharing it directly with entities performing outreach activities and through the EPIC website in an education and outreach section.
- 1 trainee will be invited to do his/her final thesis in the ESA Propulsion Laboratory at ESTEC in support of EPIC.

The education & outreach activities are the responsibility of and coordinated by ESA (as leader of Task 5.2 “Education & Outreach”), but this task includes the participation of all PSA Partners.

EPIC education & outreach activities will be performed as far as possible in coordination and collaboration with the education & outreach activities of the EPIC Partners and its means and channels. Mainly the National Agencies and ESA will make use of their expertise and resources in organising these types of communication, education & outreach activities.

The participation and support by PSA Partners in these two tasks (T5.1 and T5.2), will be described in detail in each activity of this document.



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5 TARGET GROUPS

In line with [RD1], the main target groups for dissemination had been grouped as follows:

- Main research institutions, and academia [DG1-Research/Academia]
- European space industry at all levels, especially manufactures of space subsystems: Large System Integrators, components manufacturers at subsystem, system or component level [DG2-Space Industry].
- European Commission, main Space Agencies, European Member States and Governmental Institutions [DG3-Governments].
- Space satellite operators and new space market and missions developers [DG4-Operators].
- Public media and general public interested in space technology and science, and its impact and benefits in their daily life [DG5-General Public].

These target groups for dissemination will be identified and mapped for each activity performed in each Yearly Dissemination Report.

In line with [RD3], the main target groups for education & outreach activities are:

- Grade-school and high-school students and its teachers [EG1-Schools]
- University students, and Master and students in science, technology, engineering and mathematics; and its teachers [EG2-University]
- Research Institutions; PhD students; young graduate trainees; and junior technical researchers in science, technology, engineering and mathematics, and its tutors [EG3-Research]
- General public [EG4-General public]

These target groups for education & outreach will be identified and mapped for each activity performed in each Yearly Dissemination Report



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6 DISEMINATION ACTIVITIES IN 2018

Various dissemination channels and media had been used during 2018 to obtain maximum impact from the promotion of EPIC results. The channels had been selected according to the intended audience.

6.1 EPIC website in 2018

The EPIC website is <http://epic-src.eu/>. It has already been set up in 2015 and evolved to its final shape to become the major EPIC dissemination tool. The website has evolved during 2016 and 2017 up to the mature form in terms of structure and content. This website should help increasing the public awareness and visibility of the project and it is used as the mayor channel to communicate with the main stakeholders, industry, research institutions and academia. In addition the site is a valuable tool for exchanging information produced in the EPIC PSA and in the SRC Operational Grants to be funded. The website is continuously maintained by CDTI and its content updated with the contributions of all PSA Partners, and the ongoing SRC Operational Grants.

The creation of a PSA web portal (media tool) provides a fast and on-line access of the relevant background, foreground and any other project related information (PSA events, links, public deliverables, news) that can be made public and disseminated.

The structure (Main Page/Child Pages/Sub-child Pages) of the web portal has been updated during 2018 and it is the following:

- Main Page: Welcome page, including a News section (both with a dynamic window and with a fix list window)
- Child Pages (list of topics in the left had side of the Main Page), and Sub-child pages (second level) for the EPIC Programme Support Activity Child Page, and others.
 - Child Page: EPIC Workshop 2018
 - Sub-child page: EPIC Workshop 2018 Presentations
 - Child Page: EPIC Lecture Series 2018
 - Child Page: News
 - Child Page: What is Electric Propulsion?
 - Child Page: The Strategic Research Cluster: Programme Support Activity and Operational Grants
 - Child Page: The EPIC Programme Support Activity
 - Sub-child page: The EPIC Partners
 - Sub-child page: The EPIC work performed on past years
 - Sub-child page: EPIC Events
 - Sub-child page: EPIC Public Documents
 - Sub-child Page: EPIC Education material
 - Child Page: High Level SRC Roadmap
 - Child Page: Space 2016 H2020 Call on Electric Propulsion
 - Child Page: Space 2019 & 2020 H2020 Calls on Electric Propulsion
 - Child Page: SRC Operational Grants
 - Sub-child page: CHEOPS
 - Sub-child page: HEMPT-NG
 - Sub-child page: GIESEPP
 - Sub-child page: GANOMIC
 - Sub-child page: HIPERLOC-EP
 - Sub-child page: MINOTOR
 - Child Page: Related links
 - Child Page: Questions & Answers
- Contact box (EPIC web content and web master: Jorge.lopez@cdti.es)
- Search box



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The content of the web portal contains among others the following:

- The EPIC PSA: what it is, its activities, objectives and PSA Partners,
- EPIC Workshop 2018 and EPIC Lecture Series 2018 webpage and repository of presentations.
- EPIC Workshop 2017 and EPIC Lecture Series 2017 webpage and repository of presentations and videos recording the Lecture Series.
- The H2020 Electric Propulsion SRC, its set up and the relationship between the PSA and the operational grants
- Background on Electric Propulsion (what it is, history, the EP system, its use, current European situation...)
- EPIC public documents,
- Agenda of events, EPIC participation and its presentations and calendar,
- Information on the EPIC Workshops and EPIC events participation already held (with links to their specific pages), and planned,
- Education material, presentations and papers presented by EPIC and the PSA partners,
- Questions & Answers page (public but not open),
- External links to be included (e.g. to Commission related documents, to SRC operational grants, etc.)
- Information/links on H2020 SRC Calls or relevant documents (as published by the Commission), including the Horizon 2020 Work Plans with the EP SRC Calls, and the corresponding Electric Propulsion SRC Guidelines documents (technical annexes),
- SRC Operational Grants detail information about all ongoing projects with all the public information of their activities, partners, publications and links to their websites (CHEOPS, HEMPT-NG, GIESEPP, GANOMIC, HIPERLOC-EP, MINOTOR).
- Web manager and web content points of contact,

During 2018 the main webpages updated have been the following ones: News, EPIC Workshop 2018, EPIC Lecture Series 2018, EP SRC 2019 & 2020 Calls, including the Call texts and the corresponding Guidelines documents (technical annexes), EPIC work performed on its first years, EPIC Events, EPIC Public Documents, EPIC Education material, and Related updated links (2019&2020 Calls).

The EPIC news Posts published during 2018 period are the following ones (<http://epic-src.eu/category/news/>)

- Download the presentations from the 2018 EPIC Workshop Now / 29.10.2018 / <http://epic-src.eu/download-presentations-2018-epic-workshop-now/>
- Electric Propulsion SRC 2019 Call is open and its guidelines document available! / 29.10.2018 / <http://epic-src.eu/ep-src-2019-call-is-open-and-guidelines-document-available/>
- Strategic Research Cluster activities present in the International Astronautical Congress (IAC 2018) / 05.10.2018 / <http://epic-src.eu/strategic-research-cluster-activities-present-in-the-international-astronautical-congress-iac-2018/>
- 2018 EPIC Student Lecture Series Programme Published! / 29.08.2018 / <http://epic-src.eu/2018-epic-student-lecture-series-programme-published/>
- SPACE DRONE™ based on Gridded Ion Engines / 24.05.2018 / <http://epic-src.eu/space-drome-based-on-gridded-ion-engines/>
- Strategic Research Cluster activities present in the Space Propulsion Conference 2018 / 20.03.2018 / <http://epic-src.eu/strategic-research-cluster-activities-present-in-the-space-propulsion-conference-2018/>
- EPIC WORKSHOP 2018 in London / 03.03.2018 / <http://epic-src.eu/epic-workshop-2018-in-london/>

Information on the EPIC Workshops are already included in full detail in their respective websites as reported in the deliverables [RD4] D2.3 Workshop 1 report, [RD5] D3.4 Workshop 2 report, [RD9] D5.8 Workshop 3 Report (Madrid Workshop Report 2017), [RD11] D5.9 Workshop 4 Report (London Workshop Report 2018) and the EPIC website is already linked those Workshop websites.

- The EPIC Workshop 2014 one; organised by EPIC in Brussels: 25-28/11/2014 (<http://www.epic2014.eu/>)
- The EPIC Workshop 2015 two; organised by EPIC in Stockholm: 11-12/02/2015 (<http://epic-src.eu/agenda/>)
- The EPIC Workshop 2017 three; organised by EPIC in Madrid: 24-25/10/2017 (<http://epic-src.eu/workshop2017/> and <http://epic-src.eu/workshop-2017-presentations/>)
- The EPIC Workshop 2018 four; organised by EPIC in London: 15-17/10/2018 (<http://epic-src.eu/workshop2018/> and <http://epic-src.eu/workshop-2018-presentations/>)

Information on future EPIC Workshops (ESTEC 21-25 October 2019) will be included in due time in the EPIC website with its own page links, and the relevant reports will be produced in dedicated deliverables (Workshop reports).



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The EPIC website is one of the Deliverables of the project [RD2] and is updated and maintained continuously by CDTI, with all PSA Partners contributions. The full description of the EPIC web is detailed in [RD2], and its updates will be recorded if considered necessary in updates of this reference document.

Target Groups	EPIC Website dissemination in 2018	Type of channel	EPIC Partner	EPIC Partner preparing material
[DG1-Research/Academia] [DG2-Space Industry] [DG3-Governments] [DG4-Operators] [DG5-General Public]	EPIC Website / http://epic-src.eu/	PSA Website	CDTI	CDTI
	EPIC Workshop 1 Website Brussels: 25-28/11/2014 / http://www.epic2014.eu/	Workshop website, registration tool and presentation repository	CNES	CNES
	EPIC Workshop 2 Website Stockholm: 11-12/02/2015 / http://epic-src.eu/?page_id=12/	Workshop website, registration tool and presentation repository	DLR	DLR
	EPIC Workshop 3 Website Madrid: 24-25/10/2017 / (http://epic-src.eu/workshop2017/ and http://epic-src.eu/workshop-2017-presentations/)	Workshop website, registration tool and presentation repository	CDTI	CDTI
	EPIC Workshop 4 Website Madrid: 15-17/10/2018 / (http://epic-src.eu/workshop2018/ and http://epic-src.eu/workshop-2018-presentations/)	Workshop website, registration tool and presentation repository	CDTI	CDTI

Table 6.1.1: List of EPIC websites for dissemination in 2018



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At the moment, the EPIC website looks as shown in the following Imaging Print (Only the Main Page is shown).



Figure 6.1.1: EPIC website Main Page

6.2 PSA's Partners own websites and OGs own websites in 2018

The publication of the EPIC work and results in PSA's Partners own websites; and the publication of the Operational Grants activities and results in its own OGs websites are a very important dissemination activity. The preparation of the PSA's Partners own website and text is the responsibility of the related PSA Partner, but the current content has been coordinated by CDTI drafting a baseline text proposed to all Partners.

The preparation of the OGs activities included in the EPIC PSA website has been coordinated with each Operational Grant in line with the SRC Collaboration Agreement, and the current content has been coordinated by CDTI drafting the text for each OG (<http://epic-src.eu/src-operational-grants/>)

Target Groups	EPIC Dissemination link in the PSA Partners	EPIC Partner
[DG1-Research/Academia] [DG2-Space Industry] [DG3-Governments] [DG4-Operators] [DG5-General Public]	EPIC reference in ESA website : http://www.esa.int/Our_Activities/Space_Engineering_Technology/EPIC_Electric_Propulsion_Innovation_and_Competitiveness	ESA
	EPIC reference in ASI website: http://www.asi.it/it/news/epic-in-space-electrical-propulsion-and-station-keeping	ASI
	EPIC reference in BELSPO website http://www.belspo.be/belspo/space/euPolicy_h2020_en.stm http://www.belspo.be/belspo/space/euPolicy_h2020_nl.stm http://www.belspo.be/belspo/space/euPolicy_h2020_fr.stm	BELSPO
	EPIC reference in French Research ministry and CNES websites http://www.horizon2020.gouv.fr/cid73955/le-point-contact-national-espace.html	CNES



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	https://horizon2020.cnes.fr/fr https://horizon2020.cnes.fr/fr/horizon-2020/epic https://cnes.fr/fr/fiches_mission_alpha http://www.horizon2020.gouv.fr/cid132950/journees-d-information-espace-2018-horizon-2020.html http://www.horizon2020.gouv.fr/cid129525/appele-a-manifestation-d-interet-pour-des-experiences-iod-iov.html	
	EPIC reference in CDTI ESH2020 website: http://eshorizonte2020.cdti.es/index.asp?MP=88&MS=711&MN=2&TR=C&IDR=2394	CDTI
	EPIC reference in DLR website: in English: http://www.dlr.de/rd/en/desktopdefault.aspx/tabid-2266/3398_read-44284/ and German: http://www.dlr.de/rd/desktopdefault.aspx/tabid-2266/3398_read-44284/	DLR
	TBD	UKSA
	EPIC reference in EUROSPACE website: To be updated	ADS-EUROSPACE
	EPIC reference in SME4Space website: https://www.sme4space.org/epic-project	SME4Space

Table 6.2.1: List of links of each EPIC PSA Partner website dedicated to EPIC and SRC dissemination activities in 2018.

Target Groups	EPIC Dissemination link in the Operational Grants website	OG
[DG1-Research/Academia]	CHEOPS SRC Operational Grant website: http://www.cheops-h2020.eu/	CHEOPS
[DG2-Space Industry]		
[DG3-Governments]	HEMPT-NG SRC Operational Grant website: http://www.hempt-ng.eu/	HEMPT-NG
[DG4-Operators]	GIESEPP SRC Operational Grant website: https://www.giesepp.com/	GIESEPP
[DG5-General Public]	GANOMIC SRC Operational Grant website: http://www.ganomic.eu/	GANOMIC
	HIPERLOC-EP SRC Operational Grant website: http://www.hiperloc.eu/	HIPERLOC-EP
	MINOTOR SRC Operational Grant website: http://www.minotor-project.eu/	MINOTOR

Table 6.2.2: List of links of each SRC Operational Grant website dedicated to SRC dissemination activities in 2018.

6.3 Social Media dissemination in 2018

The dissemination of PSA work and SRC Operational Grants results using social media-related channels is important for the dissemination of EPIC activities.

EPIC has selected Twitter and YouTube as the primary social media channels because they are the most popular general social media networks. They are easy to use and used by all target groups from general public to professionals and companies. The targeted audience would be the general public interested in space science and EU research activities, but also professionals and space research experts, and main stakeholders and decision makers.

EPIC had already implemented this Social media dissemination activity via Twitter (@EPICH2020) named: EPIC h2020 and YouTube Channel: (<https://www.youtube.com/channel/UC8a2JsVCDgmHu8mFWeQmZlQ>) named: EPIC h2020. These social media dissemination channels are currently used for all EPIC Posts, news, activities, presentations and videos, and they will be used extensively during the following years in coordination with the website and the SRC OGs.



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The maintenance and management is performed by CDTI.

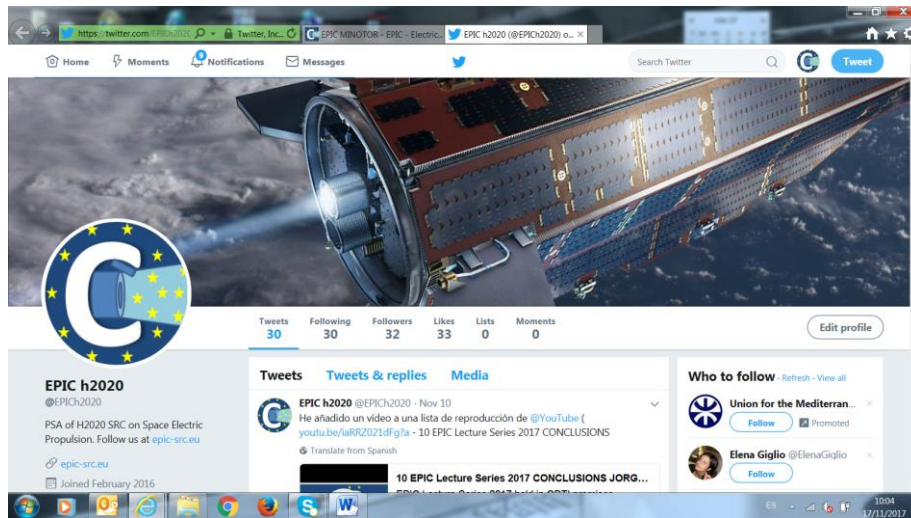


Figure 6.3.1: EPIC Twitter @EPICH2020

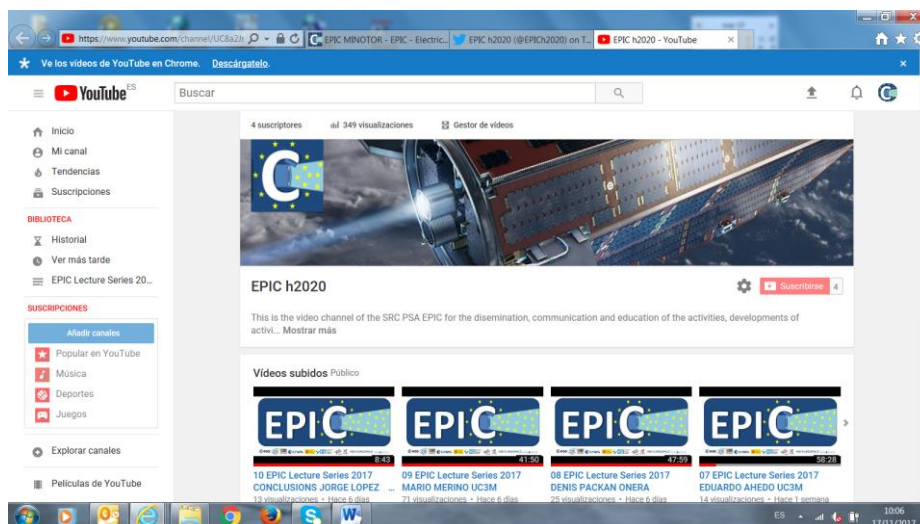


Figure 6.3.2: EPIC YouTube Channel

EPIC has selected LinkedIn as secondary social media channel because it is the largest professional network, it is structured by professionals, companies and technologies. The targeted audience would be professionals of the space sector or other sectors of interest in H2020 which could profit from the networking or knowledge on EPIC. It is currently used by the partner organisations and already contains multiple groups on Horizon 2020 which can also serve as vehicle of promotion and networking.

EPIC had already implemented this Social media dissemination activity by CDTI via a LinkedIn Dissemination Group (<https://www.linkedin.com/grp/home?gid=8303568>) named: H2020 SRC EPIC. This social media dissemination is currently at its early stages, and it will be further developed and exploited during the following years in coordination with the website.



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The maintenance and management is performed by CDTI and will be further developed.

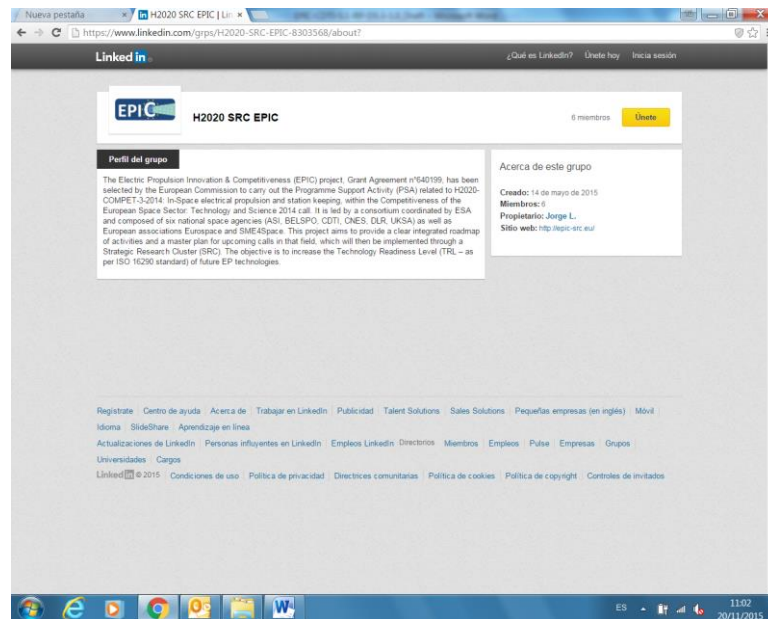


Figure 6.3.3: EPIC Group in LinkedIn

Target Groups	EPIC Dissemination Social Media	EPIC Partner
[DG1-Research/Academia] [DG2-Space Industry] [DG3-Governments] [DG4-Operators] [DG5-General Public]	Twitter EPIC h2020 (@EPICH2020): (tweets) Tweets and retweets on Electric Propulsion and @EPICH2020 from (@SME4SPACE): (Tweets)	CDTI, SME4SPACE
[DG1-Research/Academia] [DG2-Space Industry] [DG3-Governments] [DG4-Operators]	LinkedIn Group: (https://www.linkedin.com/grp/home?gid=8303568) named: H2020 SRC EPIC	CDTI
[DG1-Research/Academia] [DG2-Space Industry] [DG3-Governments] [DG4-Operators] [DG5-General Public]	YouTube Channel: (11 Videos, 1 Video EPIC Lecture Series 2017 list) (https://www.youtube.com/channel/UC8a2JsVCDgmHu8mFWQmZlQ/). Named: EPIC h2020.	CDTI

Table 6.3.1: List of EPIC Dissemination Social Media activities in 2018.



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6.4 EPIC Logo in 2018

The EPIC Logo has been produced in 2015 and selected by the PSA Partners. It is being used in the website and, from now on, on all PSA documentation, presentations and dissemination material along the project.



Figure 6.4.1 EPIC Logo

The EPIC banner to be used in all documents and presentations with the new EPIC PSA Partners Logos has been also produced in 2015 and updated to make it coherent with the PERASPERA banner.



Figure 6.4.2 EPIC PSA Partners Logos

No modification from RD8.

6.5 Organisation of EPIC Workshops events in 2018

The EPIC Workshops one, two and three were the ones organised by EPIC during the first years of execution of the PSA. The first one was in Brussels: 25-28/11/2014 (<http://www.epic2014.eu/>) organised by CNES and BELSPO; the second one was in Stockholm: 11-12/02/2015 (http://epic-src.eu/?page_id=12) organised by DLR with the help of the THAG Swedish Delegation, and the third one in Madrid: 24-25/10/2017 (<http://epic-src.eu/workshop2017/>) organised by CDTI. Information on the EPIC Workshops performed during the first years of EPIC execution are already included in detail in their respective deliverables [RD4] Workshop 1 report, [RD5] Workshop 2 report and [RD9] Workshop 3 report.

6.5.1 EPIC Workshop 2018

The EPIC Workshop 2018 was organized by UKSA with support from CDTI, and held on 15-17 October 2018 in London, at: Westminster Conference Centre, 1 Victoria Street, London SW1H 0ET, United Kingdom; with the active involvement of all PSA Partners (<http://epic-src.eu/workshop-2018/>). Full information on the EPIC Workshop 2018 has been already



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included in detail in its respective deliverable [RD11] Workshop 4, but these are the main headlines of the most important dissemination event in 2018:

The EPIC Workshop 2018 program covered the following topics:

- PSA and SRC progress and activities
- H2020 Work Programme EP SRC topics, and IOD/IOV activities
- Electric Propulsion Technologies for Small Satellites and New Markets
- Incremental SRC OGs: objectives, proposed approach, team, progress, and early results
- Disruptive SRC OGs: objectives, proposed approach, team, progress, and early results
- New Strategies for EP Qualification and Entry Into Service
- New developments and EP Technologies and Capabilities
- Dissemination and education SRC activities

EPIC PSA makes public the presentations in agreement with the authors of the EPIC Workshop 2018 in the EPIC web:
<http://epic-src.eu/workshop-2018/>

These are the details of the invited speakers and their presentations:

AGENDA / FINAL PROGRAMME: 15TH OCTOBER 2018

12:00	Registration & Coffee	
13:15	Introduction, and organization logistics	Nick Cox, UK Space Agency
13:30	PSA Welcome, and EPIC Workshop Objectives	Jose Gonzalez Del Amo, ESA
SESSION 1: PSA Updates and Programmatics		
Chair: Nick Cox, UK Space Agency & Co-Chair: Lisa Martin-Perez, DLR		
13:50	H2020 and EP SRC, Next Work Programmes	Tanja Zegers, European Commission
14:10	SRC activities and Operational Grants	Florence Beroud, REA
14:30	2019 Disruptive Call Details and Guidelines	Jorge Lopez Reig, CDTI
14:50	EPIC PSA and activities	Jose Gonzalez Del Amo, ESA
15:10	IOD / IOV	Jean-Michel Monthiller, European Commission
15:30	Coffee Break	
Session 2: SRC Project Updates Part I		
Chair: Jose Gonzalez Del Amo, ESA & Co-Chair: Vincenzo Pulcino, ASI		
15:45	CHEOPS	Idris Habbassi, Safran Aircraft Engines
16:20	GIESEPP	Cyril Dietz, Ariane Group
16:55	HEMPT-NG	Ernst Bosch, Thales Deutschland
17:30	DAY 1 CLOSE	



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AGENDA / FINAL PROGRAMME: 16TH OCTOBER 2018

08:30	Registration & Coffee	
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09:00	Welcome Remarks	Nick Cox, UK Space Agency
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Session 3: SRC Project Updates Part II Chairs: Vincenzo Pulcino, ASI & Co-Chair: Fabien Castanet, CNES		
09:10	GANOMIC	Louis Grimaud, Safran
09:45	Hiperloc-EP	John Stark, Queen Mary University London
10:20	MINOTOR	Denis Packan, ONERA
10:55	EPIC PSA and activities (TBC)	Jose Gonzalez Del Amo, ESA

11:15	Coffee Break	
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11:30	Keynote Speech	Alan Bond, Reaction Engines
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Session 4: Electric Propulsion Technologies for Small Satellites and New Markets Chair: Giorgio Saccoccia, Propulsion & Aerothermodynamics Head, ESA & Co-Chair: Fabien Castanet, CNES		
12:00	Cubesats	Sabrina Corpino, Turin Politecnico
12:10	OneWeb Constellation	Paolo Bianco, Airbus DS
12:20	LEO Sat Constellation	Steven Austin, TAS-UK
12:30	New EP Applications	Marco Villa, Tyvak
12:40	CubeSats	Craig Clark, Clyde Space
12:50	Emerging Technologies and Applications	Andrea Luccafabris, Surrey Space Centre

13:00	LUNCH BREAK	
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Session 5: Electric Propulsion Technologies for Small Satellites and Emerging Applications Panel Discussion Chair: Giorgio Saccoccia, Propulsion & Aerothermodynamics Head, ESA & Co-Chair: Fabien Castanet, CNES		
14:00	Cubesats	Sabrina Corpino, Turin Politecnico
	OneWeb Constellation	Paolo Bianco, Airbus DS
	LEO Sat Constellation	Steven Austin, TAS-UK
	New EP Applications	Marco Villa, Tyvak
	CubeSats	Craig Clark, Clyde Space
	Emerging Technologies and Applications	Andrea Luccafabris, Surrey Space Centre



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Session 6: EP Technologies and Capabilities		
Chair: Lisa Martin-Perez, DLR & Co-Chair: Vincenzo Pulcino, ASI		
14:45	The CO2DGM for CO2-breathing thrusters	Konstantinos Katsonis, DEDALOS Ltd
15:00	Disruptive Electric Propulsion at IRS	Georg Herdrich, University of Stuttgart
15:15	Plasma Jet Pack (PJP) Technology Overview	Luc Herrero, COMAT
15:30	ICE ³	Alberto Garbayo, AVS
15:45	MPD Technology	Manuel la Rosa Betancourt, Pintegral Solution

16:00	COFFEE BREAK	
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Session 7: EP Technologies and Capabilities (Continued)		
Chairs: Jorge Lopez Reig, CDTI & Co-Chair: Nick Cox, UK Space Agency		
16:15	Helicon O-plasma Thruster experimental platform	Mercedes Ruiz, Sener
16:30	Test campaign results for AQUAJET and XMET	Daniel Staab, AVS UK
16:45	Novel cathodes and alternative propellants for EP	Steven Gabriel, University of Southampton
17:00	Microfluidic flow control for next NG HEMP thrusters	Jens Haderspeck, TAS Deutschland
17:15	GEO Dual Mode PPU and LEO HEMPT PPU	Eric Bourignon, TAS-Belgium
17:30	IMPULSE	Angelo Grubisic, University of Southampton
17:45	ALPHIE	Luis Conde, UPM Spain
18:00	Novel electrode material C12A7	Angel Post, AT Devices
18:15	HYPHEN	Eduardo Ahedo, Universidad Carlos III de Madrid

18:30	COCKTAIL NETWORKING EVENT SPONSORED BY THALES ALENIA SPACE UK	
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HORIZON 2020



EPIC

AGENDA / FINAL PROGRAMME: 17TH OCTOBER 2018

09:30	Registration & Coffee	
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10:00	Welcome Remarks	Nick Cox, UK Space Agency
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Session 8: New Strategies for EP Qualification and Entry Into Service: Chair: Neil Wallace, ESA & Co-Chair: Jorge Lopez Reig, CDTI		
10:10	EuTelSat Qualification Strategies	Cosmo Casaregola, EuTelSat
10:25	Insurance of EP Systems	Morten Pahle, Vivet
10:40	Qualification of EP Systems	Richard Blott, Space Enterprise Partnerships
10:55	Qualification of EP Systems	Hans Leiter, Ariane Group
11:10	Qualification of EP Systems	Mariano Andrenucci, Sitael
11:25	Qualification of EP Systems	Fabrizio Scortecci, Aerospazio

11:40	COFFEE BREAK	
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Session 9: New Strategies for EP Qualification and Entry Into Service: Panel Discussion Chair: Neil Wallace, ESA & Co-Chair: Jorge Lopez Reig, CDTI		
12:00	EuTelSat Qualification Strategies	Cosmo Caselagari, EuTelSat
	Insurance of EP Systems	Morten Pahle, Vivet
	Qualification of EP Systems	Richard Blott, Space Enterprise Partnerships
	Qualification of EP Systems	Hans Leiter, Ariane Group
	Qualification of EP Systems	Mariano Andrenucci, Sitael
	Qualification of EP Systems	Fabrizio Scortecci, Aerospazio

12:45	LUNCH BREAK	
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EPIC

Session 10: EP Technologies and Capabilities		
Chair: Fabien Castanet, CNES & Co-Chair: Vincenzo Pulcino, ASI		
13:30	Low-end Disruption & Delta-V Capability	Ane Aanesland, ThrustMe
13:45	Electric Propulsion: The Way Forward For A Spacefaring Future	Mariano Andrenucci, Sitael
14:00	Magnetic Nozzles	Mario Merino, Universidad Carlos II de Madrid
14:15	Iodine Propellant for future space missions	Franz Georg Hey, Airbus-DS Deutschland
14:30	Low Power Hall Effect Propulsion Systems for Small Satellites	Tommaso Misuri, Sitael
14:45	Hall Effect Thruster RAM-EP Concept	Giovanni Cesaretti, Sitael
15:00	Narrow Channel Hall Thruster for Nanosatellite Propulsion	Igal Kronhaus, Israel Institute of Technology
15:15	Hollow cathodes, resistojets, GIE and pulsed plasma thrusters	Francesco Guarducci, Mars Space Ltd
15:30	PLASMI Lab	Grazia Cicala, CNR-Nanotec
15:45	Testing & Qualification of EP Thrusters	Bernhart Seifert, FOTEC Forschungs

16:00	COFFEE BREAK
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Session 11: EP Technologies and Capabilities		
Chair: Peter Van Geloven, BelSpo & Co-Chair: Lisa Martin-Perez, DLR		
16:15	Exotrail HET thrusters for nano/microsats	David Henri, Exotrail
16:30	GIESEPP 2 and QinetiQ updates (T5, 6, 7)	Kevin Hall, QinetiQ
16:45	New Research Capability	Aaron Knoll, Imperial College London
17:00	ARTES Developments	Michel Poucet, Bradford Space
17:15	4CDGM	Chloe Berenger, Dedalos
17:30	EP2PLUS	Filippo Cichoki, Universidad de Carlos III
17:45	Optimising Molecular Propellants for Ion Thrusters	Peter Klar, University of Gießen
18:00	A Brief History of FEEPs - From Research to In-Orbit Results, Series Production and the Future of Space Mobility	Alexander Reissner, ENPULSION
18:15	WORKSHOP CONCLUSIONS	Jose Gonzalez Del Amo

18:15	WORKSHOP CLOSE
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EPIC Workshop 2018 facts and figures:

The EPIC Workshop 2018 was performed in two and a half days of intensive work and interactions, with 56 presentations and 47 speakers. The Workshop had 164 participants from more than 10 countries, including the European electric



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propulsion community, and the main space stakeholders in Europe. European participants came from: EC, REA, ESA, Space National Agencies, main Satellite Large System Integrators, main Satellite Operators, main Propulsion Subsystem Integrators, equipment industry, research institutions, universities, and industry associations.



Figure 6.5.1: EPIC Workshop 2018 participation and networking



Figure 6.5.2: EPIC Workshop 2018 sessions and presentations



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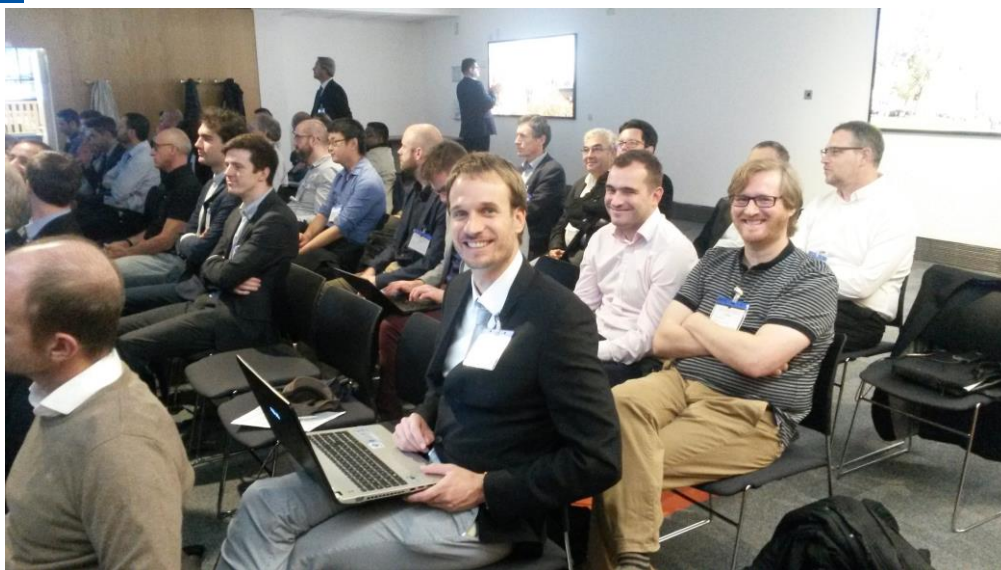


Figure 6.5.3: Audience and experts during the EPIC Workshop 2018



Figure 6.5.4: EC, REA and EPIC PSA Teams at the EPIC Workshop 2018

The future EPIC Workshop will be held during 21-25 October 2019 at ESTEC. The preparation had already started in full coordination with REA, EC, and all SRC OGs under the SRC Collaboration Agreement RD7. Further details on the EPIC Workshop 2019 will be published soon at: <http://epic-src.eu/workshop-2019/>

Target Groups	EPIC Dissemination Workshops	EPIC Partner
[DG1-Research/Academia] [DG2-Space Industry] [DG3-Governments] [DG4-Operators]	EPIC Workshop 4 / London: 15-17 October 2018	UKSA / All Partners
	EPIC Workshop 5 / ESTEC: 21-25 October 2019	ESA / All Partners

Table 6.5.1: List of 2018 and future EPIC Workshop.



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6.6 External events: Conferences/Workshops/Symposia in 2018

The participation and presentation of the PSA work and the progress of the SRC activities with respect to the SRC roadmap at relevant European and international conferences/workshops/symposia is a very important EPIC dissemination activity.

The EPIC PSA has participated during 2018 in several H2020 Info days presenting the PSA work, the SRC ongoing activities derived from the 2016 Calls and the 2019 SRC Call texts and its requirements and guidelines at relevant European and international conferences/workshops/symposia.

EPIC supported during 2018 the European Commission in the H2020 Space Info Days to present the Electric Propulsion SRC calls and related documentation and presentations. Presentations were produced for each occasion after consultation with the EC. The agenda of the events and the EPIC presentations are available on the EPIC website.

CDTI has prepared standard slides on the EPIC project to be used at different events. EPIC Partners presenting at each event, refined them and adapted them to the event needs.

Target Groups	European and international space conferences/workshops/symposia in 2018	EPIC Partner participant	EPIC partner preparing material
[DG1-Research/Academia] [DG2-Space Industry] [DG3-Governments] [DG4-Operators]	Space Propulsion International Conference 2018 (SP2018) [14-18.05.2018] Seville (ES). EPIC Paper and presentation and SP2018 Technical Program (available on the EPIC web): <ul style="list-style-type: none"> SP2018-031 "Ongoing Activities of the Strategic Research Clusters on Space Electric Propulsion (2017-2018)" -Jorge Lopez Reig et al. https://spacepropulsion2018.com/	CDTI	CDTI
	69 th International Astronautic Conference 2018 (IAC2018) [1-5.10.2018] Bremen (DE). EPIC Paper and presentation and Session 4.4 Electric Propulsion Technical Programme (available on the EPIC web): <ul style="list-style-type: none"> IAC-18/C4.4.6×45792 "The Strategic Research Cluster on Space Electric Propulsion of the European Union's Horizon 2020" -Jorge Lopez Reig et al. https://www.iac2018.org/	CDTI	CDTI
	Horizon 2020 Space Info Day [14.11.2018] Berlin (DE). EPIC presentation (available on the EPIC web) <ul style="list-style-type: none"> "SRC In Space electrical propulsion and station keeping SPACE-13-TEC-2019 Call Text and Guidelines" -Jorge Lopez Reig. https://ncp-space.net/save-the-date-horizon2020-international-space-info-day-brokerage-event/	CDTI	CDTI

Table 6.6.1: List of relevant European and international space conferences/workshops/symposia in 2018.

Target Groups	Local space conferences/workshops/symposia in 2018	EPIC Partner participant	EPIC partner preparing material
[DG1-Research/Academia]	Horizon 2020 Space Information Day Calls 2019 Madrid,	CDTI	CDTI



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[DG2-Space Industry] [DG3-Governments]	Spain [24.10.2018]/ Dedicated presentation “Strategic Research Cluster on EP 2019 Call Text and Guidelines (Disruptive Technologies)”. Presentation (available on the EPIC web).		
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Table 6.6.2: List of relevant local space conferences/workshops/symposia in 2018.

Target Groups	European and international space conferences/workshops/symposia attended by SRC Operational Grants in 2018	SRC OG participant
[DG1-Research/Academia] [DG2-Space Industry] [DG4-Operators]	69th International Astronautic Conference 2018 (IAC2018) [1-5.10.2018] Bremen (DE). <ul style="list-style-type: none"> IAC-18-C4.4.9x45869 “PPS@Xoo Hall Thruster Development at Safran”. 	CHEOPS
	Space Propulsion International Conference 2018 (SP2018) [14-18.05.2018] Seville (ES). <ul style="list-style-type: none"> SP2018-88 “Development of a High-Performance Low-Cost Electrospray Colloid Electric Propulsion System for Small Satellite applications”. 	HIPERLOC-EP
	69th International Astronautic Conference 2018 (IAC2018) [1-5.10.2018] Bremen (DE). <ul style="list-style-type: none"> IAC-18,B4,6A,11,x46093 “Development of a High-Performance Low-Cost PPU for an Electrospray Colloid Electric Propulsion System for Small Satellite applications” 	
	Space Propulsion International Conference 2018 (SP2018) [14-18.05.2018] Seville (ES). <ul style="list-style-type: none"> SP2018-490 “MINOTOR: Magnetic Nozzle Electron Cyclotron Resonance Thruster”. 	MINOTOR

Table 6.6.3: List of relevant European and international space conferences/workshops/symposia attended by SRC Operational Grants in 2018.

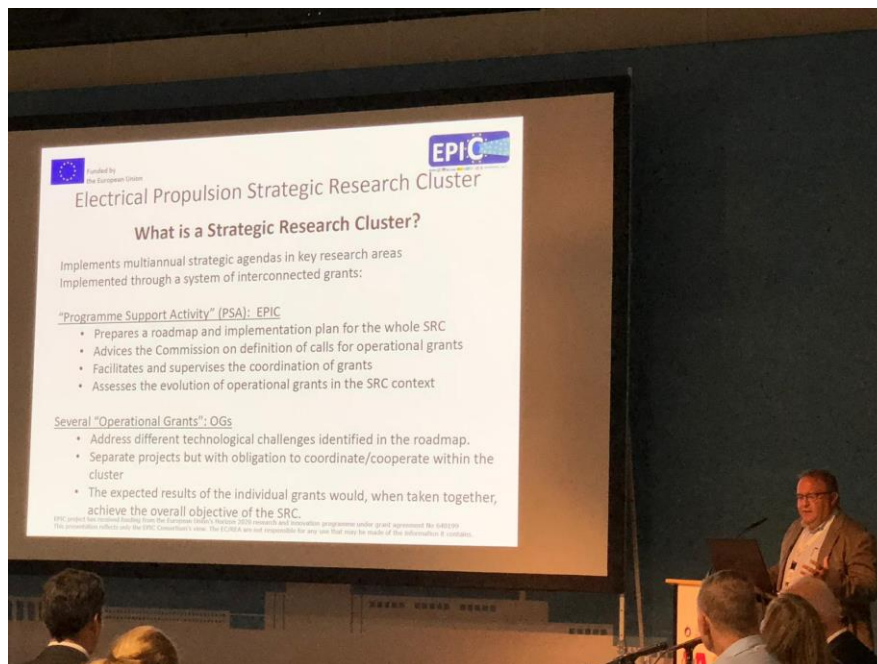


Figure 6.6.1: EPIC presentation at the IAC 2018



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69th International Astronautical Congress (IAC), Bremen, Germany, 1-5 October 2018.
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IAC-18-C4.4.6.

The Strategic Research Cluster on Space Electric Propulsion of the European Union's Horizon 2020

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Abstract

The Strategic Research Cluster (SRC) on Space Electric Propulsion (EP) is the new European Commission (EC) instrument into the European Union's Horizon 2020 research and innovation programme (H2020). The SRC objective is to target mid-term and long-term challenges in the space electric propulsion field, considered strategic for Europe. The SRC is implemented through a Programme Support Activity (PSA) coordinating individual and specific research and development Operational Grants. The Operational Grant activities aim at producing a significant demonstration and achievements of a specific technology in line with a defined roadmap. The SRC and EPIC PSA activities started at the end of 2014, and activities performed until the first half of 2018 are described in detail in this paper. The EPIC PSA current activities are focusing on the assessment of the progress and results of the ongoing Operational Grants steaming from the SRC 2016 Call, in the context of the SRC objectives, always in coordination with REA. The PSA is participating in most of the progress meetings and technical reviews with designated PSA teams. The evaluation on the state of the art and the market needs is a continuous activity for the PSA in order to update if necessary the SRC EPIC roadmap and master plan. The main evolution of the SRC and EPIC PSA activities will be reported in this paper. In preparation of the second phase of the SRC EPIC roadmap, the EPIC PSA is already giving support to EC on the definition of the SRC Call texts, related documents and technical annexes for the next SRC 2019 Call topic (SPACE-13-TEC-2019) and the following SRC 2020 Call topic (SPACE-28-TEC-2020). These Call text will be published during this period in due time by the EC in the next H2020 Space Work Programme 2018-2020, and full details will be given in this paper. The EPIC PSA is going to organize three dedicated EPIC Workshops: the first one already organized in Madrid (Spain) on 24-25 October 2017; the next one will be organized on 2018 in London (United Kingdom) on 15-17 October 2018, and the last one on 2019 in Noordwijk (Netherlands). The EPIC Workshops scope is to present the Horizon 2020 Electric Propulsion SRC activities to the electric propulsion community and stakeholders and to collect and assess the latest EP technology developments in Europe.

Keywords: space electric propulsion, space propulsion.

1. Introduction

With the Strategic Research Clusters (SRC) the European Commission (EC) introduced a new instrument into the European Union's Horizon 2020 research and innovation programme (H2020) [1]. The idea of the SRCs is to enable the EC to target mid-term to long-term objectives in their research programmes. This is done not by creating large projects with great funding and long runtimes, but by combining the results of different smaller projects, called "Operational Grants" (OG) to achieve a common goal. The coordination and interaction of these OGs is ensured by means of a Programme Support Activity (PSA) and a dedicated Collaboration Agreement (CoA). The Strategic Research Cluster is an innovative coordinated effort of individual research and development OGs that aim at producing a significant demonstration of a specific technology.

The SRC devoted to Electric Propulsion is called: "In-space Electrical Propulsion and station keeping", and is part of the Horizon 2020 Space theme. As a first step to build up the SRC, a call for proposals for the PSA was issued in December 2013 as part of the first Space Work Programme in Horizon 2020 [2]. In summer 2014 the proposal was selected and since 1st October of the same year the PSA "EPIC" is operating. EPIC stands for Electric Propulsion Innovation & Competitiveness. After the completion of the EPIC initial activities, the next step for the SRC was the publishing of the call for proposals for the first Operational Grants on the Space Work Programme 2016-2017 [3] under topic COMPET-3-2016. The output of this topic call was the six ongoing SRC Operational Grants (CHEOPS, GIESEPP, HEMPT-NG, HIPERLOC-EP, MINOTOR, GANOMIC).

This article takes a closer look into the logic of the SRC on "In-space Electric Propulsion" calls, the EPIC PSA activities and the objectives and technical details of

IAC-18-C4.4.6.

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Figure 6.6.2: EPIC PSA paper IAC-2018/C4.4.6×45792 presented at the IAC 2018

6.7 EPIC Partners use of own dissemination channels in 2018

None in 2018

6.8 Dissemination outside of the usual space landscape channels in 2018

None in 2018



7 EDUCATION & OUTREACH ACTIVITIES IN 2018

During 2018, several initiatives on education and outreach have been performed or initiated by EPIC team, and mainly by CDTI and ESA as Task 5.2 responsible.

Target Groups	Education & Outreach activities in 2018	Type of activity	EPIC partner
[EG2-University] [EG3-Research]	Lecture at Munich University on 'Present and Future of Space Electric Propulsion in Europe, Munich (DE) [5.07.2018] Program: https://www.fsd.mw.tum.de/wp-content/uploads/Forum_MunichAerospace_Programm_SS_2018.pdf http://www.fsd.mw.tum.de/forum-munich-aerospace/	Master Lecture at University	ESA
[EG2-University] [EG3-Research]	EPIC Lecture Series 2018, QMUL London (United Kingdom) [18-19.10.2018]. Presentations of 12 Master Lecture Series. http://epic-src.eu/lecture-series-2018/ See programme.	Master Lecture at University / Research level	CDTI, ESA
[EG3-Research]	Lecture at Centro Italiano Ricerche Aerospaziale (CIRA) on Electric Propulsion at ESA and SRC/EPIC, Capua (IT) [23.01.2019]	Master Lecture at Research Centre	ESA
[EG1-Schools] [EG2-University] [EG3-Research] [EG4-General public]	EPIC education webpage with updated Electric Propulsion education material from different sources / http://epic-src.eu/education/	Education material compendium webpage	CDTI

Table 7.1: List of Education & Outreach activities in 2018.

7.1 EPIC Lecture Series 2018

The EPIC Lecture Series 2018 was organized by UKSA, the EPIC PSA and the Queen Mary University of London (QMUL), and held on 18-19 October 2018 in London, at: QMUL (London), United Kingdom; and took advantage of the presence of several prominent universities imparting engineering, and particularly aerospace engineering, in London and in South East UK region.

The EPIC Lecture Series is an educational activity of the EPIC PSA under the Horizon 2020 electric propulsion SRC funded by the European Union. EPIC PSA aims also to organize educational events, trainings and Lecture Series on the subject in coordination with ESA and national agencies educational programmes and resources. These educational events and material are envisaged as a suitable vehicle to promote the interest on electric propulsion and space science and technology, among science and engineering students.

The EPIC Lecture Series main objective is to provide to science and engineering university students (bachelor, master, PhD) with a selection of lectures on space electric propulsion, from the basic technology and concepts to the latest developments, with the aim to promote space EP talent and interest at university educational level, and therefore prepare the new generation of electric propulsion professionals.

The EPIC Lecture Series covers subjects ranging from electric propulsion principles and main technologies, present and future missions using electric propulsion, current technological challenges, relevant thruster subsystems, modelling and computational tools, experimental facilities and measurement techniques in the laboratory.



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The EPIC Lecture Series 2018 program with full details of the invited speakers and the lecture titles are the following ones:

EPIC Electric Propulsion Lecture Series 2018
Queen Mary University London, Mile End Road, London E1 4NS
Day 1 – Thursday 18th October

08:45	Registration & Coffee	
09:10	Lecture Series Welcome	Nick Cox, UK Space Agency
09:15	Introduction to QMUL and the 2018 Event	Professor John Stark, QMUL
09:20	The EPIC Educational Activities and Objectives	Jorge Lopez Reig, CDTI
09:30	An Overview of Electric Propulsion Technology	Jose Gonzalez Del Amo, European Space Agency
10:15	A History of T6 & Gridded Ion Engine Capability in the UK	Jaime Perez, QinetiQ
11:00	Coffee Break	
11:30	Pulsed Plasma Thrusters	Steve Gabriel, University of Southampton
12:15	MPD (MagnetoplasmaDynamic) Thrusters	Georg Herdrich, University of Stuttgart
13:00	LUNCH	
14:00	Bepi-Colombo and the Application of the T6	Neil Wallace, European Space Agency
14:45	Colloids	John Stark, QMUL
15:30	Coffee Break	
16:00	Hall Thrusters	Jean-Paul Boeuf, CNRS Labs
16:45	Spacecraft Charging	Colin Forsyth, UCL
17:30	End of Day 1	

EPIC Lecture Series 2018
Queen Mary University London, Mile End Road, London E1 4NS
Day 2 - Friday 19th October 2018

09:00	Registration & Coffee	
09:30	Welcome Remarks for Day 2	Nick Cox, UK Space Agency
09:45	Keynote Speech	Alan Bond, Reaction Engines
10:15	Plasma Physics & Plasma Instabilities in EP Devices	Aaron Knoll, Imperial College London
11:00	Integrated Microwave Propulsion Architecture for Telecom Satellites	Angelo Grubisic, University of Southampton
11:45	Coffee Break	
12:00	Surrey Space Centre Capabilities and Facilities	Andrea Luccafabris, Surrey Space Centre
12:45	Industrial Requirements for EP Systems	Steven Austin, Thales Alenia Space UK (TBC)
13:30	Closing Remarks, John Stark	
13:35	End of Event	

Figure 7.1: EPIC Lecture Series 2018 Programme



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EPIC

EPIC PSA makes public the presentations of the EPIC Lecture Series 2018 (<http://epic-src.eu/lecture-series-2018/>).

The EPIC PSA project will organize next EPIC Lecture Series in conjunction with future EPIC Workshop. The target audience for the EPIC Lecture Series is the university students from Europe, although a higher participation is expected from local universities. Further details on the EPIC Lecture Series 2019 will be published soon at: <http://epic-src.eu/lecture-series-2019/>



Figure 7.1.1: EPIC Lecture Series 2018



Figure 7.1.2: EPIC Lecture Series 2018



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EPIC

Calling all space science & engineering students!

The 2018 EPIC Lecture Series on Space Electric Propulsion – FREE ENTRY!

If you're studying space science or engineering at university, then don't miss a unique opportunity to learn from the experts about electric propulsion, a cutting edge technology enabling next generation space exploration and satellite missions.

The 2018 EPIC Lecture Series on Space Electric Propulsion comes to London in 2018 for 1.5 days at Queen Mary University London, and features talks from world-renowned experts on topics such as the BepiColombo Mercury explorer, new technologies, and the SABRE synergetic rocket engine.

*Sandwich lunch available for up to 100 student attendees in the main auditorium on Thursday 18th October.

Thursday 18th – Friday 19th October
The Octagon, Queen Mary University London, Mile End Rd E1 4NS
Nearest Tube: Mile End / Stepney Green

EPIC – Electric Propulsion Innovation & Competitiveness

EPIC is a H2020 programme, funded by the European Commission. Image: BepiColombo, credit: ESA

epic-src.eu

Figure 7.1.3: EPIC Lecture Series 2018 Poster

EPIC Education - EPIC - E

epic-src.eu/education/

Funded by the European Union

EPIC – Electric Propulsion Innovation & Competitiveness

EDUCATION

Education and outreach of Space Electric Propulsion

EPIC Dissemination, Education and Outreach, aims at implementing, through various methods, wide dissemination of the EPIC project information, exchange and feedback to/from external interested parties and building education/outreach material (publishable in various media) for the promotion of Electric Propulsion and the SRC.

- Organisation of educational material, trainings or contests, making use of the ESA and National Agencies educational programmes and resources.
- Exchange and network with non-space sectors to identify opportunities outside the space field, presenting the PSA work at non-space events when possible.
- Preparation of education material related to space and EP especially aimed at promoting the interest in science, technology, engineering and mathematics in grade and high-school students.

Education material available from EPIC Partners:

- ESA/ Education Ion Motors
- ESA/ Vides Propulsion Laboratory
- CNES/ Video De Stentor à Neosail
- CNES/ Video Alphabus, plateformes poids lourds
- CNES/ Video/ Sillage croisé - la propulsion électrique

Figure 7.1.4: EPIC education webpage with updated Electric Propulsion education material from different sources



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8 CONCLUSIONS

One of the main objectives of the EPIC PSA is to disseminate its progress and results, and to contribute to the dissemination of the SRC results'. The dissemination activities are been implemented following the EPIC PSA Dissemination plan [RD1] in close coordination with all Operational Grants under the SRC Collaboration Agreement (CoA) RD7.

This document aims at providing the list and detail description of the dissemination activities performed during 2018 EPIC PSA execution, detailing: the dissemination activities performed, the role or the involved Partners, and the target groups addressed by each activity.

The dissemination activities presented are separated in different categories and detailed in this document, and they are mainly: EPIC website, PSA's Partners own websites, Social Media dissemination, Organisation of EPIC Workshops, EPIC Workshop 2018, External events: Conferences/Workshops/Symposia (international & local), EPIC Partners use of own dissemination channels, and Dissemination outside of usual space landscape channels.

Also among the main objectives of the EPIC PSA are the education and outreach activities in order to increase the interest in STEM (science, technology, engineering and math) and in the space Electric propulsion in particular on the different target groups (high-school students, University grade and PhD students, Research Institutions trainees and young researchers, and general public).

This document also aims at providing the list and detail description of the education & outreach activities performed during 2018 EPIC PSA execution.

Dissemination, education and outreach future evolution and communication activities will be reported and updated in following Yearly Dissemination Report.

End of document.