

# I.FAST

Innovation Fostering in Accelerator Science and Technology

Horizon 2020 Research Infrastructures GA n° 101004730

## MILESTONE REPORT

# Dissemination and communication plan

### MILESTONE: MS43

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<b>Document identifier:</b>	IFAST- MS43
<b>Due date of deliverable:</b>	End of Month 12 (May 2022)
<b>Report release date:</b>	30/05/2022
<b>Work package:</b>	WP10: Advanced Accelerator Technologies
<b>Lead beneficiary:</b>	RTU
<b>Document status:</b>	Final

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### ABSTRACT

Report is outcome of the WP10 Task 10.1: “Coordination and communication”. It confirms that WP10 Dissemination and Coordination plan has been elaborated and approved by the WP10 on 10<sup>th</sup> December 2021.

I.FAST Consortium, 2022

For more information on IFAST, its partners and contributors please see <https://ifast-project.eu/>

This project has received funding from the European Union's Horizon 2020 Research and Innovation programme under Grant Agreement No 101004730. IFAST began in May 2021 and will run for 4 years.

### Delivery Slip

	Name	Partner	Date
<b>Authored by</b>	Toms Torims	RTU	30/05/2022
<b>Reviewed by</b>	M. Vretenar on behalf of Steering Committee	CERN	02/08/2022
<b>Approved by</b>	Steering Committee		02/08/2022

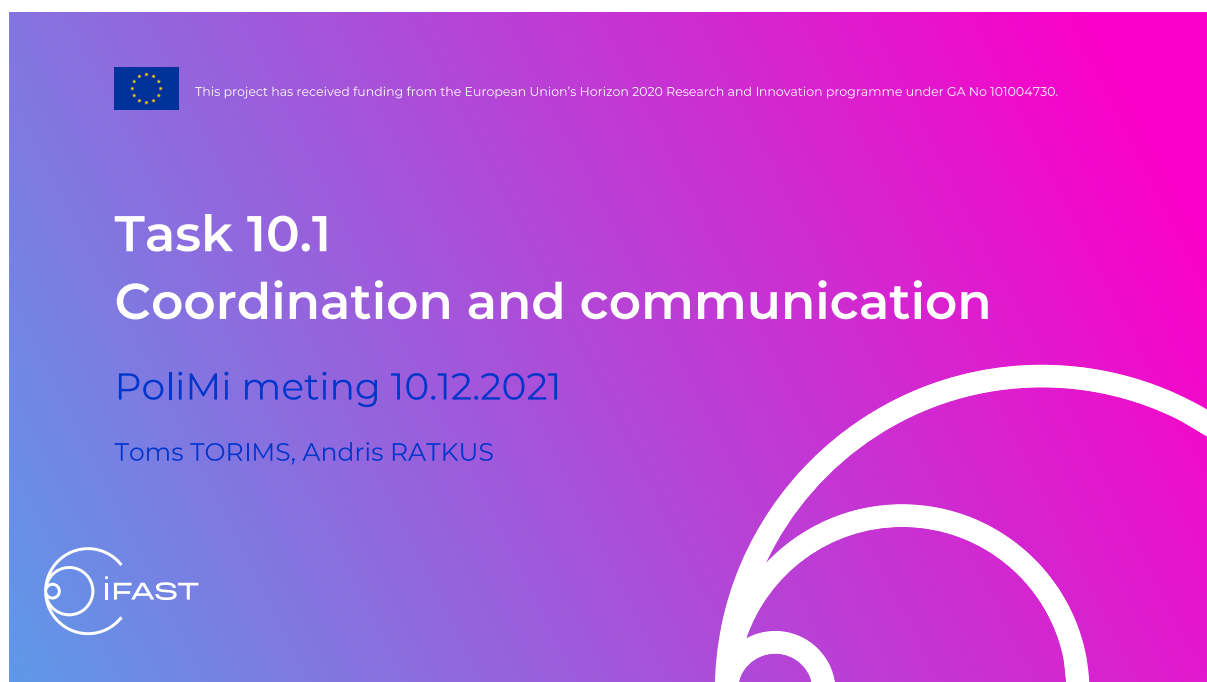
## Executive summary

*This report is outcome of the WP10 Task 10.2 “Coordination and communication”. The report is confirmation that MS43 is achieved and that the “Dissemination and Coordination plan” has been developed, discussed and approved by WP10. It enables to achieve one of the main objectives of the Task 10.2 – to promote communication strategies on opportunities offered by new technologies for accelerators. This plan is already being implemented by the WP10 in its entirety.*

## WP10 Dissemination and Coordination plan

Dissemination and Coordination plan has been developed within the Task 10.2 in close collaboration with all Task Leaders of the WP10 Work Packages. It is fully integrated and aligned with the WP1 and overall I.FAST project dissemination and coordination plan and its activities. This plan was discussed and endorsed by WP10 on 10 December 2021 – in person + remote meeting in the PoliMi campus Bovisa.

[7th meeting of the I.FAST Tasks 10.2., 10.3 and 10.4 \(10 December 2021\) · Indico \(cern.ch\)](#)



The slide features a blue-to-purple gradient background with white text and graphics. At the top left is the European Union flag logo, followed by the text: "This project has received funding from the European Union's Horizon 2020 Research and Innovation programme under GA No 101004730." The main title is "Task 10.1 Coordination and communication" in large white font. Below it, in smaller white font, is "PoliMi meeting 10.12.2021" and "Toms TORIMS, Andris RATKUS". The iFAST logo is in the bottom left corner. On the right side, there are three large, white, overlapping semi-circular arcs.

## Description of work in Task 10.1

- Overall WP coordination, monitoring of progress and technical actions
- To **identify and promote novel technologies** to improve performance of particle accelerators
- Promote **communication strategies** on opportunities offered by new technologies for accelerators [of the identified ones]

## WP 10 - Dissemination and communication plan – by May 2022

- **Methodology** [communication strategies] on how we are going to promote these promising technologies
- Which tools to be used?
- Genuine link to the overall I.FAST dissemination and communication activities
- All Task of WP10 to be included

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Innovation Fostering in Accelerator Science and Technology  
Horizon 2020 Research Infrastructures GA n° 101004730

**DELIVERABLE REPORT**

**Dissemination and communication plan**

**MILESTONE: MS43**

Document identifier:	IFAST-MS43
Due date of deliverable:	End of Month 12 (May 2022)
Report release date:	xx/xx/2021
Work package:	WP10: Task 10.1
Lead beneficiary:	RTU
Document status:	Draft

**ABSTRACT**

## Coordination of the W P10

- **Coordination** of the W P
  - Regular Task meetings (remote and in-person) – AM segment Tasks 10.2+10.3+10.4
  - Task 10.5, 10.6 and 10.7 meetings and liaison with the Task Leaders
  - The first WP10 all Tasks meeting on 15 Nov 2021
- **Monitoring** of the progress
  - This is about Deliverables and Milestones of each Task
  - Every Task leader is fully aware of his D's and M's
- **Technical actions**
  - Tools are made available: Indico, I.FAST Collaborative Space
  - Andris+Maurizio – regular communication, updates, follow-up and support
  - Organisation of events [Type1,2,3,4] and linking them with other I.FAST WP's
  - Coordination of publications and participation in the events

## To identify novel technologies

Which are technologies of WP10 to promote?

- Additive Manufacturing (AM)
- Machine Learning (ML) techniques for accelerator and target instrumentation
- NEG coatings for accelerator vacuum chambers
- Electro-optical waveguide sensors as beam electric field sensors
- Other outside WP10?

## To promote novel technologies

How we are going to promote [communication strategies] opportunities offered by AM, ML, NEG coatings and Electro-optical waveguide sensors?

- To inform Accelerator Community through various I.FAST project channels – see RFQ case
- By engaging with I.FAST communication team, Partner PR teams and by coordinating joint actions
- Scientific publications
- Dedicated Workshops and Meeting in unison with Task 10.2



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## Workshops and meetings

To [Task 10.2] organize 5 workshops and meetings:

- to identify **how AM can address the needs** of the accelerator community
- one [workshop or meeting] per country or region *during the first year* in at least 5 different regions – *written before Covid – realistic over the 4 years of the project?*
- open to partners, accelerator experts and other industrial stakeholders – *open to public*

What are these needs?



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## Workshops and meetings

How can AM address the needs of the accelerator community?

- Type 1: I.FAST meetings - project partners:
- Type 2: “in situ” meetings with industry and other research institutions – relevant non-project partners and interested parties
- Type 3: “Horizontal Workshops” open to everyone (linked to project Annual Meetings) - transverse multidisciplinary Workshops and events involving two or more I.FAST WPs.
- Type 4: oral contribution to the international conferences and seminars



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## Workshops and meetings - in practice

- Type 1: I.FAST meetings
  - WP10 meeting, Task 10.1-10.7 meetings
  - Steering Committee, progress meetings, Annual meetings
  - I.FAST industrial workshop – Task 3.1
  - European Advanced Accelerator Concepts workshop – Task 6.1
- Type 2: meetings “in situ” with industry and other research institutions
  - Roesler, AM Solutions - current
  - meeting in Paris @ CNRS (Feb 2022) with designated workshop on AM applied to accelerators?
- Type 3: “Horizontal workshops” open to all (linked to project meetings)
  - I.FAST Annual Meeting @CERN (May 2022) - AM
- Type 4: conferences
  - special interest in IPAC23 @Venice (May 2023)



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## Dissemination of results

- **Internal** dissemination – within WP10 and in the I.FAST
- **External** dissemination – within our institutions, countries, globally
- These are conference talks, participation in the exhibitions and public events, industry events, scientific papers, publications, posts on our web pages, in the social media, etc.
- This is everywhere we publicly talk/show about what we do and what are our results



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## Dissemination of results

### Internal dissemination: Milestones – within I.FAST

MS43	Dissemination and communication plan	10.1	12	Report
MS44	Survey on current AM applications in accelerators and expected new developments	10.2	30	Report
MS45	Survey on current AM repair technologies for accelerator and list of possible applications	10.3	24	Report
MS46	Performance of Superconductive Cavities made by AM technology by Nb or Cu with Nb thin spattered film on the internal surface	10.4	12	Report
MS47	First NEG coated samples are installed on SR beamline at DLS and Soleil	10.5	12	Report
MS48	ML model selection and implementation plan	10.6	18	Report
MS49	Delivery of an electro-optic waveguide prototype for demonstration at RHUL test bench	10.7	12	Laboratory prototype in operation



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## Dissemination of results

### External dissemination: Deliverables – to EC and public

Deliverables related to WP10		
<b>D10.1:</b> Potential AM applications in accelerators. <i>Report on output of the survey on AM applications, further needs for the accelerator community, and perspective developments.</i>		30
<b>D10.2:</b> Survey of AM applications and strategies for repairing accelerator components by AM. <i>Report listing possible strategies and technologies for repairing of parts.</i>		24
<b>D10.3:</b> Additive-manufactured Superconductive RF cavities. <i>Production and tests of superconductive RF cavities, made by Nb and/or Cu coated by an Nb thin film.</i>		12
<b>D10.4:</b> First PSD data from NEG coating. <i>First PSD data from NEG coating reported.</i>		36
<b>D10.5:</b> Technical Report on machine learning at ESS. <i>Evaluation and verification results, architecture of the final implementation, and achieved performance at the ESS facility.</i>		34
<b>D10.6:</b> Electro-optic performance report. <i>Final report on the performance of the electro-optic pick-up prototype with beam.</i>		24



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## Dissemination of results

### External dissemination: Deliverables – to EC and public

<b>D10.1</b>	Potential AM applications in accelerators	10.1	PoliMi	R	PU	30
<b>D10.2</b>	Survey of AM applications and strategies for repairing component by AM	10.2	RTU	R	PU	24
<b>D10.3</b>	Additive-manufactured SRF cavities	10.3	INFN	DEV	PU	12
<b>D10.4</b>	First PSD data from NEG coating	10.4	UKRI	R	PU	36
<b>D10.5</b>	Technical Report on machine learning at ESS	10.5	ESS	R	PU	34
<b>D10.6</b>	Electro-optic performance report	10.6	RHUL	R	PU	24

WP10 will explore possible applications to accelerator construction and maintenance of Additive Manufacturing (AM) technology, to identify strategies aiming at cost reduction and simplified in-situ repair of components. Additionally, some specific technologies will be developed:

Technology	Present State of the art	Task	Present TRL	Objectives (Technological breakthroughs)	Final TRL	Application
AM manufactured SRF cavities	SRF cavities manufactured in bulk Niobium	10.4	2	Produce two 6 GHz test cavities with AM, in Niobium and in Copper (to be coated)	6	All accelerators using SRF



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# Reference to I.FAST

## Acknowledgement text

All I.FAST publications must include the following acknowledgement text:



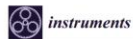
This project has received funding from the European Union's Horizon 2020 Research and Innovation programme under Grant Agreement No 101004730.

Please do not forget to include the EC acknowledgement in all your documents (journal articles, conference papers, presentations, internal notes, etc.) related to I.FAST.

Please upload a copy of your final publication on [Zenodo](https://zenodo.org).



# Dissemination of results - example



## Article First Proof-of-Concept Prototype of an Additive Manufactured Radio Frequency Quadrupole

Toms Torims<sup>1,2,\*</sup>, Guntis Pikurs<sup>1,2</sup>, Samira Gruber<sup>3</sup>, Maurizio Vretenar<sup>2</sup>, Andris Ratkus<sup>1,2</sup>,  
Maurizio Vedani<sup>4</sup>, Elena López<sup>3</sup> and Frank Brückner<sup>3,5</sup>

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- <sup>2</sup> CERN, The European Organization for Nuclear Research, 1211 Meyrin, Switzerland; maurizio.vretenar@cern.ch
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**Abstract:** Continuous developments in additive manufacturing (AM) technology are opening up opportunities in novel machining, and improving design alternatives for modern particle accelerator components. One of the most critical, complex, and delicate accelerator elements to manufacture and assemble is the radio frequency quadrupole (RFQ) linear accelerator, which is used as an injector for all large modern proton and ion accelerator systems. For this reason, the RFQ has been selected by a wide European collaboration participating in the AM developments of the I.FAST (Innovation Fostering in Accelerator Science and Technology) Horizon 2020 project. The RFQ is as an excellent candidate to show how sophisticated pure copper accelerator components can be manufactured



Citation: Torims, T.; Pikurs, G.;

I contact you as the communication contacts for the I.FAST project. I would like to follow up about the [press release](#) I was talking about in my last email. I got published by Fraunhofer IWS earlier this week. For reminder, this press release presents the latest developments in additive manufacturing of copper component for quadrupoles, to which your institutes have taken a role.

Fraunhofer IWS has already shared the story to their press contact and on their social media:

- [Press release](#)
- [Twitter](#)
- [LinkedIn](#)
- [Instagram](#)

CERN is planning to do the same today or next week. The article has already been published on the [I.FAST website](#).

Could I please ask you to share the press release to your press contacts and on social media?

For social media, we have set up the following guidelines:

- Write I.FAST without the dot. Not doing so would create a web link and provoke confusion.
  - I.FAST and use #IFASTProjectEU
  - #IFAST2020
- Mention CERN and other partners:
  - « [...] with @CERN » or something similar.
- You may use the recommended hashtag:
  - #3dprinting
- You can take inspiration from [this post](#) by Nanoker, another I.FAST partner.

I am available for any question,  
Many thanks,  
Best regards,

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## Dissemination of results - example

Form next 2021 – Frankfurt  
by Fraunhofer IWS

