



SPARK

D7.5

DISSEMINATION &  
COMMUNICATION –  
LESSONS LEARNED

## Approval Status

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## I INTRODUCTION

This closing document gives an overview of all dissemination and communication activities performed by the SPARK partners throughout the project period from January 2016 until December 2018. It includes the rationale behind the evolution in the communication strategy during the course of the project and it contains an assessment of what worked well and what could be approached differently in similar potential future projects.

## 2 THE OVERALL DISSEMINATION & COMMUNICATION STRATEGY

The overall dissemination and communication (D&C) strategy can be split into three phases, which are explained in the following sub-sections.

### 2.1 PHASE 1: FOCUS ON THE PROJECT AND ITS TECHNOLOGY (M1-18)

In a first phase, the majority of D&C activities were internally centred, aiming to facilitate the development of the SPARK technology among the consortium partners and to install the foundations for efficient communication to the identified potential target groups in a second phase. Exposure was relatively low and limited to a scientific audience and the narrow circle of all partners.

### 2.2 PHASE 2: FOCUS ON THE PROJECT SOLUTIONS & BENEFITS FOR CORE CUSTOMERS (M19-33)

Once the technology was ready to be showcased to a broader public, and after constructive feedback from the midterm review meeting, the consortium decided to refine its D&C strategy as follows:

- Move away from internal SPARK project discussions and focus on the benefits of the SPARK platform/product for potential customers.
- Prioritize dissemination activities targeting non-academic and broader industrial target groups and put more effort in SPARK's overall visibility and in reaching the general EU public across countries.
- Adapt the D&C initiatives in function of the final go-to-market strategy (WP6) and the choices taken regarding offer (service and off-the-shelf solution) and target scope.

### 2.3 PHASE 3: FOCUS ON THE PROJECT COMMERCIALISATION (M34-36)

In the last three months of the project, once all valuable WP5 feedback from end users was assessed and all three SPARK technology centres were ready for rent, the consortium

decided to focus all communication towards a ‘call for action’ for potential customer segments.

### 3 THE PROJECT WEBSITE

Throughout the entire project period, the SPARK website ([www.spark-project.net](http://www.spark-project.net)) has been the core SPARK information tool keeping track of all initiatives taken and capturing all information and news related to SPARK. All D&C activities completed have been systematically linked to the website.

As the main ‘shop front’ for the project, the evolution of the SPARK website has closely followed the three phases of the D&C strategy.

The SPARK website was installed in January 2016 and initially focused only on the project, its objectives, and the consortium’s organisation. It was updated with news on a regular basis and it got enriched with links to SPARK’s social media, as these were launched. All consortium partners have installed links from their corporate websites to the SPARK website from the very beginning.



Figure 1 – Visual of the first homepage of SPARK’s website – January 2016

At the start of 2018, the website’s homepage was entirely refreshed, making use of video material to grab the users attention and illustrate the benefits of the SPARK technology.



Figure 2 – Visual of the homepage of SPARK's website – January 2018

At the end of the project, the consortium is preparing to launch a last update to the website with an entirely new structure, emphasizing the commercial offer, while still keeping the information on the technology and the project's organisation, but treating the latter as secondary. The proposed website architecture plan is presented in Figure 3.

# Flow chart Content Architecture

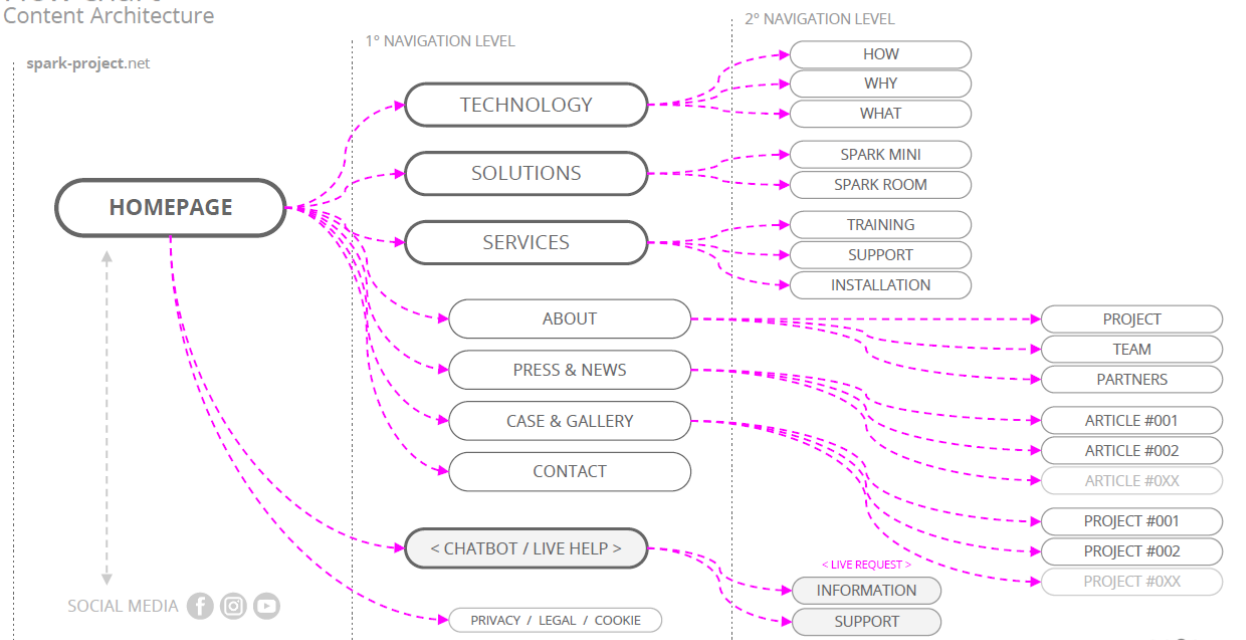


Figure 3 – Content architecture proposal for the new commercial website

## 4 COMMUNICATION AND NON-ACADEMIC DISSEMINATION

This section summarizes all the activities performed throughout the entire project aiming to promote SPARK and to demonstrate how EU funding contributed to tackling societal challenges. The target audience was non-academic but as broad and diverse as possible, including potential end-users.

In this section, we also present what has been achieved with these activities, what worked well and what should be improved when implemented in future projects.

### 4.1 ACTIVITIES PERFORMED IN MI-36

Having in mind an optimal geographic and demographic exposure and taking into account the budget limitations, the consortium was always committed to reaching a good balance in leveraging traditional and social media. The following sub-sections present the activities completed through traditional and social media channels.

#### 4.1.1 Events and traditional media channels

Table I provides a summary of the traditional media activities completed throughout the entire project period (MI-36). It illustrates the abundance, diversity and geographical coverage in the efforts of the different consortium partners.

Table I – Summary of all communication activities completed in months I-36 via events and traditional media channels

<b>I. Presentations at non-academic conferences, exhibitions and events</b>				
<b>EVENT</b>	<b>COUNTRY</b>	<b>TARGET AUDIENCE</b>	<b>ACTIVITY SPECIFICATIONS</b>	<b>TIMING</b>
"23rd technical congress Gipea" - Milano	Italy	Packaging designers	Showcase role of innovations and technology in the labelling industry	December 2016
"Maker Fair" - Grenoble	France	Scientists and designers	Showcase SPARK's ambition	March 2017
Séminaire 'Rôle des prototypes physiques et virtuels dans les processus conception collaborative : continuum du physique au virtuel et vice versa'	France	Industrial companies, universities	Showcase SPARK's ambition	May 2017
"The Argonauts: Total Immersion in Packaging" - Oss	The Netherlands	Packaging designers	Inspiration to integrate innovative technology in packaging design	June 2017

XXXII GIFLEX Congress.	Italy	Packaging industries, "general public"	Inspiration to integrate innovative technology in packaging design	October 2017
"Prototyping" - Kortrijk	Belgium	R&D and designers community	Exposition allowing commercial companies and research centres to showcase innovations related to design processes and overall product development	November 2017
"Immersive Education Summit (EiED)" - Lucca & Pisa	Italy	Technology passionates, students, R&D professionals	Summit addressing the personal, cultural and educational impact of immersive technologies such as VR, AR	November 2017
Celebration 10 years anniversary G-SCOP laboratory	France	Industrial companies, universities	Showcase SPARK's ambition	November 2017
"Develop 3D Live" - Warwick	UK	Designers, Design technology managers	Showcase SPARK: the project and its benefits	March 2018
"Barcelona Design Week" - Barcelona	Spain	Design professionals - general public	Showcase what SPARK can do for designers	March 2018
"Milano Design Week" - Milano	Italy	Designers and furniture manufacturers	Showcase what SPARK can do for designers	April 2018
"Il packaging oltre il packaging" - Piacenza	Italy	Designers & Manufacturers	Showcase what SPARK can do for designers	May 2018
"Advanced Engineering" - Gent	Belgium	R&D, Engineers, Innovation managers	Showcase SPARK: the project and its benefits	May 2018
"EU Digital Assembly" - Sofia	Bulgaria	EU H2020 ICT community	Showcase way of working in consortium	June 2018
"SuperNova" - Antwerp	Belgium	General public	Showcase innovation power in Flanders	September 2018
"Future Furniture" - Milano	Italy	Members of The Argonauts Designer community	Demonstrate how SPARK works	September 2018
"Empack" - Brussels	Belgium	Manufacturers	Showcase innovation in manufacturing and labelling	October 2018
"Prototyping" - Kortrijk	Belgium	Design professionals	Showcase innovation in manufacturing and labelling	October 2018
"3D printing and agile platforms" - Lleida	Spain	Design professionals	Showcase SPARK: the project and its benefits	October 2018

Packaging and food cluster seminar - Barcelona	Spain	Packaging manufacturers & designers	Showcase innovation in manufacturing and labelling	November 2018
EINA, Design School- Barcelona	Spain	Design students	Showcase innovation in designing	November 2018
"ICT 2018"- Wien	Austria	ICT professionals and consortium partners	Showcase SPARK and its consortium	December 2018

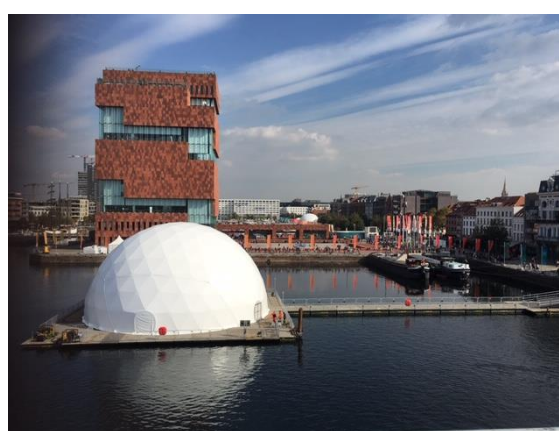
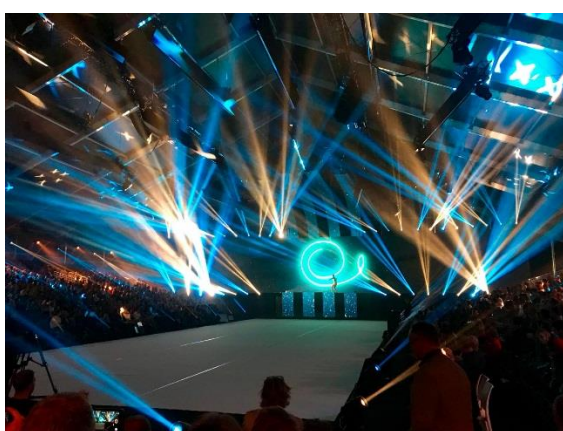


Figure 4 – Impressions of SuperNova event, Antwerp

<b>2. TV, newsletters and publications in magazines</b>				
<b>PUBLICATION</b>	<b>COUNTRY</b>	<b>TARGET AUDIENCE</b>	<b>TITLE/ ACTIVITY SPECIFICATIONS</b>	<b>TIMING</b>
Horizon, The EU Research Innovation Magazine	Europe	Research community	"Not just Pokémon - prepare for an augmented reality deluge"	October 2016
Periodic institute newsletters	Europe	Research & design community	Explanation of SPARK project and its ambition	Q4 2016
SPARK newsletter I	Italy, France, Spain, Belgium, UK	Research & design community	"Augmented reality as a communication tool for designing new products and packs"	March 2017
SPARK newsletter II	UK, France, Belgium	Research & design community	"Augmented reality as a communication tool for designing new products and packs"	September 2017
Il progettista Industriale	Italy	Technicians, Design engineers, Researchers	"SPARK: la realtà aumentata nella progettazione"	December 2017

SPARK newsletter III	UK, France, Italy, Spain, Belgium	Research & design community	"SPARK's augmented reality technology is ready to step out of the lab zone and seeks exposure to a broad European audience"	Q1 2018
"BCD magazine"	Spain	Designers		April 2018
SPARK newsletter IV	UK, France, Italy, Spain, Belgium	Research & design community	"The SPARK team is ready to launch its augmented reality technology which facilitates on the fly co-creation of products and packaging"	Q3 2018
Lleida TV	Spain	3D industry	Interview	September 2018

### 3. Other initiatives

INITIATIVE	COUNTRY	TARGET AUDIENCE	TITLE/ ACTIVITY SPECIFICATIONS	TIMING
Design contest "Nc Awards"	Italy	Designers	Spark submission in contest	May 2016
Webinar	Europe	Stakeholders & End-users Board	Exchange of project status & end user expectations	December 2016
Partnership with Vertigo consortium	Italy	ICT and R&D community	Call for artists to produce a work of art related to the Spark technology	May 2017
Webinar	EU	Designers, R&D	Share status & potential SPARK	September 2017
Description of the new SPARK room @ Polimi by the equipment supplier	Italy	ICT, R&D, Technicians	Share status & potential SPARK	September 2017
Video contest EU funded R&D projects	EU	R&D community	Submission for contest	Q1 2018
Presentations to industry prospects	Europe	Potential Spark customers (Samsonite, Esko, Colruyt, L'Oréal, ...)	Demo and test cases	2018
Launch events SPARK rooms	Spain, Italy, Belgium	Policy makers, professors, Sr Mgt of consortium partners	Official openings with speeches	2018



Figure 5 – Impressions of SPARK room launch in Kortrijk

#### 4.1.2 Social media channels

In the course of the project period, SPARK accounts have been launched on all major social media platforms, starting with the content-driven platforms **LinkedIn** and **Twitter** in M12 and the more visual platforms **YouTube** and **Instagram** in M13. To further expand SPARK's exposure in a more informal, non-professional context, **Facebook** was added in M24.

All social media accounts have been loaded weekly with a large number of relevant posts, driven by news from all consortium partners, that was mainly collected via an internal consortium WhatsApp group. All consortium partners have maximized the exposure by cascading a majority of posts further on the social media accounts of their respective organizations.

To further boost SPARK's visibility in 2018 and to promote SPARK's presence on some key events, 7 paid campaigns have been launched on Facebook and Instagram and 1 Google Ads campaign.

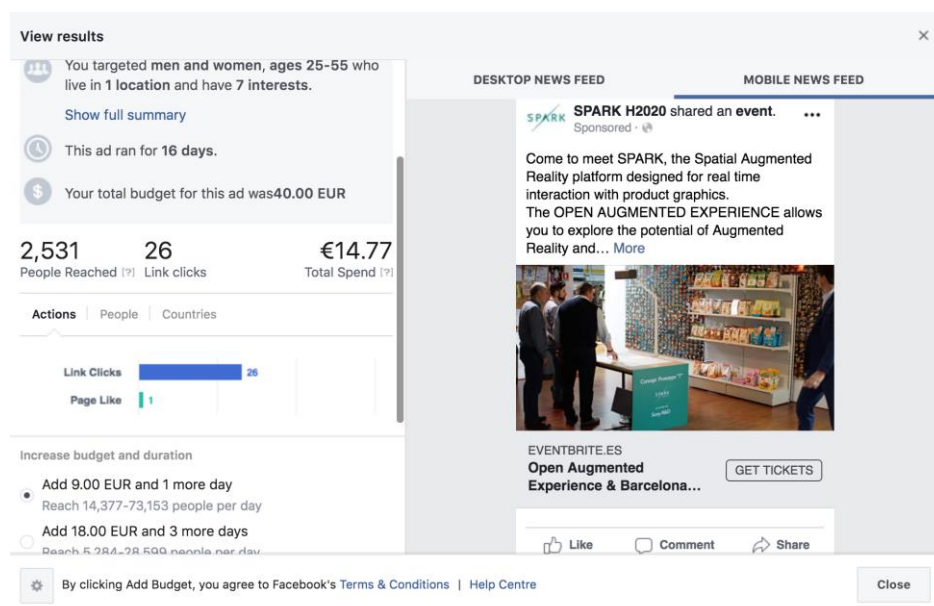


Figure 6 – Example of Facebook paid campaign

To expand the reach of all posts and to enlarge audiences, extra attention was paid to the selection of appropriate hashtags (#).

For an optimal location of content and very specific areas of interest, we attached well selected hashtags to our own posts, such as:

#H2020  
 #Innovation  
 #AugmentedReality  
 #Cocreation  
 #Prototyping  
 #Design  
 #Packaging  
 #ResearchimpactEU  
 #EU  
 #EUandMe

We also followed, tagged and referred to other relevant social media channels that we judged appropriate. These are some examples :

@EU\_H2020  
 @DSMeu  
 @EU\_Commission  
 @EU\_ScienceHub  
 @ICTcreativityEU

We followed opinion leaders relevant for the SPARK technology, other H2020 projects related to SPARK, events and congresses attended by the SPARK consortium members and various trending topics:

@unity3d @magicleap @ideo @techreview @sonyxperia @GSMA @4YFN\_MWC @desig  
 nboom @ReplicateProj  
 @ICT2018eu @EmpackBE @supernova\_eu @BcnDesignWeek @develop3d @fuorisalone

Specifically, when attending events, we installed a logic in the chronology of the SPARK posts:

- before the event: general posts announcing our participation to the general public;
- during the event: live-tweets, with pictures, tagging of people, quotes;
- after the event: thank you notes to visitors, extensions to new contacts.

#### 4.1.3 Marketing material

All sorts of promotion material have been developed to support the activities described above, varying from instructive leaflets, appealing posters, engaging movies to gadgets such as T-shirts, beer mats – see Figure 7.

In the course of the project period, the material also illustrates the shift in communication strategy, starting with an emphasis on the technology at the start, moving to messages focusing on the solutions and finishing with more sales-oriented material.

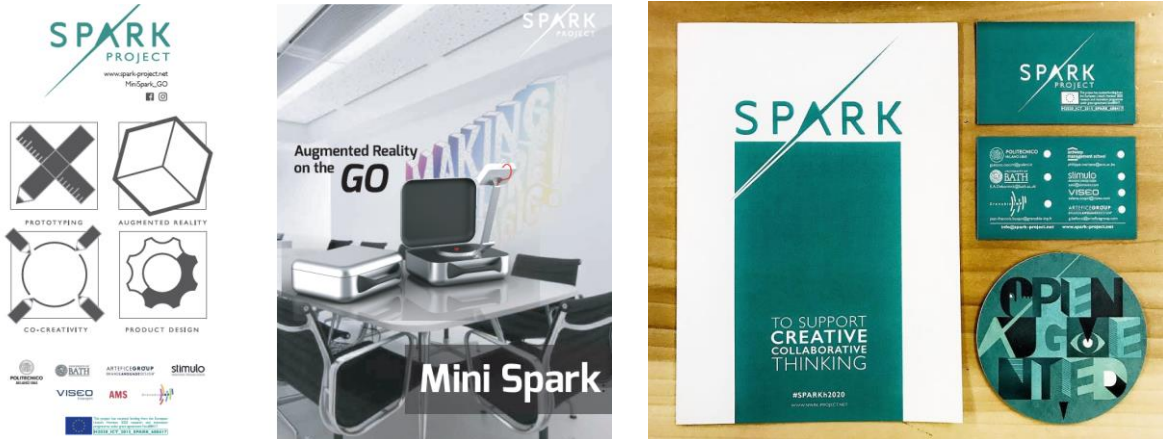


Figure 7 – Some of SPARK's marketing material

## 4.2 RESULTS AND ACHIEVEMENTS

To give an exact coverage figure is not possible, but through the combined communication efforts via traditional and social media channels, the consortium is supposed to have reached about 500 000 people with SPARK's message and it has directed over 5000 people monthly to the website at the end of the project period.

While quantitative coverage of a broad audience could be maximized via a good mix of social media channels, it was the many face-to-face conversations and live demonstrations at well-targeted conferences, end-user webinars and direct prospecting of well identified user groups that resulted in the most useful contacts and laid the basis for potential commercialization of the SPARK technology going forward. The more concrete and tangible SPARK's technology was showcased, the more enthusiasm could be triggered amongst audiences. In that respect movies and image-driven marketing material was much more efficient than texts.

Table II below shows the tracking results of SPARK's social media channels, as well as an estimation of the number of people reached via the traditional channels. The total amount of people reached will be above what is reported in the table, as data are limited to the specific SPARK accounts. All coverage resulting from posts on social media platforms from the consortium partnering institutes and from the platforms of events that SPARK participated in, have not been tracked.

Within the free **social media** that were leveraged, Twitter delivered relatively good results. YouTube and Facebook were least popular, but driven by 4 limited low-cost campaigns, SPARK's visibility could be increased on Facebook as well.

Despite the interactive nature of social media, there was little reaction in general on the SPARK posts. There was also a small test campaign run on Google Ads, limited to 17000 impressions.

Among the free **traditional media** channels, results were mixed.

Participation in events targeting the general public such as SuperNova, boosted SPARK's overall visibility but contacts were superficial and did not result in any action afterwards. On conferences and events such as the Milan Design Week on the other hand, that were directed to designers and packaging/product developers, the communication efforts reached a limited amount of people but allowed for a positive call to action. Events such as Empack resulted in a limited number of useful customer contacts, despite the audience that turned out to be primarily operations and manufacturing driven.

The impact of the traditional newsletters is difficult to measure. They did not seem to result in a substantial uplift in website visitors, but they were not always simultaneously spread by all consortium partners.

The consortium decided not to invest in paid traditional media, such as advertising in trade publications or specialized magazines, as we judged the investments not to be justified as long as there was uncertainty around the business model and commercialization possibilities.

Table 11 – Results of tracking data SPARK social media and overview of estimated total coverage

		M18	M24	M27	M33	M36 (Dec10th)
Launch date						
Website performance						
Visits		5490	7184	8285	11258	12358
Unique visitors		2854	3860	4564	6725	7552
Page views		15578	19355	21752	27577	29919
Avg time spent per visit	Feb '16		0:02:24	0:01:43	0:02:03	0:02:00
Social network channels performance						
Twitter followers		91	174	209	249	250
Number of tweets		60	137	189	271	305
Average reach per tweet		225	290	348	499	526
Calculated Reach /Impressions	Dec '16	13500	39730	65830	135230	160530
LinkedIn followers		29	56	74	98	112
LinkedIn posts		23	55	70	85	102
Linkedin reach		21090	42638	55782	78742	83169
LinkedIn reach (unique visualization)	Jan '17	11253	21631	26889	41728	44811
Instagram followers		82	196	281	312	329
Instagram posts		30	70	99	142	155
Instagram reach	Jan '17	*	*	*	7016	12333
YouTube subscribers		119	123	129	131	131
YouTube views		1542	2432	3108	3722	4592
YouTube videos	Jan '16	3	5	7	7	7
Facebook followers				60	85	89
Facebook posts				58	115	127
Facebook paid adverts						7
Facebook reach	Dec '17			estimated over		100000
Total media performance						M36 (Dec 10th)
Estimation reach social media						360.000
Estimation reach magazines						70.000
Estimation reach events & conferences						22.000
Estimation reach traditional newsletters						28.000
TOTAAL						480.000

The consortium has also expressed its ambition not to ruthlessly stop all communication activities at the end of the project period, but to carefully maintain a reasonable level of activity to stimulate visibility and interest until the project is ready to be commercialised.

## 5 ACADEMIC DISSEMINATION

This section of the report describes the academic dissemination activities completed throughout the course of the project. Academic dissemination refers to activities that are intended to support the disclosure of the project results to the scientific research community and students and to further exploit the knowledge produced in the development of project activities (as rmarked in the deliverables of WP6).

Below we present a summary of the scientific publications completed, actions for ensuring open access to scientific results, and details of other academic dissemination activities completed.

## 5.1 ACTIVITIES PERFORMED IN M1-36

The following sub-sections present a summary of the scientific publications completed, how open access to the scientific results has been ensured,

### 5.1.1 Scientific publications

Table III provides a summary of the scientific publications published or submitted during the course of the project.

*Table III – Scientific publications from the SPARK project and their open access status.*

TARGET AUDIENCE	NAME OF JOURNAL/ CONFERENCE	TITLE	STATUS	OPEN ACCESS?
Research community creativity in design	International Conference on Design Creativity 2016	Developing metrics to assess technology-enabled creative co-design sessions	Presented M11	Yes - <a href="#">Link</a>
Research community in VR and AR	EURO-VR 2016	Spatial Augmented Reality environments design rules	Presented M11	On request - <a href="#">Link</a>
Research community creativity in design	15 <sup>th</sup> Colloque National AIP-Priméca	Multi-modal interactions analysis to characterise co-creative design session	Presented M16	Yes - <a href="#">Link</a>
Research community creativity in design	International Conference on Engineering Design (ICED) 2017	Applying multiple metrics in the performance measurement of design sessions in industry	Presented M20	Yes - <a href="#">Link</a>
Research community creativity in design	International Conference on Engineering Design (ICED) 2017	Characterisation of a co-creative design session through the analysis of multi-modal interactions	Presented M20	Yes- <a href="#">Link</a>
Research community creativity in design	International Conference on Design Creativity 2018	Exploring ways to speed up the application of metrics to assess co-creative design sessions	Presented M25	Yes – <a href="#">Link</a>
Research community in product design and creative industries	Design Conference 2018	Exploring the performance of augmented reality technologies in co-creative sessions: initial results from controlled experiments	Presented M29	Yes – <a href="#">Link</a>

Research community in product design and creative industries	Design Conference 2018	Real-time coding method for capture of artefact-centric interactions in co-creative design sessions	Presented M29	Yes – <a href="#">Link</a>
Research community creativity in design Research community in HCI	Design Conference 2018	Analysis of co-design scenarios and activities for the development of a spatial-augmented reality design platform	Presented M29	Yes – <a href="#">Link</a>
Research community creativity in design Research community in HCI	Design Conference 2018	Coding schemes for the analysis of ICT supported co-creative design sessions	Presented M29	Yes – <a href="#">Link</a>
Research community creativity in design Research community in HCI	Design Computing & Cognition 2018	Improving the efficiency of design protocol analysis: an approach to speed up the coding stage (Poster)	Presented M31	N/A
Research community in product design and creative industries	NordDesign 2018	A Review of Augmented Reality Research for Design Practice: Looking to the Future	Presented M32	Yes - <a href="#">Link</a>
Research community in product design and creative industries	CoDesign	Capturing requirements for Augmented Reality for design from product development professionals	Published M35	Yes - <a href="#">Link</a> (Gold Open Access)
Research community in product design and creative industries	Design Science	Evaluating the impact of a new AR technology in industry	Submitted M35	Once published (Gold Open Access)
Research community creativity in design Research community in HCI	International Journal of Human-Computer Interaction	Usability and efficiency evaluation of a touch-based user interface for a spatial augmented reality design application	Work on-going	Green open access planned
Research community in product design and creative industries	Design Studies	Real-time coding method and tools for artefact-centric interaction analysis in co-design	Work on-going	Green open access planned

Two papers published by the SPARK consortium have received ‘Reviewers Favourite’ awards. These were: “Applying multiple metrics in the performance measurement of design sessions in industry”, which was presented at the International Conference on Engineering Design 2017 in Vancouver, and “Real-time coding method for capture of artefact-centric interactions in co-creative design sessions”, which was presented at the DESIGN Conference 2018.



Figure 8 – SPARK authors receiving ‘reviewers’ favourite’ prizes for their contributions to the International Conference on Engineering Design (left) and Design Conference (right).

### 5.1.2 Open access to scientific results

Throughout the project, the SPARK consortium has made efforts to ensure open access to the scientific results and publications from the project.

Scientific publications that have been accepted for publication have now been submitted to institutional archives for open access publishing - see Table 3 above. The first journal paper from the project has now been published and has made use of the ‘gold open access’ option to ensure immediate, free access to the scientific community and public alike.

The research data generated within the project has been stored in the project’s private web repository (hosted on the Codendi platform provided by Viseo). These data include questionnaire templates, survey results, audio recordings of interviews, interview transcripts, video footage of co-creative sessions, photographs, analysis files etc.

Decisions concerning which data to make public and when to make them public are being made in accordance with the general policy on open access of scientific results (see D7.2 §5.2.2) and the detailed publication protocols for each work package (see D6.2 §4). Datasets are being published through the Zenodo platform (<https://zenodo.org/>).

The first data sets (video recordings of the early tests) have been published to the SPARK project ‘community’ page on Zenodo<sup>1</sup> and included as ‘supplemental materials’ to the online version of the journal paper. The open research data provided through Zenodo and the open

<sup>1</sup> Zenodo community page:

[https://www.openaire.eu/search/project?projectId=corda\\_h2020::ae2efd789f9b345611e03b76217f952a](https://www.openaire.eu/search/project?projectId=corda_h2020::ae2efd789f9b345611e03b76217f952a)

access publications made available through the POLIMI and GINP institutional repositories are also accessible via OpenAIRE, through the project's OpenAIRE record<sup>2</sup>.

Completed deliverables that have been designated as 'public' are being made available through the project website as they are completed and approved for publication (see: <http://SPARK-project.net/wp-deliverables>).

### 5.1.3 Other forms of academic dissemination

As well as scientific publications, the consortium has also performed a wide variety of other types of academic dissemination activity during the project in order to more pro-actively engage with the primary targets for academic dissemination as well as to reach a wider range of academic stakeholders, such as undergraduate and post-graduate students. These are listed in Table IV below.

*Table IV – Other academic dissemination activities completed within the project.*

DESCRIPTION	TARGET AUDIENCE	TIMING
Presentation of the SPARK consortium to a delegation of the Shanghai Jiao Tong University visiting PoliMI (Milan, Italy)	Professors and researchers	16/1/2017
Presentation of the SPARK consortium at the conference on “ <a href="#">Creative society: Ideas, Problems, and Concepts</a> ” (Florence, Italy)	Multidisciplinary academic audience interested in creativity	13-14/3/2017
Notice in internal magazine ‘Engineering’ (PoliMI) about the first issue of the SPARK newsletter (Milan, Italy)	Multidisciplinary academic audience interested in creativity	14/3/2017
News on the website of the Department of Mechanical Engineering about the first issue of the SPARK Newsletter (Online)	People working at PoliMI Dept. Mech Eng and website visitors	15/3/2017
Presentation of the SPARK project to students of the Bachelors in Mechanical Engineering and identification of opportunities for collaborating with the consortium (Milan, Italy)	Engineering undergraduate students	21/3/2017
Presentation of the SPARK project and recent advancements to the REPLICATE consortium hosted at Bruno Kessler Foundation (Trento, Italy)	Research entities and researchers in 3D object digitalization and AR	22/3/2017
Research and industrial seminar on virtual and physical prototyping in design (Grenoble, France)	Companies and researchers in engineering design	23/5/2017
Workshop on Research Data Management; discussion with the participants about the challenges behind SPARK and the development of a meaningful Data Management Plan (Milan, Italy)	Data Managers, Librarians, Research Assistants from various Italian Universities + 3 invited speakers from	24-25/5/2017

<sup>2</sup> OpenAIRE page:

[https://www.openaire.eu/search/project?projectId=corda\\_h2020::ae2efd789f9b345611e03b76217f952a](https://www.openaire.eu/search/project?projectId=corda_h2020::ae2efd789f9b345611e03b76217f952a)

	abroad (Digital Curation Center, UBAH, TU Delft)	
Presentation of the SPARK project at the <a href="#">International workshop on Co-Creative Design for Successful Innovation</a> hosted by the Free University of Bozen-Bolzano (Bolzano, Italy)	Researchers in co-creation and creativity	13-14/6/2017
Presentation of the SPARK project to students of the MSc in mechanical Engineering and identification of opportunities for collaborating with the consortium (Milan, Italy)	Engineering postgraduate students	30/9/2017
MSc project on refinement of the co-creative session performance metrics and application protocol (Bath, UK)	Engineering postgraduate students	30/9/2017
PhD project on the potential of augmented reality technologies to support co-creative design activities (Bath, UK)	Engineering postgraduate students	Started 4/10/2017
Master lecture series including content on activity analysis with SAR platform (Grenoble, France)	Engineering postgraduate students	Oct-Dec 2017
Presentation of the SPARK project at the G-SCOP Laboratory 10 <sup>th</sup> Anniversary event	Engineering students, Researchers in Engineering	21/10/2017
Presentation of SPARK project for ICDC conference participants	Researchers in engineering design and creativity	31/1/2018 – 2/2/2018
Presentation of the SPARK project to students of the BSc in Mechanical Engineering to describe opportunities to collaborate with the consortium	Engineering undergraduate students	05/03/2018
Spatial Augmented Reality as enabling technology for collaborative design	Japan Advanced Institute of Science and Technology professors and visiting researchers	February 2018
Presentation of the SPARK platform functionalities to students of the BSc in Mechanical Engineering – description of the technical details of the setup of the equipment	Engineering Undergraduate Students	23/03/2018
MSc thesis on role of augmented reality technologies in engineering design (POLIMI)	Engineering postgraduate students	Completed M29
Two Meng projects investigating general potential for use of augmented reality technologies in engineering design (Ubat)	Engineering undergraduate students	Completed M30
Workshop/exhibit at conference on methods and approach for activity analysis of collaborative design sessions in virtual or mixed reality environments	Researchers in cognitive science, engineering design, computer science	M30
Article in university newsletter on preliminary findings from SPARK project and future plans	Research Colleagues	M30

Feature on the Department of Mechanical Engineering's website about the second release of the SPARK platform and execution of tests in real operational environment	Academics (internal colleagues) and visitors to the Dept. website (both from and outside Italy – website in Ita/Eng).	M30
Masters students mini-conference	Engineering postgraduate students	1/6/2018
Presentation and exhibition space at DCC (Design Computing and Cognition) Conference 2018	Researchers in cognitive science, design, computer science	2/7/2018 – 4/7/2018
MS thesis (Mechanical Engineering) on SPARK themes (colour rendering accuracy) (POLIMI)	Engineering postgraduate students	Completed M31
MS thesis (Mechanical Engineering) on SPARK themes (alternative tracking technologies) (POLIMI)	Engineering postgraduate students	Completed M31
Introduction to the SPARK project for Masters students in Innovation and Entrepreneurship	Management postgraduate students	M33
Article in GINP newsletter on SPARK platform and tests	Research colleagues	M35
Feature on the Department of Mechanical Engineering's website about the final release of the SPARK platform and execution of tests in real operational environment	Academics (internal colleagues) and visitors to the Dept. website (both from and outside Italy – website in Ita/Eng).	M35
Presentation at Moscow State University (MSU) of the SPARK project (objectives and results)	Professors, researchers and PhD students from different departments of MSU involved in research on VR/AR	M35
News on the institutional website of PoliMI about the final release of the SPARK platform and the conclusion of the project	Researchers, professors, students and design, engineering and architecture companies.	M36
Networking session on 'AR for design' at ICT 2018 event	Researchers in AR technology and engineering design	M36

## 5.2 RESULTS AND ACHIEVEMENTS

Table V below provides a summary of the academic dissemination achievements compared with the objectives established in D7.2.

*Table V – Academic dissemination achievements vs. objectives*

ACTIVITY	TARGET AUDIENCE	OBJECTIVE	ACTUAL STATUS AT M36
Journal papers	Scientific research community	9 papers submitted by M36	2 papers submitted 3 papers in progress

Conference papers	Scientific research community	12 papers at international conference appearing in proceedings	12 papers completed
Workshops/exhibits at scientific events and industry events	Scientific research and professional community	3 workshop contributions or exhibits at scientific events	4 workshops/exhibits completed
Teaching on topics relevant to SPARK (SAR technology, co-creation, digital manufacturing)	Engineering and design students within academic partner institutions	SPARK-related content included in 5 degree-level courses by M36	SPARK content included in 4 degree-level courses.
Other academic dissemination activities	Scientific research community Engineering and design students within academic partner institutions	At least 20 initiatives, mainly initiated by the academic partners	33 initiatives completed

The ambitious academic dissemination activities for conference paper publications, scientific event workshops/exhibits, and other academic dissemination activities have been achieved. Whilst the achievements for integrating SPARK-related topics into teaching was not achieved (four courses covered against a target of five) there was significant, in-depth dissemination to undergraduate and postgraduate students in engineering and management through Masters-level projects. These projects, supervised by SPARK researchers, proved popular. This success was enhanced through the organisation of a Masters project ‘mini-conference’, in which students from UBATH and POLIMI were able to present the results of their Masters projects to each other and discuss the conclusions and implications for the SPARK project. The main challenge throughout the project has been the completion of scientific journal papers, with only two submissions completed out of a target of nine. However, work will continue on the three additional journal papers that have already been started and there are ideas for further papers being discussed. Hence, by the end of 2019, we can expect to have five or possibly six journal papers published. This, along with the 12 conference papers published, would represent a significant contribution to the academic body of knowledge in this field.

## 6 LESSONS LEARNT AND RECOMMENDATIONS

### 6.1 LESSONS AND RECOMMENDATIONS FOR COMMUNICATION AND NON-ACADEMIC DISSEMINATION

The consortium’s feedback on what worked well and what did not is mainly qualitative as there were no agreed measures of reach and impact of communication activities upfront. In Table VI, we have summarised the major take-outs for future communication projects, building as well on the results and achievements described in section 4.2 above.

*Table VI – Summary of the lessons learnt and associated recommendations for improving communication and non-academic dissemination.*

Lesson learnt	Recommendations
It is difficult to grab attention and stimulate interaction for a technology as complex as SPARK.	Focus on live demonstrations and showcase the technology as tangible and concrete as possible. Use movies and images rather than texts.
Addressing “the general public” for such a specialised technology is a waste of time and money.	Define your target group(s) very precisely and select your media channels accordingly.
Communicating the benefits of a technology delivers far better results than explaining the technology as such.	Get to the point as quickly as possible: a target audience is interested in the solution, not in the project or the process.
“Word of mouth”, especially when coming from influencers such as Samsonite or Ferrero in our case, is important.	Try to seduce some key opinion leaders as quickly as possible in the process.
A strong business model and a compelling go-to-market strategy as early as possible, is essential for a powerful communication strategy.	Don’t wait until the end of the project to define and test appropriate business models.
(Free) social media can lead to more reach more quickly than (free) traditional media.	Prioritize social media over traditional media.
Having one well-organized website that centralizes all information is critical for an efficient management of communication activities in multi-country consortia.	Put a link to the central website on all communication tools and refresh the site on a frequent basis. Vice versa, put a link on the site to all project-related media platforms.

## 6.2 LESSONS AND RECOMMENDATIONS FOR ACADEMIC DISSEMINATION

As previously identified, one of the main areas for improvement within the academic dissemination activities was in the publication of scientific journal papers. Based on our experiences in the SPARK project, the main challenges are that, unlike conference papers, there is generally no fixed deadline for the submission of journal papers (unless targeting a ‘special issue’). Without a deadline, busy researchers often find other tasks filling the time that had been allocated to journal paper writing. Furthermore, as long and complex documents, journal papers can be difficult to discuss when collaborating with other partners remotely, even with the support of web conference facilities.

To address these two challenges, it is suggested that the planning and reviewing of journal papers be scheduled for face-to-face meetings. These meetings could be arranged as add-on meetings to physical consortium meetings to avoid unnecessary travel. The benefits of this approach are that it would provide a fixed deadline to complete the agreed tasks (e.g. ‘complete the results section’, ‘read and provide comments on the literature review’) and reduces the risk of misunderstandings that can occur through email exchanges and web conferences.

Another way to speed up the journal paper writing process would be to establish a shared repository of relevant academic literature as performing a comprehensive search of the academic literature can be a very time intensive task. The repository should ideally allow researchers to share their notes about a paper so that a brief synopsis of the paper and why it is relevant to the project can be provided by the researcher submitting the paper to the repository. Reference management software such as [Mendeley](#) support can be used for this purpose.

Masters-level projects proved a successful method for dissemination to students. It is recommended to include such projects within the academic dissemination plan and to enhance the inter-organisational dissemination through a web-based mini-conference for students and their supervisors.

*Table VII – Summary of the lessons learnt and associated recommendations for improving academic dissemination.*

Lesson learnt	Recommendations
Difficult and slow collaborating on scientific journal papers.	Plan face-to-face meetings to plan and review collaborative journal papers (tagged on to existing physical meetings to avoid unnecessary travel). Set-up a shared repository for relevant articles identified in the academic literature.
Masters-level projects an effective way to disseminate and build on the results of the main project.	Include Masters projects in academic dissemination plans. Encourage cross-organisation dissemination of Masters projects results through a 'mini-conference'.
The 'Article Processing Charge' (APC) for Gold open access publishing can appear very high but significant discounts (up to 75%) are sometimes available through institutional agreements with publishers.	Check with your library if the publisher of the journal you are targeting has an institutional agreement in place that might reduce the APC. For example, <a href="#">Taylor &amp; Francis have agreements in place</a> across a number of EU countries.

## 7 CONCLUSION

This deliverable 7.5 gives a summary of all communication and dissemination activities performed throughout the 36 months of the SPARK project. It shows how messages and strategies have evolved over time and it highlights what worked well and should be leveraged in similar projects in the future and what did not and should be avoided.