

National Aeronautics and
Space Administration



George C. Marshall
Space Flight Center

Dual-Use Technology Development
Cooperative Agreement Notice (CAN)

Overview Presentation

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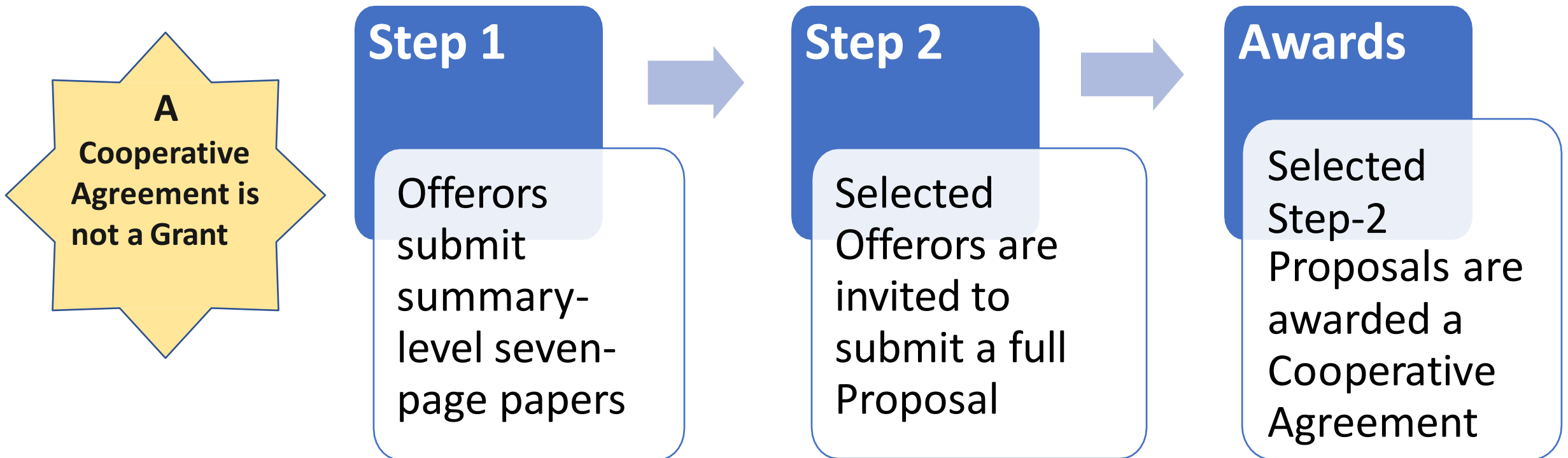


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MSFC Dual Use Technology Development CAN Process Overview

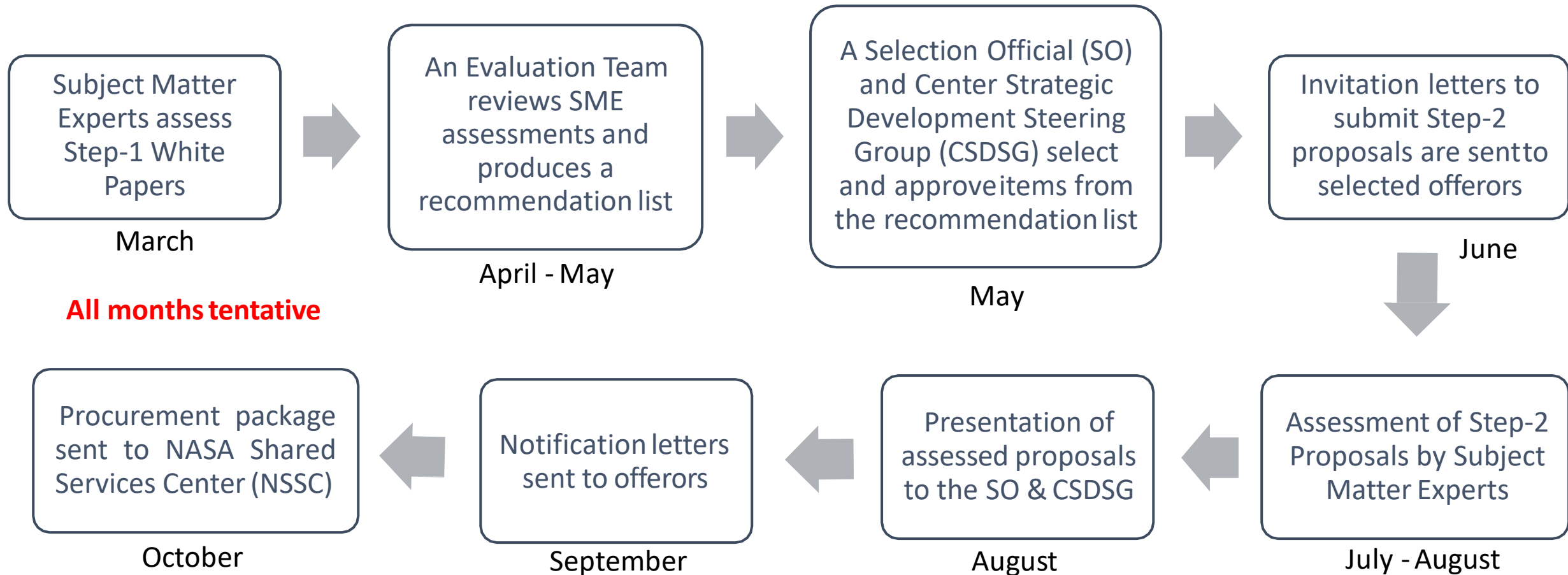
Purpose: Enhance MSFC's ability to partner with U.S. universities and industry to advance a technology development objective of the Partner as well as help meet specific NASA/MSFC mission needs.

MSFC contributions to the Partner range from \$10K - \$250K in value for each awarded project, up to 50% of the total project resources required; **likewise, the partner must contribute at least 50% of the total project resources.**



How long does it take to award an agreement?

Typically, it takes about 6 months from Step-1 White Paper submission to awarded Cooperative Agreement project start.



Technical Focus Areas

1. Advanced Space Transportation Systems

1. In-Space Transportation Systems
2. In-Space Propulsion Systems
 1. Nuclear Thermal Propulsion (NTP)
 2. Propellant-less Propulsion Systems

2. Habitation Systems

1. Environmental Control and Life-Support Systems (ECLSS)
2. Habitat Elements, Systems & Outfitting

3. In-Space & Surface Mission Operations

4. Lander Systems

5. Science

1. Astrophysics
2. Data & Applications Science
3. Earth Science
4. Heliophysics
- A.5.4.5 Planetary Science

6. Space Launch System / Exploration Production & Operations Contract (SLS / EPOC)

7. Surface Technologies & Systems

1. Extreme Environments
2. In-Situ Resource Utilization (ISRU)
3. In-Space Assembly & Manufacturing (ISAM)
4. Surface Mobility

A.4.8 Cross-Cutting Technologies

A.4.8.1 Advanced Chemical Propulsion

A.4.8.2 Advanced Materials, Structures & Manufacturing (AMSM)

A.4.8.3 Autonomous Systems & Robotics

A.4.8.4 Cryogenic Fluid Management (CFM)

A.4.8.5 Dust Mitigation

A.4.8.6 Model Based Systems Engineering (MBSE)

A.4.8.7 Power & Energy Systems

A.4.8.8 Space Domain Awareness

A.4.8.9 Testing, Modeling & Simulation

- Historically, the technical focus areas grew organically as technologists identified needs from their perspective
- For 2024 solicitation focus areas were streamlined and reorganized
- Introductory paragraphs identify the breadth and scope of each focus area and supported by short lists of example technologies or technologies of particular interest

Statistics for MSFC CAN (2014 through 2022)

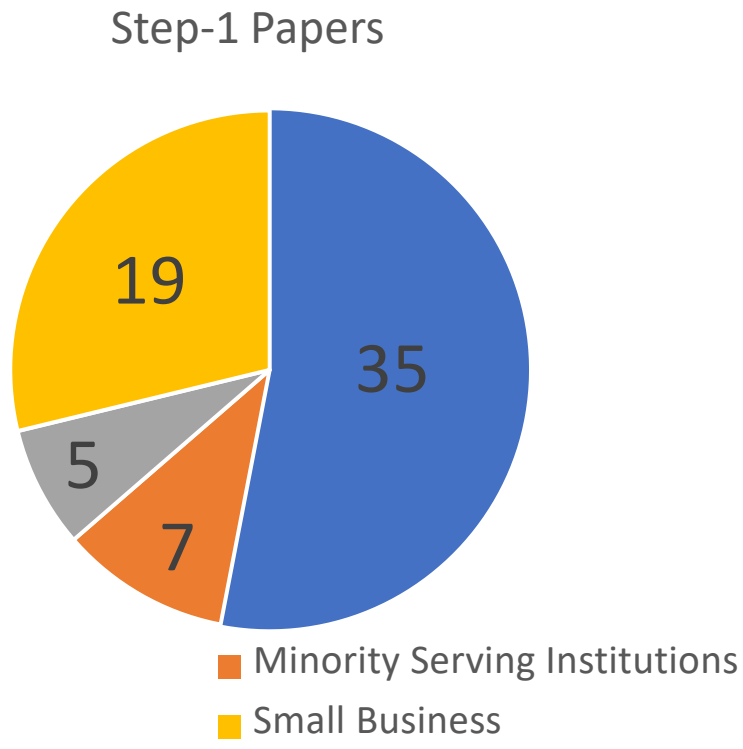
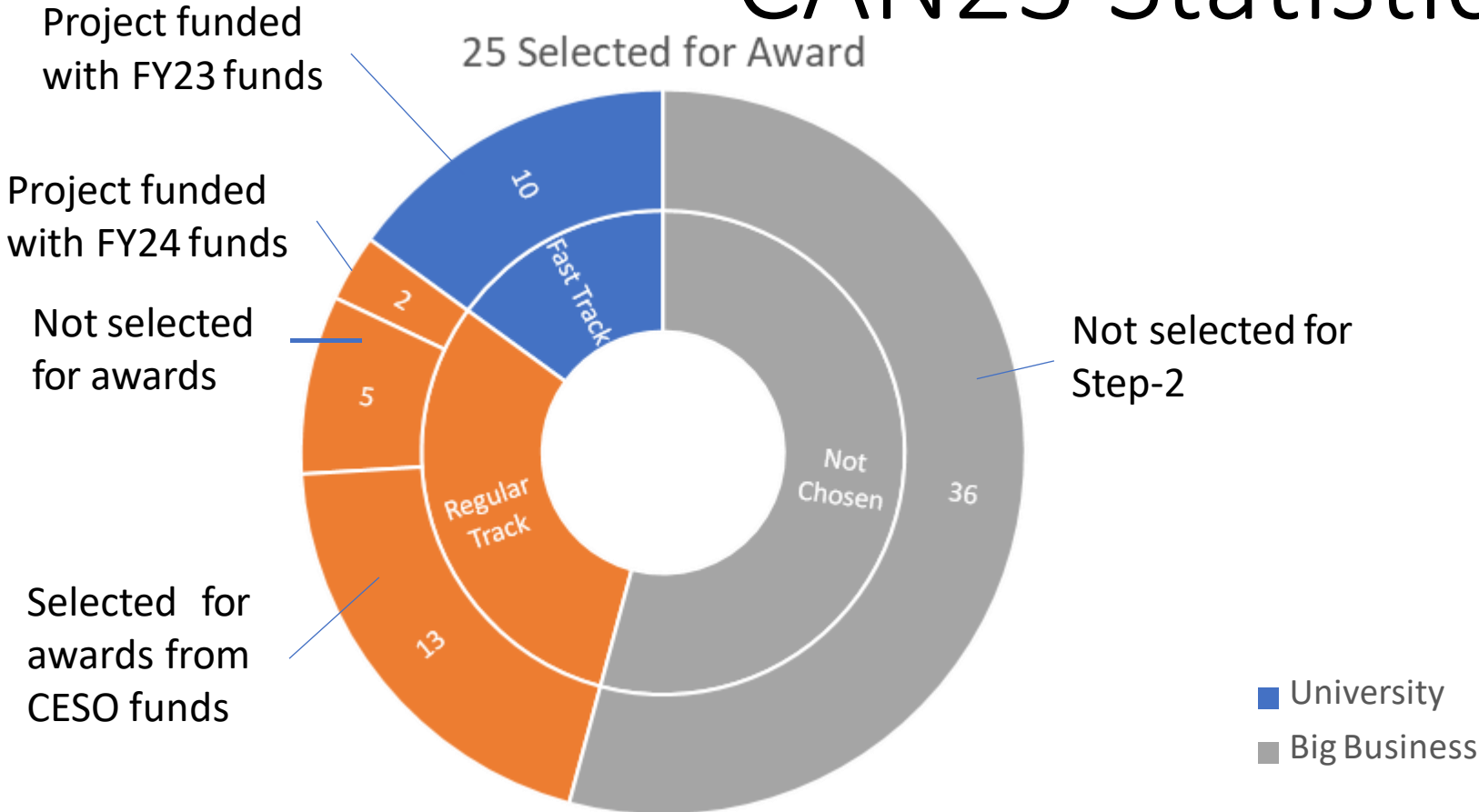
Year	CAN Periods	Total Number of Step-1 Papers	Total Number of CAN Projects	Project to Paper Ratio
		438	232	52.97%
2014	1			
2015	3			
2016	2			
2017	2			
2018	2			
2019	2			
2020	2			
2021	1			
2022	2			
Total	17			

University	Industry	MUREP Candidates	Small Business
173	59	39	36
74.57%	25.43%	22.54%	61.02%
of the CAN projects		of University	of Industry

Total Partner Contributed Resources	Total NASA Contributed Resources	Total CAN Projects Value
\$20.02 M	\$14.11 M	\$34.13 M
58.66%	41.34%	
of Total CAN Projects Value		

	Partner Contributed Resources	NASA Contributed Resources	Total CAN Projects Value
Small Business	\$3.76 M	\$2.44 M	\$6.2 M
MUREP Candidates	\$4.22 M	\$3.04 M	\$7.26 M
Industry	\$6.42 M	\$3.84 M	\$10.26 M
University	\$13.6 M	\$10.27 M	\$23.87 M

CAN23 Statistics



Partner Value	Cooperative Agreement Value (Cash to Partner)	ODC Procurement	Travel	FTE	Labor Value	Total NASA Value	Total CAN Value
\$7,165,601	\$4,928,155	\$379,219	\$6,472	4.195	\$860,812	\$6,174,658	\$13,340,259

Step-1 Paper Assessment Criteria

- 1. Relevance to NASA/MSFC Need** - Does the proposed project address a specific NASA MSFC need?
- 2. Technical Quality & Appropriateness** - Technical approach including anticipated partner & MSFC project roles/tasks, the clarity of the expected outcome, the anticipated accomplishments, and the level of technical challenges versus projected benefit
- 3. Appropriateness of Cost Projections**
 - Appropriateness and suitability of the total project cost projections
 - Appropriateness and suitability of the proposed MSFC and partner resource sharing contributions to the total project cost
- 2. Recommendation** - Is it recommended to invite the Step-2 full project proposal?

Step-2 Proposal Assessment Criteria

- **Technical Merit and Feasibility (40%)** - Project merit, approach, deliverables / personnel & facilities / Technical Schedule & Milestones
- **Business Plan (20%)** - Commercial potential
 - Industry Partner's commercial objectives for the investment
 - University Partner's research priorities and vision for eventual application to commercial use
- **Cost Plan (40%)**
 - Cost Plan elements are clearly described and complete for the scope and tasks of the project
 - Total estimated resources needed for the project are adequate, the cash & in-kind resources contributions of MSFC & the CAN project partner are appropriate for each
- **Recommendation** - Is the Proposal recommended to select for a Cooperative Agreement project?

Conclusion

- The MSFC Dual Use Technology Development Cooperative Agreement Notice (CAN) enhances MSFC's capability to collaborate with U.S. companies and universities
- Total project value of the MSFC Dual Use CAN over a nine year period = \$34.13M; MSFC's contribution = \$14.11M; ROI = ~2.42:1
- Evaluated 66 Step-1 Papers for 2023 cycle with more than 100 subject matter experts from around MSFC
 - 25 selected for awards
- Previously, the Conflict of Interest (Col) self-certification form and the Evaluation form were email and document based procedures
- The Col & Evaluation procedures now use a SharePoint data list and PowerAutomate flows generate documents in a SharePoint library

Contact Information

For questions regarding the 2024 MSFC Dual Use Technology Development CAN opportunity, contact:

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Working with the Engineering Directorate and the Partnerships Formulation Office, we'll find subject matter experts to discuss technology needs and potential project ideas.