WAYMAKER
GROUP

Material Advancement and Research Solutions (MARS) Tech Hub

IMPLEMENTATION PLAN

July 2024

Submitted by: Waymaker Group

Revitalization Through Innovation

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EXECUTIVE SUMMARY

The Material Advancement and Research Solutions (MARS) Tech Hub stands at a pivotal juncture in its development. This implementation plan charts a course for MARS to enhance its role in advanced materials innovation, focusing on two key objectives: improving the commercialization of research outcomes and optimizing the use of co-housed facilities for collaborative research.

Bridging the gap between laboratory discoveries and market-ready solutions is a complex endeavor, one that requires a delicate balance of scientific rigor and business acumen. This plan addresses these challenges through a comprehensive, multi-faceted approach. At its core, the action strategy provides a structured roadmap for MARS' development. It delineates clear responsibilities, sets realistic timelines, and establishes measurable performance indicators. This framework will guide MARS from its current state to a future where it can more effectively translate research into real-world applications.

Equally crucial is how MARS communicates its value to the wider world. The marketing and branding strategy focuses on crafting a compelling narrative that resonates with key stakeholders. It aims to position MARS as a unique nexus of innovation, where cutting-edge research meets practical application. This narrative will be disseminated through a carefully selected mix of communication channels, tailored to reach diverse audiences effectively.

Recognizing that ambitious goals require robust financial support, the funding strategy outlines a multi-pronged approach to secure resources:

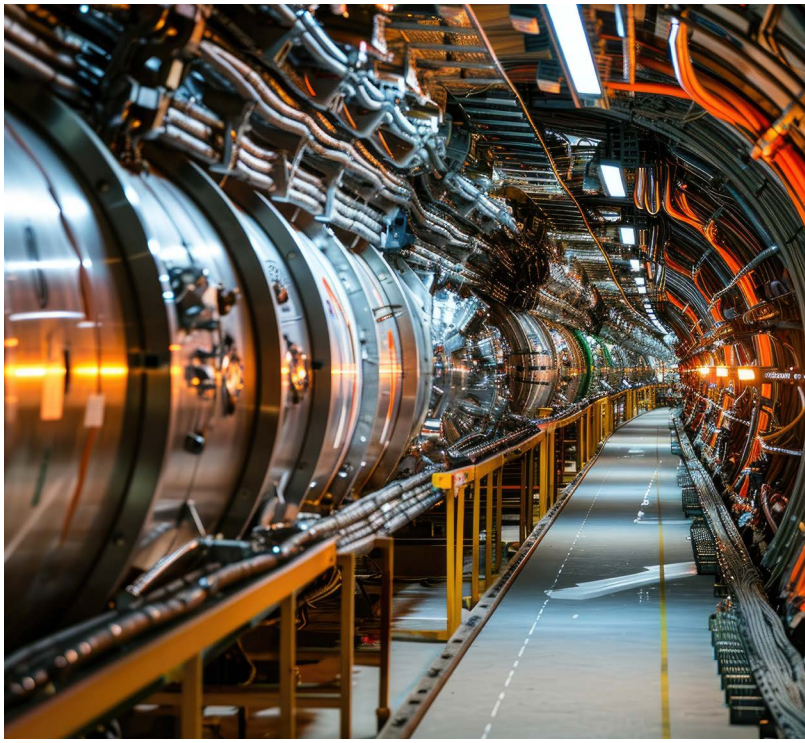
- Pursuit of federal and state grants aligned with innovation priorities
- Development of strategic private sector partnerships
- Cultivation of philanthropic contributions

To ensure long-term financial health, the plan recommends engaging external expertise to develop a comprehensive sustainability strategy. This forward-looking approach will help MARS navigate the often unpredictable landscape of research funding and commercialization.

Transparency and stakeholder engagement form the bedrock of MARS' operational philosophy. The reporting and communication framework is designed to:

- Keep all stakeholders informed of progress and challenges
- Foster a culture of accountability
- Facilitate continuous improvement through regular feedback

This implementation plan outlines a targeted approach for MARS to enhance its impact in advanced materials innovation. By focusing on efficient commercialization pathways and optimized collaborative facilities, MARS aims to accelerate the translation of research into tangible economic and technological benefits. The plan acknowledges the inherent challenges in this endeavor, from funding uncertainties to technological hurdles. However, it also provides specific strategies to address these obstacles. With careful execution and ongoing assessment, MARS can strengthen its position as a key player in the advanced materials sector, fostering innovation that serves both scientific advancement and regional economic development.



ACTION PLAN

Transforming MARS from concept to reality requires more than just vision—it demands a carefully orchestrated plan of action. The action strategy serves as the bridge between ambitious goals and tangible outcomes. Its main function is to guide MARS in improving commercialization output and optimizing co-housed facilities, turning strategic recommendations into concrete results. This plan will delineate clear responsibilities, set realistic timelines, and establish measurable outcomes, ensuring that every step taken is purposeful and measurable.

Improve Commercialization Output		
Actions	**Description**	**Priority**
	Form a high-level task force led by the VP for Research and Innovation to oversee the commercialization improvement initiative.	HIGH
	Hire an external consulting firm specializing in university technology transfer to: » Conduct a comprehensive audit of current commercialization policies and procedures. » Benchmark MSU against peer institutions with successful commercialization track records. » Provide recommendations for policy updates and structural changes.	HIGH
	Revise faculty hiring and promotion criteria to include commercialization metrics: » Update job descriptions for new faculty positions to emphasize industry experience and commercialization expertise. » Modify tenure and promotion guidelines to reward patents, startups, and industry collaborations.	HIGH
	Establish a “Commercialization Fellows” program: » Recruit 5-10 experienced industry professionals or serial entrepreneurs as adjunct faculty. » Pair these fellows with research teams to identify and develop commercial applications.	MED
	Reorganize and integrate industry relations offices: » Consolidate the Innovation Center, University Advancement, and Corporate Relations offices under a new “Industry Partnerships and Commercialization” division. » Implement a shared CRM system to track and manage all industry interactions across the university.	MED
	Develop and launch a comprehensive training program for faculty and graduate students on: » Intellectual property basics » Market assessment for research applications » Startup formation and fundraising	MED
	Implement a robust industry engagement program: » Organize quarterly innovation showcases of MSU research. » Establish an industry advisory board for each major research area. » Develop a structured process for soliciting and addressing industry challenges through university research.	MED
	Create a ”Fast Track” commercialization process for high-potential technologies: » Establish criteria for identifying high-potential innovations. » Allocate dedicated resources (legal, marketing, business development) to expedite these projects.	LOW
Time Frame	24-36 Months	
Budget Range	$2M-$5M	
Responsible Leadership	VP for Research and Innovation Dean of Engineering Associate VP for Innovation & Economic Development VP for University Advancement Senior Director of Corporate Relations	
Measurable Outcomes	Increase in number of patents filed and licensed Increase in licensing revenue Improvement in AUTM rankings from bottom quartile to middle quartile Number of new industry partnerships formed	
Evaluation & Monitoring	Quarterly review of key metrics with annual comprehensive evaluation	
Possible Funding Sources	National Science Foundation (I-Corps program; SBIR Fast Track) Economic Development Administration (Build to Scale program) State of Michigan innovation/commercialization grants (MEDC’s MTRAC, BAF, Emerging Technologies Fund)	

Use University & Public-Private Facilities and Real-Estate to Co-House Companies and Programs		
Actions	**Description**	**Priority**
	Conduct a comprehensive inventory of existing university facilities, identifying spaces suitable for co-housing companies and programs. Focus on areas near research labs and core facilities.	HIGH
	Hire a specialized consultant firm to: » Assess current utilization of core facilities. » Recommend upgrades to make these facilities more attractive to startups and industry. » Develop a financial model for facility usage fees and revenue sharing."	HIGH
	Create a cross-functional team to develop policies for: » Facility access and security for non-university personnel. » Intellectual property sharing in collaborative spaces. » Resource allocation between academic and commercial users."	MED
	Establish a "concierge service" within the Technology Transfer Office to facilitate company-university matches and streamline facility access for external partners.	MED
	Develop a marketing plan to promote these spaces to target industries, with a focus on advanced materials and battery manufacturing sectors.	MED
	Implement a phased renovation plan, starting with quick-win modifications to make spaces immediately usable, followed by more substantial upgrades.	MED
	Create a dedicated website and digital booking system for external partners to easily view and reserve available spaces and equipment.	LOW
Time Frame (Programming)	12-18 months	
Time Frame (Facilities)	24-36 months	
Budget Range (Programming)	$2M-$4M, recurring annually	
Budget Range (Facilities)	$15M-$30M; Build Out, New Equipment, Reconfigurations	
Responsible Leadership	VP for Research and Innovation Vice President for Strategic Infrastructure Planning and Facilities Chief Financial Officer Associate VP for Innovation & Economic Development	
Measurable Outcomes	Number of companies co-located in university facilities Utilization rate of core facilities by startups and industry partners Number of new university-industry collaborations initiated Revenue generated from facility usage fees	
Evaluation & Monitoring	Monthly progress reports with quarterly comprehensive reviews	
Possible Funding Sources	**Facilities Improvement** EDA Public Works & Economic Adjustment Assistance Programs NSF Major Research Instrumentation Program Capital Campaigning **Programming** NSF Partnerships for Innovation Program SBA Growth Accelerator Fund Competition NIST Manufacturing Extension Partnership Corporate Sponsored Research Agreements **Combined** NIH Research Evaluation & Commercialization Hubs (REACH) EDA Build to Scale program Major Foundation Grants (Kellogg Foundation) Michigan Strategic Fund discretionary incentives	

MARKETING AND BRANDING

In the competitive landscape of innovation hubs, a compelling brand and targeted marketing strategy are as crucial as cutting-edge research. For MARS, effective marketing and branding are not just about creating awareness; they're about crafting a narrative that resonates with stakeholders, from industry partners to potential talent. This strategy will highlight MARS' unique value proposition in improving commercialization and fostering collaborative research. Through carefully curated messaging and strategic communication channels, MARS will build a brand that attracts partners, inspires confidence, and amplifies its impact in the field of advanced materials.

BRAND POSITIONING

To position MARS as a catalyst for commercialization and collaborative innovation in advanced materials, while supporting the strategic recommendations of improving commercialization output and utilizing shared facilities, the following strategies are recommended:

1. **Develop a Success Story Campaign:** MARS should create a series of case studies highlighting the commercialization journey of advanced materials technologies. These stories should feature collaborations between researchers and industry partners, emphasizing the role of MARS in facilitating successful outcomes. Distribute these case studies across multiple channels, including the MARS website, social media platforms, and targeted industry publications.
2. **Create a Distinctive Visual Identity:** MARS has already begun the important work of becoming a symbol of innovation. Their investment in developing a cohesive visual brand for MARS will pay back dividends in brand recognition. This investment includes a logo that symbolizes the connection between research and industry, a color palette that reflects both innovation and practicality, and design elements that are consistently applied across all marketing materials, facility signage, and digital platforms.
3. **Implement an Innovation Roadmap:** MARS should consider developing and publicizing a clear process for advancing technologies from laboratory concept to market-ready products. This roadmap should outline key milestones, available resources, and support services at each stage of commercialization. Such a tool would serve as a powerful attractor for both researchers and potential industry partners.
4. **Establish the "Commercialization Fellows" Program:** It is advised that MARS cultivate a network of experienced industry professionals and successful entrepreneurs to provide guidance to MARS researchers and affiliated startups. This network should be prominently featured in marketing materials as a key benefit of engaging with the MARS ecosystem.
5. **Organize Regular Innovation Showcases:** MARS should plan and host quarterly events that bring together researchers, industry representatives, and investors. These showcases would provide a platform for presenting ongoing projects and emerging technologies, reinforcing MARS' position as a hub for collaborative innovation and commercialization.
6. **Launch a Thought Leadership Initiative:** It is recommended that MARS position MARS leadership and key researchers as experts in both advanced materials and technology commercialization. This can be achieved through a strategic program of white papers, speaking engagements, and media interviews.

TARGET AUDIENCE

Every great story needs an audience. In MARS' case, that audience is diverse and dynamic. From university leadership to industry pioneers, from curious students to community leaders, each group has a unique stake in MARS' success. MARS should map out these stakeholders like constellations in the night sky, understanding how they connect and influence each other. By recognizing each group's distinct interests and motivations, MARS can craft messages that resonate on a deeper level.

Primary stakeholders may include:

- Industry partners, with a focus on those seeking to commercialize advanced materials technologies
- University researchers and faculty interested in translating their work into commercial applications
- Startups and entrepreneurs in the advanced materials space
- Investors and venture capitalists interested in advanced materials innovations
- Economic development agencies and policymakers focused on fostering innovation ecosystems

Secondary audiences will include students (as potential entrepreneurial talent), the broader scientific community, and the general public. Messaging for each group will emphasize how MARS' approach to commercialization and collaborative spaces drives innovation and economic impact.

MARKETING

1. **Marketing Channels**

In today's digital age, channels for communication are as varied as they are numerous. MARS should view these channels not as mere conduits for information, but as opportunities to showcase MARS' vibrant ecosystem of innovation. Each platform offers a unique way to tell the MARS story:

- A dedicated MARS website, separate from the Foundations, can serve as a digital home, pulsing with news, achievements, and opportunities.
- Quarterly e-newsletters can weave together recent successes into a compelling narrative of progress.
- An annual stakeholder meeting can transform into a celebration of innovation and collaboration.
- Social media updates can offer real-time glimpses into the day-to-day excitement of breakthrough research.
- Targeted briefings for high-level stakeholders can provide a more intimate, strategic perspective.
- Press releases and media outreach can amplify MARS' voice to a broader audience.

These varied approaches can create lasting impressions and foster meaningful connections, bringing the MARS experience to life for stakeholders.

2. **Feedback Mechanisms**

True communication is a two-way street. By implementing robust feedback mechanisms, MARS can ensure they don't just speak, but listen and learn. These mechanisms should be designed not just to gather information, but to foster a sense of ownership and involvement among all stakeholders:

- Annual stakeholder surveys can serve as a yearly check-in, taking the pulse of the MARS community.
- "Town hall" meetings can transform into vibrant forums of idea exchange and problem-solving.
- An online suggestion portal can act as an always-open channel for those moments of sudden inspiration.
- Post-event surveys can help refine and improve MARS' offerings, ensuring each activity builds on the last.
- Periodic focus groups can dive deep into specific issues, unearthing insights that might otherwise remain hidden.

3. **Content Strategy**

MARS' content strategy should focus on demonstrating commercialization prowess and the benefits of collaborative spaces. Key content types should include:

- Case studies of successful projects, from initial research to market launch
- Profiles of companies and researchers benefiting from the co-housed arrangement
- Expert insights on overcoming commercialization challenges in advanced materials
- Virtual tours and visual content showcasing state-of-the-art shared facilities
- Infographics and data visualizations on commercialization metrics and economic impact
- Timely announcements of new industry partnerships and breakthrough technologies

All content should be designed with a dual purpose: to educate potential partners on the commercialization process and to highlight the unique resources available at MARS. This approach ensures that each piece of content serves to reinforce MARS' value proposition and attract potential collaborators.

4. **Integration with Existing Attraction Plans**

For maximum impact, MARS should align MARS' marketing efforts with existing MSU and regional initiatives. This integration could include:

- Close coordination with MSU's Innovation Center to create a seamless narrative around the university's commercialization pipeline.
- Collaboration with the Michigan Economic Development Corporation (MEDC) to position MARS as a key asset in the state's advanced manufacturing and materials innovation strategy.
- Partnerships with local economic development agencies to promote the co-housing facilities as a draw for innovative companies.
- Integration of MARS' success stories into broader MSU and state-level marketing efforts.

FUNDING SOURCES

In the world of innovation, great ideas need more than just brilliant minds—they need financial fuel to propel them forward. For MARS, developing a robust and diverse funding strategy is not just about keeping the lights on; it's about powering the engines of discovery and commercialization. Outlined below is the landscape of potential revenue streams, each offering unique opportunities to support MARS' ambitious goals.

REVENUE STREAMS

Federal Grant Funding

The federal government, with its vast resources and commitment to scientific advancement, offers a treasure trove of opportunities for initiatives like MARS.

1. **National Science Foundation (NSF)**

- *Industry-University Cooperative Research Centers (IUCRC) Program:* Supports long-term partnerships between academia and industry.
- *Partnerships for Innovation (PFI) Program:* Aims to accelerate the commercialization of NSF-funded research.
- *Major Research Instrumentation (MRI) Program:* Could support the acquisition of shared research equipment for MARS facilities.

2. **Department of Energy (DOE)**

- *Advanced Manufacturing Office (AMO/AMMTO) Funding Opportunities:* Supports R&D in advanced materials and manufacturing processes.

3. **Department of Defense (DoD)**

- *Multidisciplinary University Research Initiative (MURI):* Supports basic research in areas of strategic importance to the DoD, including advanced materials.
- *Defense University Research Instrumentation Program (DURIP):* Provides funding for research equipment and instrumentation.

4. **Economic Development Administration (EDA)**

- *Build to Scale Program:* Supports technology-based economic development initiatives.
- *Public Works and Economic Adjustment Assistance Programs:* Could potentially support facilities development.

5. **National Institute of Standards and Technology (NIST)**

    - *Advanced Manufacturing Technology Consortia (AMTech) Program:* Supports industry-led consortia in developing research roadmaps for advanced manufacturing.

6. **Department of Labor (DOL)**

    - *Workforce Innovation and Opportunity Act (WIOA) Programs:* Could support workforce development initiatives related to advanced materials manufacturing.

To maximize success in securing federal funding, MARS should:

- Align proposals with national priorities in advanced materials, manufacturing, and workforce development.
- Emphasize the potential for job creation and economic impact, particularly in the context of post-pandemic recovery.
- Highlight MARS' unique model of co-located facilities and industry collaboration as a catalyst for commercialization.
- Demonstrate how funding will support both cutting-edge research and the translation of that research into commercial applications.
- Showcase existing industry partnerships and the potential for leveraging federal funds with private sector investments.
- Develop cross-disciplinary teams that reflect the collaborative nature of MARS and the complex challenges in advanced materials development.

State Grant Funding

Michigan's commitment to innovation and economic growth aligns well with MARS' mission, presenting valuable funding opportunities.

1. Michigan Economic Development Corporation (MEDC) Strategic Fund programs
2. Michigan Department of Labor and Economic Opportunity workforce development grants
3. Michigan Department of Environment, Great Lakes, and Energy sustainability-focused grants

When pursuing state funding, MARS should:

- Highlight its role in attracting and retaining high-tech talent in Michigan
- Demonstrate alignment with state economic development priorities
- Showcase potential for creating an advanced materials industry cluster in the region
- Collaborate with other Michigan institutions on joint proposals

Other Funding Sources

Beyond government grants lies a diverse landscape of funding possibilities, each with its own unique benefit and potential for long-term partnership.

Private Sector Partnerships:

- Develop fee-for-service model for industry partners, startups, and external researchers.
- Identify sponsored research agreement opportunities for specific projects.
    - Establish an industry consortium focused on pre-competitive research.

Philanthropic Contributions:

- Engage with foundations supporting innovation and economic development.
- Develop a compelling case for individual donors passionate about advancing science.
- Create naming opportunities for labs, programs, or fellowships.

FINANCIAL SUSTAINABILITY PLAN

The landscape of research funding and commercialization is ever-changing and the journey from concept to reality in the world of advanced materials innovation is long and complex. It requires not just scientific breakthroughs, but a robust financial foundation. To ensure MARS' long-term viability and impact, MARS should consider engaging a specialized consulting firm to develop a comprehensive financial sustainability plan including the following:

- Analysis of financial models specific to research and innovation hubs.
  - Map out current and potential revenue sources, identifying gaps and opportunities that might not be immediately apparent to those closest to the project.
- Development of funding strategies that can adapt as the initiative expands.
  - How can funding strategies adapt and expand alongside the initiative?
- Approaches for establishing endowments to provide long-term stability.
  - Craft strategies for cultivating and growing this critical financial asset.
- Guidance on transitioning from initial grant funding to more diverse revenue streams.
  - True long-term success requires a transition to a more diversified and self-generating financial model.

Securing this specialized knowledge at the outset serves a dual purpose. It lays the groundwork for MARS' fiscal resilience and sends a powerful message to stakeholders. A meticulously crafted sustainability plan becomes both a strategic compass for financial navigation and a testament to MARS' unyielding commitment to longevity and significance in the advanced materials sector. It reassures partners and funders that their investments are anchored in a vision of enduring innovation and impact.

REPORTING

To effectively track progress and engage stakeholders in the MARS Tech Hub's development, MARS should implement a robust reporting and communication framework. This system will ensure transparency, foster accountability, and facilitate continuous improvement in the hub's efforts to improve commercialization output and optimize the use of co-housed facilities.

REPORTING FRAMEWORK

In the fast-paced world of innovation, keeping track of progress is both an art and a science. For MARS, a well-crafted reporting framework will serve as a compass, guiding the initiative towards its goals while providing clarity to invested stakeholders and decision makers, from funding agencies to industry partners. This framework should not just measure, but tell the story of MARS' journey towards becoming a powerhouse of commercialization and collaborative innovation.

1. **Key Performance Indicators (KPIs)**

Numbers have stories to tell, and KPIs are the storytellers. For MARS, these indicators should paint a vivid picture of progress, highlighting both the triumphs and the challenges along the way. MARS should carefully select KPIs that not only measure success but inspire action and drive continuous improvement.

For improving commercialization output, consider metrics that capture the full arc of innovation:

- Number of patents filed and granted
- Number of licensing agreements signed
- Revenue generated from commercialized technologies
- Number of startups launched from MARS research
- Research Expenditures (a measure of input)
- Industry-sponsored research funding (indicating industry interest)
- Citation of patents (indicating impact)

For optimizing co-housed facilities, think of metrics that reflect the vibrancy of the MARS ecosystem:

- Occupancy rate of shared spaces
- Number of collaborative projects initiated between academia and industry
- Utilization rate of shared equipment
- Total external funding secured by resident companies
- Number of new jobs created within the hub/resident companies
- Number of scientific publications resulting from collaborations
- Customer satisfaction scores from facility users

These KPIs should be living metrics, regularly reviewed and adjusted to ensure they continue to tell the most relevant and compelling story of MARS' impact. While these KPIs are commonly used in most markets, the specific set chosen should align with MARS' strategic goals and be tailored to its unique context.

2. **Reporting Frequency**

In the rhythm of innovation, timing is everything. MARS should establish a reporting cadence that keeps all stakeholders in step with MARS' progress, without overwhelming them with information. A multi-tiered approach can strike this balance:

- ***Monthly:*** Quick-pulse dashboard updates for the MARS leadership team, allowing for agile course corrections
- ***Quarterly:*** Comprehensive reports for university administration and key stakeholders, providing a broader view of trends and achievements
- ***Annually:*** A public-facing impact report that not only highlights key achievements but weaves them into a narrative of transformation and possibility

This tiered approach ensures that each stakeholder group receives information at a rhythm that matches their involvement and decision-making needs. It transforms reporting from a mere obligation into a powerful tool for engagement and strategic alignment.

3. **Reporting Formats**

Recognizing that different stakeholders have different information needs and preferences, we recommend MARS utilize a variety of reporting formats:

- Executive summaries for high-level stakeholders
- Detailed technical reports for funding agencies and academic partners
- Infographics and visual dashboards for quick updates
- Interactive digital presentations for annual reviews
  - Virtual tours of us facilities, showcasing new equipment or research spaces
  - Q&A sessions with project leaders, facilitated through digital platforms
  - Live data visualization tools that allow stakeholders to explore key metrics in real-time

MARS can effectively communicate complex information to a wide range of audiences by diversifying its reporting formats, thereby ensuring that each stakeholder group receives information in the most accessible and relevant format.

4. **Transparency Measures**

Openness and accessibility are fundamental to building trust. We recommend MARS implement several measures to ensure transparency in its operations:

- Publish Key Performance Indicators (KPIs) on a public facing dashboard.
- Host annual open house events to showcase progress and facilities.
- Maintain an up-to-date project timeline on MARS' website.

These measures not only demonstrate MARS' commitment to accountability, but also provide opportunities for direct engagement with stakeholders.

5. **Feedback Mechanisms**

As referenced earlier in the Marketing and Branding section of this report, communication is a two way street. To ensure that MARS remains responsive to the needs and concerns of stakeholders, we recommend MARS institute several feedback mechanisms:

- Implement a stakeholder feedback survey following each major report.
- Establish an advisory board for ongoing guidance and assessment.
- Create a dedicated email for stakeholder questions and concerns.

These mechanisms will provide valuable insights into stakeholder perceptions and needs, allowing MARS to continuously refine its approaches and address concerns proactively.

6. **Continuous Improvement**

The communication landscape is ever-evolving, and so too must MARS' approach to reporting and transparency. To ensure ongoing effectiveness, we recommend MARS:

- Conduct an annual review of reporting effectiveness.
- Adjust communication strategies based on stakeholder feedback.
- Benchmark reporting practices against other successful innovation hubs.

This commitment to continuous improvement ensures that MARS' communication strategies remain relevant, effective, and aligned with best practices in the field.

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