



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

SAC Feedback 2023

I.FAST Meeting, Trieste, Italy

M Minty, A Yamamoto and C P Welsch

iFAST



Reminder: I.FAST Work Packages

WP	Title	Coordinator
1	Management, coordination and dissemination	M. Vretenar (CERN)
2	Training, communication and outreach for accelerator science and technology	Ph. Burrows (UOXF)
3	Industry engagement	M. Morandin (INFN)
4	Managing innovation, new materials	M. Losasso (CERN)
5	Strategies and milestones for accelerator research and technology	F. Zimmermann (CERN), N. Pastrone (INFN), P. Forck (GSI)
6	Novel particle accelerators concepts and technologies	R. Assmann (DESY)
7	High brightness accelerators for light sources	R. Bartolini (DESY)
8	Innovative superconducting magnets	L. Rossi (INFN), L. Quettier (CEA), C. Roux (GSI)
9	Innovative superconducting thin film coated cavities	C. Antoine (CEA), O. Malyshev (UKRI)
10	Advanced accelerator technologies	T. Torims (RTU)
11	Sustainable concepts and technologies	M. Seidel (PSI)
12	Societal applications	R. Edgecock (HUD)
13	Technology infrastructure	S. Leray (CEA)
14	Ethics requirements	P. Foka (GSI)

future accelerators

Enhance
innovation,
engage
industry
as co-
innovation
partner



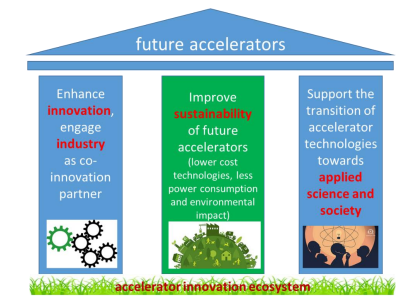
Improve
sustainability
of future
accelerators
(lower cost
technologies, less
power consumption
and environmental
impact)



Support the
transition of
accelerator
technologies
towards
**applied
science and
society**



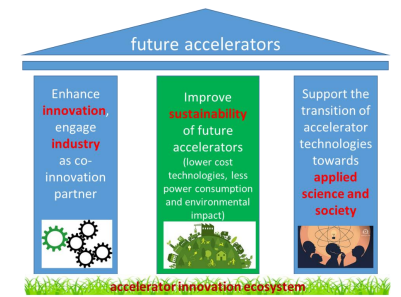
accelerator innovation ecosystem



Industry Innovations

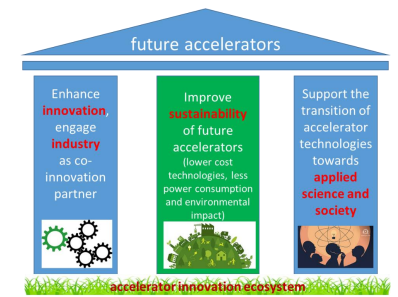
- The SAC strongly supports the development of novel technologies with some excellent successes already visible: Thin-film coated cavities, novel power amplifiers, beam windows and HTS cables.
- Developments in additive machining for beam instrumentation, collimators and photon absorbers.
- I.FAST Industry Advisory Board provides strategic steer; Innovation Fund enables technology innovations.

Advanced Accelerators



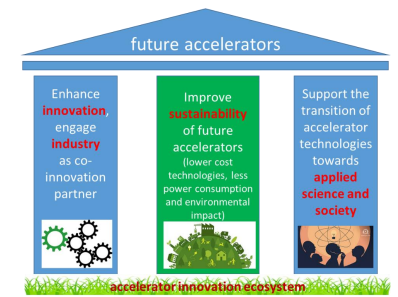
- I.FAST helps develop a landscape for future accelerators and events lead to recommendations that inform strategic roadmaps for required R&D.
- Novel accelerator concepts require technology breakthroughs, e.g. high power lasers, fast ramping and high field magnets; development needs were clearly highlighted.

Sustainability



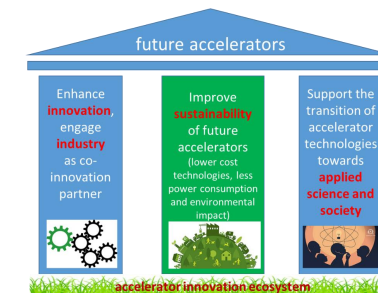
- Sustainable concepts for research infrastructures are a clear I.FAST highlight and contribute to a global R&D drive.
- High efficiency klystrons and permanent magnets as key technologies to reduce energy consumption.
- AI-based classification of energy consumption as realistic pathway towards assessment of facility's environment impact.
- Increased awareness: Critical materials and life cycle management, importance of public perception of accelerator-related construction and operation.

Applied Science and Society



- Good engagement with key industry players, e.g. adaptive manufacturing and laser technology, as well as online platforms for shared use.
- Co-innovation: mutual benefits from early engagement with industry.
- Excellent application of synchrotron light to contribute to cultural heritage
- Good connection with UN's Sustainable Development Goals (SDGs), e.g. Design of Advanced Electron Accelerator Plant for Biohazard Treatment.

SAC suggestions



- These technologies should be critically assessed with regards to a realistic pathway to identified markets and the time scales required.
- For each technology, it would be good to get idea of technology readiness level (TRL) as not all developments seem to have the same level of market-readiness.
- It was not always made clear enough which developments are happening because of I.FAST.
- It would be beneficial to have focus on developments during last year (rather than project lifetime).

Outreach and Communication

- Good link with some established outlets, e.g. *Accelerating News* is to be commended as an efficient way of reaching out to the wider community.
- SAC commends I.FAST for having clear communication targets and that these are well on track after only two years.
- Communication expertise and channels at partner organization could be more actively tapped into.
- There are relatively few news stories on the I.FAST website for a project of this size – SAC recommends more publications in the area of general communication and news.

I.FAST supported workshops

- Impressive number of very successful events held across various work packages, underlining the project's great impact on connecting the community and generating new ideas.
- I.FAST brand not always visible (enough) on posters, websites and in announcements.

Training

- Industrial training and knowledge transfer are key part of I.FAST programme.
- I.FAST contributes to development of the next generation of accelerator scientists, engineers and technicians.
- SAC suggests that I.FAST acts as an information hub about training opportunities to assist identifying and developing talent around the world.

Challenge-Based Innovation

- Fantastic initiative that has excellent potential for generating enthusiasm in next generation of researchers.
- This also has excellent potential for communicating I.FAST more widely and can act as a project showcase.
- Applications mostly from established countries and channels, there seems to be room for wider promotion of the activity, opening CBI more widely and improving diversity of participants.

Conclusion

- Impressive progress made and the collaboration is to be commended on their achievements to date.
- SAC notes that some WPs have experienced delays due to difficulties in hiring, materials procurement and inflationary pressures (budget estimates were made in late 2019).
- SAC appreciates that innovation requires diversity, but notes that diversity within I.FAST could be improved.
- Collaboration should start thinking about how to ensure continuity of select initiatives, e.g. those benefiting the broader accelerator community, beyond the project lifetime.
- Connection between individual projects/events and wider WP and project not always made clear enough – (more) closely connected communication will help maximize impact: **Together, stronger!**

iFAST



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