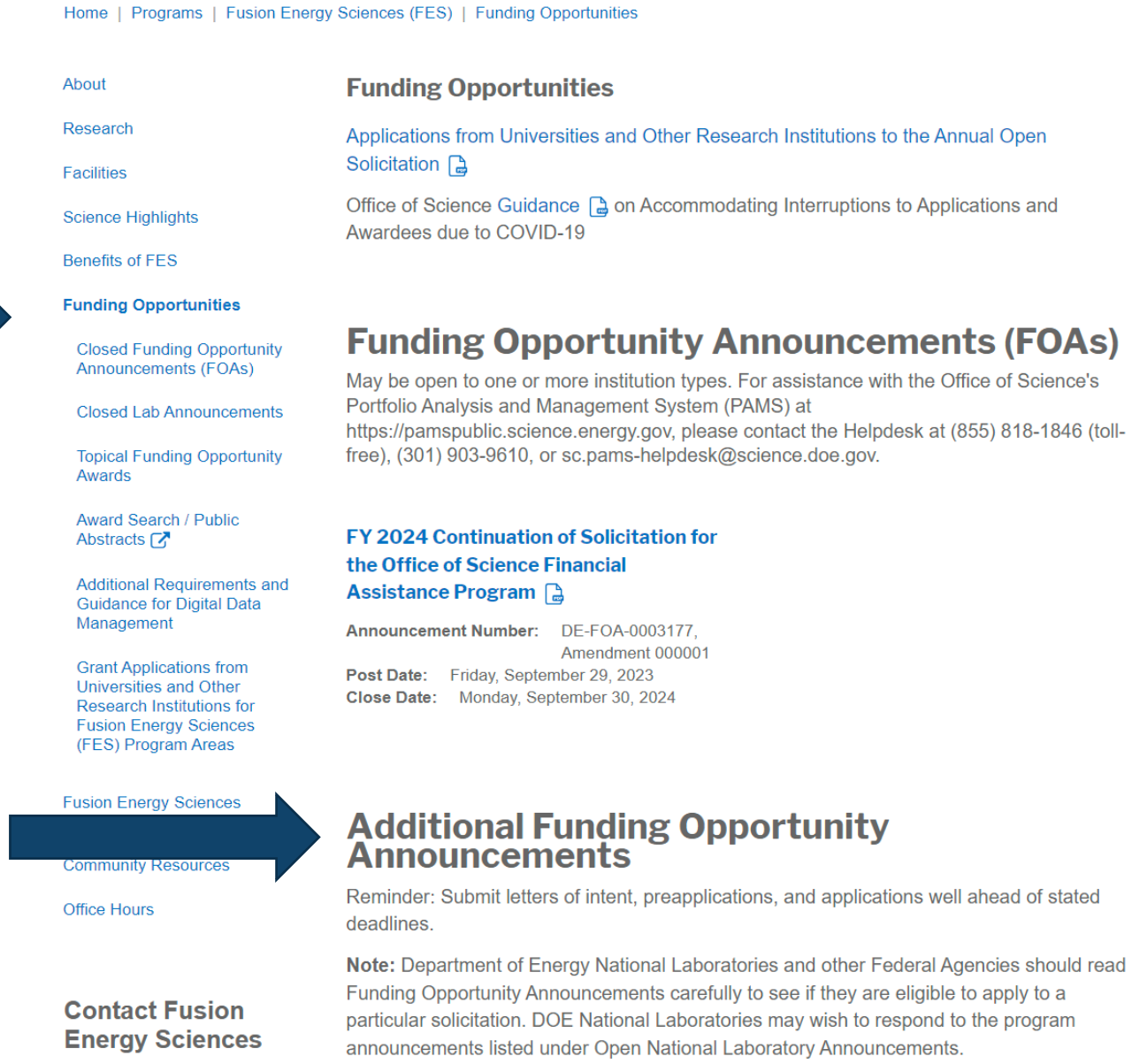
Slides are available at https://science.osti.gov/fes/Funding-Opportunities

Click on Funding Opportunities in the top left menu



Link to slides in the details

Informational Webinar:
Fusion Innovation Research Engine (FIRE) Collaboratives

DE-FOA-0003361

FOA Issue Date:	May 22, 2024
Submission Deadline for Pre-Applications:	July 9, 2024, at 5:00 pm Eastern Time A Pre-Application is required. Pre-Applications must be submitted by an authorized institutional representative
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Direct all inquiries to:	fes.fire@science.doe.gov

Amendment 000001 is issued to include a requirement on Page 11 that each FIRE Collaborative management team must include at least one senior or key person from each subrecipient

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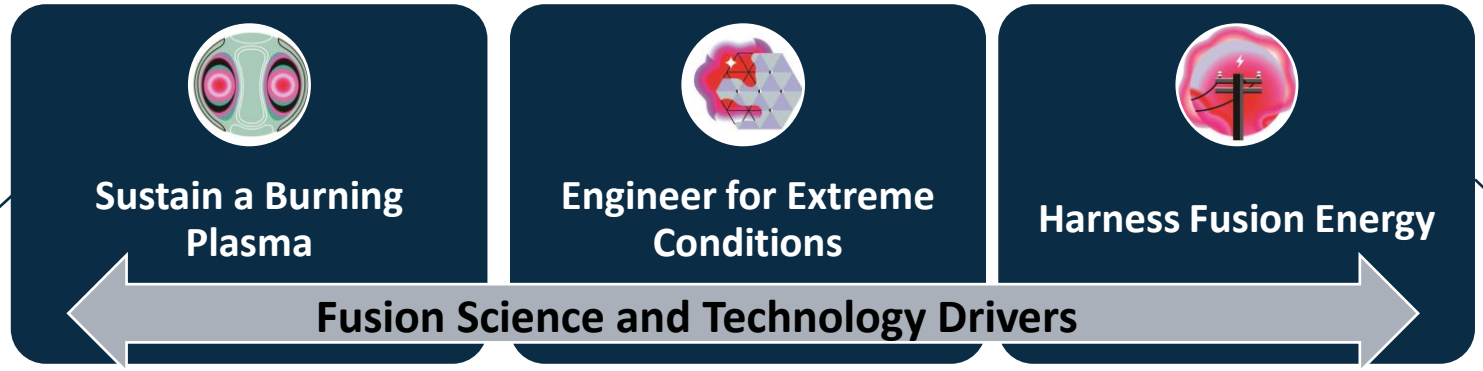
From FESAC Long Range Plan to the Fusion Innovation Research Engine Collaboratives



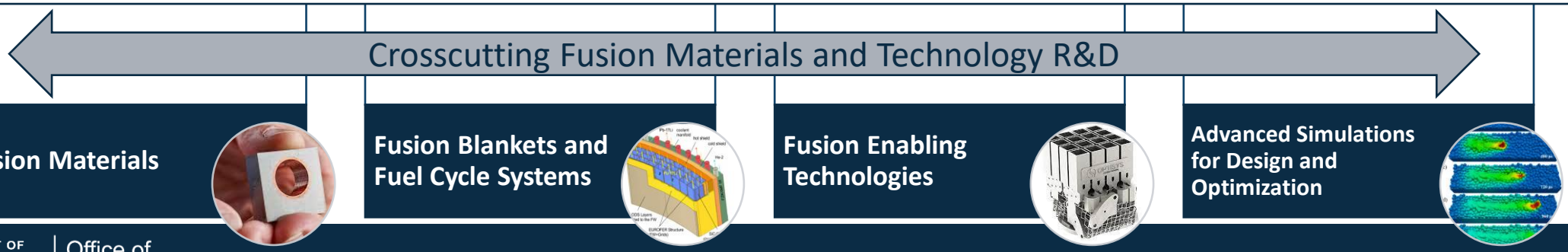
…"Rapidly expand the R&D efforts in fusion materials and technology (FM&T)"

Fusion Innovation Research Engine Collaborative

Vision: The FIRE Collaborative will help establish a fusion ecosystem that brings together foundational science, innovation, and translational research in partnership with multiple public and private partners

Mission: Fulfilling the fusion energy mission focused on the Long-Range Plan (LRP) FM&T gaps, which connects the three science drivers: Sustain a Burning Plasma, Engineer for Extreme Conditions, and Harness Fusion Energy.

Focus: Priority R&D areas that relate the FM&T gaps to the FIRE Collaborative are listed below. The FIRE Collaboratives are expected to address gaps that exist in or across these R&D areas and will also be the bridge between the FES foundational research programs and enabling science and technology for fusion energy.



Fusion Innovation Research Engine (FIRE) Collaboratives: Ecosystem

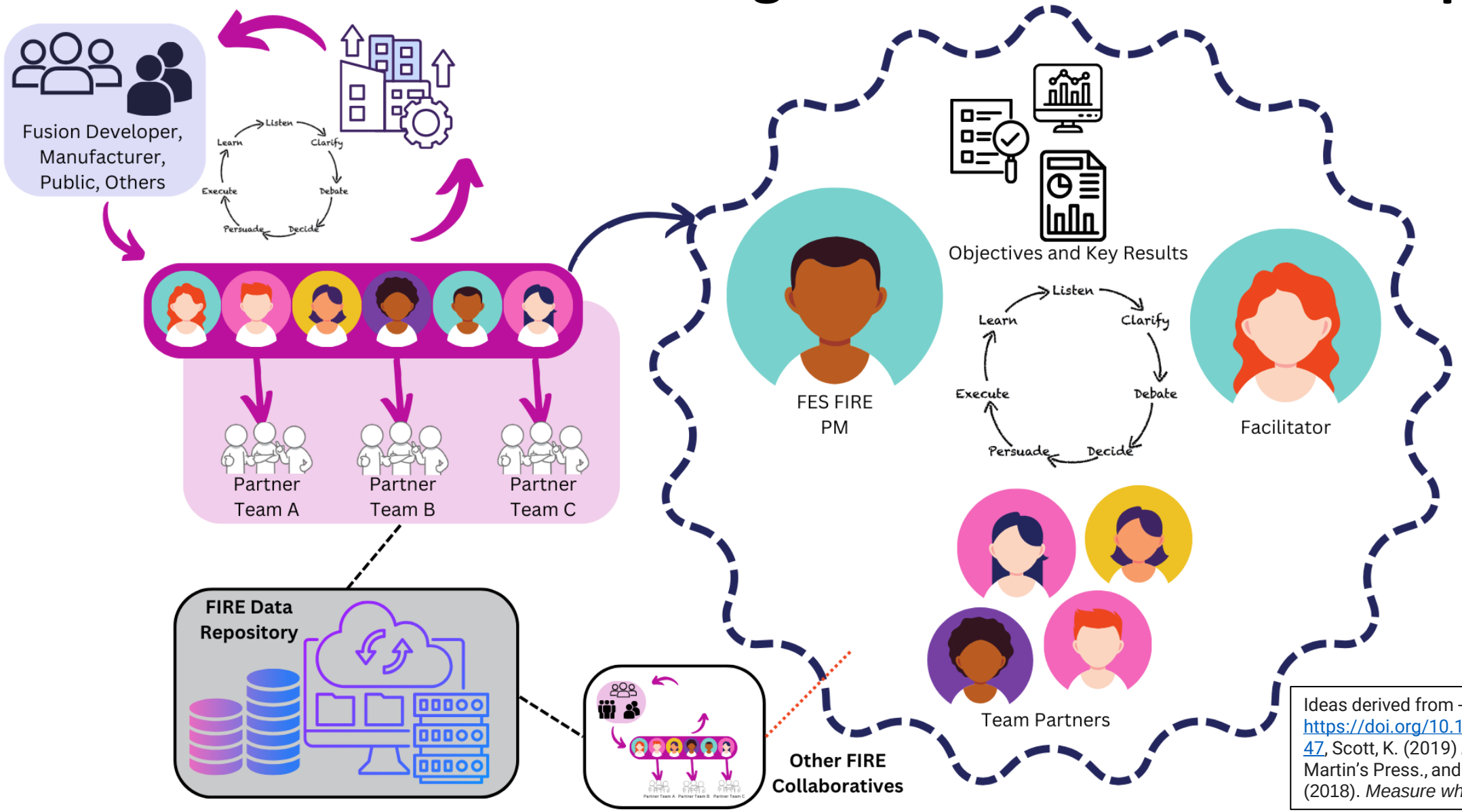
FES envisions FIRE Collaboratives as a collection of virtual, centrally managed teams with the following attributes:

- ✓ Accelerated and agile **results-driven teams** focused on de-risking FS&T gaps
- ✓ Research strategy that is inclusive of insights from end-users, **end-use inspired**
- ✓ **Workforce needs** to de-risk FS&T gaps by transitioning, retooling, reskilling existing workforce and or leveraging non-fusion related workforce
- ✓ Preparing data for public use – **FIRE Data Repository**
- ✓ Dynamic hubs of innovation, driving advancements in fusion energy research in collaboration with both public and private entities – **be the bridge!**

The term 'fusion ecosystem' refers to the network of collaborative relationships, resources, and initiatives (public and private) aimed at advancing fusion energy

Fusion Ecosystem

FIRE Collaborative Management Framework Example



Ideas derived from - https://doi.org/10.1016/j.heliyon.2019.e01447, Scott, K. (2019) *Radical candor*. St. Martin's Press., and Doerr, J. (2018). *Measure what matters*. Penguin.

Elements of a FIRE Collaborative

- **FIRE Collaborative's Purpose**:
  - Clearly articulate the FS&T science drivers and FM&T gap(s) the FIRE Collaborative aims to address.
  - Clearly articulate the FIRE Collaborative's management plan.
  - Clearly articulate the FIRE Collaborative's research project plan.
- **Integrated Thinking:**
  - Develop a coordinated and strategic research plan that considers the interdependencies within the engineering system.
  - Balance de-risking known FS&T gaps with use-inspired research, addressing system integration and externalities.
- **Cross-Disciplinary Collaboration:**
  - A FIRE Collaborative should be virtual and centrally led team
  - Foster multi-investigator, multi-institutional, multidisciplinary collaboration able to leverage existing expertise, capabilities, facilities, and resources.
  - FIRE Collaborative must have a Data Management Framework established.
  - FIRE Collaborative must promote an inclusive and equitable research.
- **Capability-driven framework**:
  - Capability-driven framework in which the R&D is focused on delivering specific results (OKRs).
  - Break down research into manageable tasks (small achievable goals), prioritizing activities based on their impact on addressing FM&T gaps (OKRs).
  - Clearly articulate quantifiable research deliverables/milestones. Teams should consider risks and propose contingency plans, but also be given some flexibility to execute by taking advantage of new information.
- **Maturation Assessment:**
  - Evaluate the maturity and readiness of research project within the integrated system in terms of OKRs.
  - Prioritize research activities based on OKRs that advance the overall maturation.
- **Stakeholder Engagement:**
  - Clearly articulate the FIRE Collaborative's stakeholder engagement plan.
  - How would the FIRE Collaborative inform FES and the broader community of current activities
  - How does the FIRE Collaborative align with the International Partnership in a New Era of Fusion Energy Development.
  - How does the data management framework impact the FIRE Collaborative's stakeholders and other FIRE Collaboratives.

FIRE Data Repository

- In accordance with the DOE Office of Science Open Science initiatives, FES seeks to support a dedicated repository of all data produced by FIRE Collaboratives.
- This includes but is not limited to: plasma parameters and profile data, fluctuation measurements, and magnetic configuration data.
- Coordination with efforts supported under the AI/ML program is encouraged. Membership in the World Data System (https://worlddatasystem.org/) is recommended.
- The FIRE Data Repository will serve as a PuRe data resource (https://science.osti.gov/Initiatives/PuRe-Data) and be accessible to the public.
- Once launched, ASCR's High Performance Data Facility (HPDF) will serve as the host of the FIRE Data Repository.

Collaborations in the Fusion Ecosystem

- All types of collaborations are encouraged*
  - **Funded examples:** Partnering institutions, user facilities, international facilities, private facilities,…
  - **Unfunded examples:** Industry advisors (developer, manufacturer, supply chain experts), Socio-techno-economic analysts,…
- International collaborations:
  - Non-domestic partners cannot lead a collaborative but can be proposed as subaward. Applications with non-domestic partners must include a detailed demonstration of how the non-domestic partner possesses skills, resources, and abilities that do not exist among potential domestic partners
- Facilitating effective collaborations fosters**, including but not limited to:
  - Supportive relationships from leaders – team partners
  - A collaborative mindset
  - Building and maintaining relationships across stakeholders

*See list of eligibility requirements here
**https://hbr.org/2007/11/eight-ways-to-build-collaborative-teams

Intellectual Property – Information and Data

- FIRE Collaboratives are not intended to develop proprietary data.
- All data produced within the collaboratives must be made available in the FIRE Data Repository to ensure it serves the broader research community and supports the shared mission of advancing fusion energy research.
- A FIRE Collaborative is encouraged to support research and development (R&D) for future technologies, not for immediate commercial activities.
- Specifically, it aims to fund R&D required to accelerate technology maturity. These projects should focus on innovations that will be needed to close FM&T gaps, which may have a longer maturation, rather than on later-stage technologies that require minimal R&D and target near-term commercial opportunities.

Pre-application

- **Due:** July 9, 2024
- **Page Limit:** Four (4) pages
- Attach a listing of senior/key personnel and a listing of individuals who should not serve as merit reviewers – **does not count toward page limit**
- Attach Estimated Management Budget Table – **does not count toward page limit**
- Attach Estimated Research Project Budget Table – **does not count toward page limit**

Important Dates

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Thank you for your attention!

Questions?

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