Technology Validation and Start Up Fund

Round 35 Proposal Evaluations

23 January 2024

Submitted to:
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Chair, Ohio Third Frontier Commission

Redwood Innovation Partners
http://redwdinnov.com

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1) Executive Summary

Redwood is a Columbus, Ohio based LLC founded by former Battelle executives over 10 years ago. Redwood has assembled an extraordinary team for this Program. Each member of the five-person Redwood team is an accomplished technology commercialization professional with decades of experience in performing business and technical evaluations. This team, combined with identified external subject matter experts, has extensive experience in all six of the Ohio Third Frontier technology focus areas. More detail on the Redwood team is provided in Appendix 1 of this report and on our website (www.Redwdinnnov.com). Details of the TVSF program and the review process are provided in Appendix 2.

Round 35 is the first round to introduce a $200,000 TVSF Phase 2 application process with up to 20% of the funding allowed for personnel. Eight (8) TVSF Round 35 Phase 2 applications totaling $1,544,990 were received and initially reviewed. This was a Phase 2 only round. Funding is recommended for 4 Phase 2 applications for a total of $800,000. (Note: 1 application submitted as a Biomedical/Life Sciences was deemed to be Software/Information Technology as only trade secret and no patent Intellectual Property is available from the licensing Institution.) Funding is not recommended for 4 Phase 2 applications for a total of $744,990. This translates to a 50% recommended application funding rate for this TVSF round, compared to the average of 49% over all 35 TVSF rounds.

2) Evaluation Results

Summaries of the evaluations of the proposals and funding recommendations are shown in Table 1. Questions were submitted to applicants to answer prior to conducting video interviews. The total recommended funding for Phase 2 projects is $800,000. Note that the Table 1 column widths are proportional to the weighting of the evaluation criteria. For example, in Table 1, Management Team which is weighted at 20 is four times as wide as ESP Interaction which is weighted at 5. Note that a yellow evaluation indicates that the proposal meets that particular criterion.

More detailed evaluations and recommendations for each Phase 2 proposal may be found in Section 3 of this report.

Table 1 – Phase 2 Proposal Evaluation and Funding Recommendation

Table 1
Phase 2 Proposal Evaluation and Funding Recommendation
TVSF Round 35

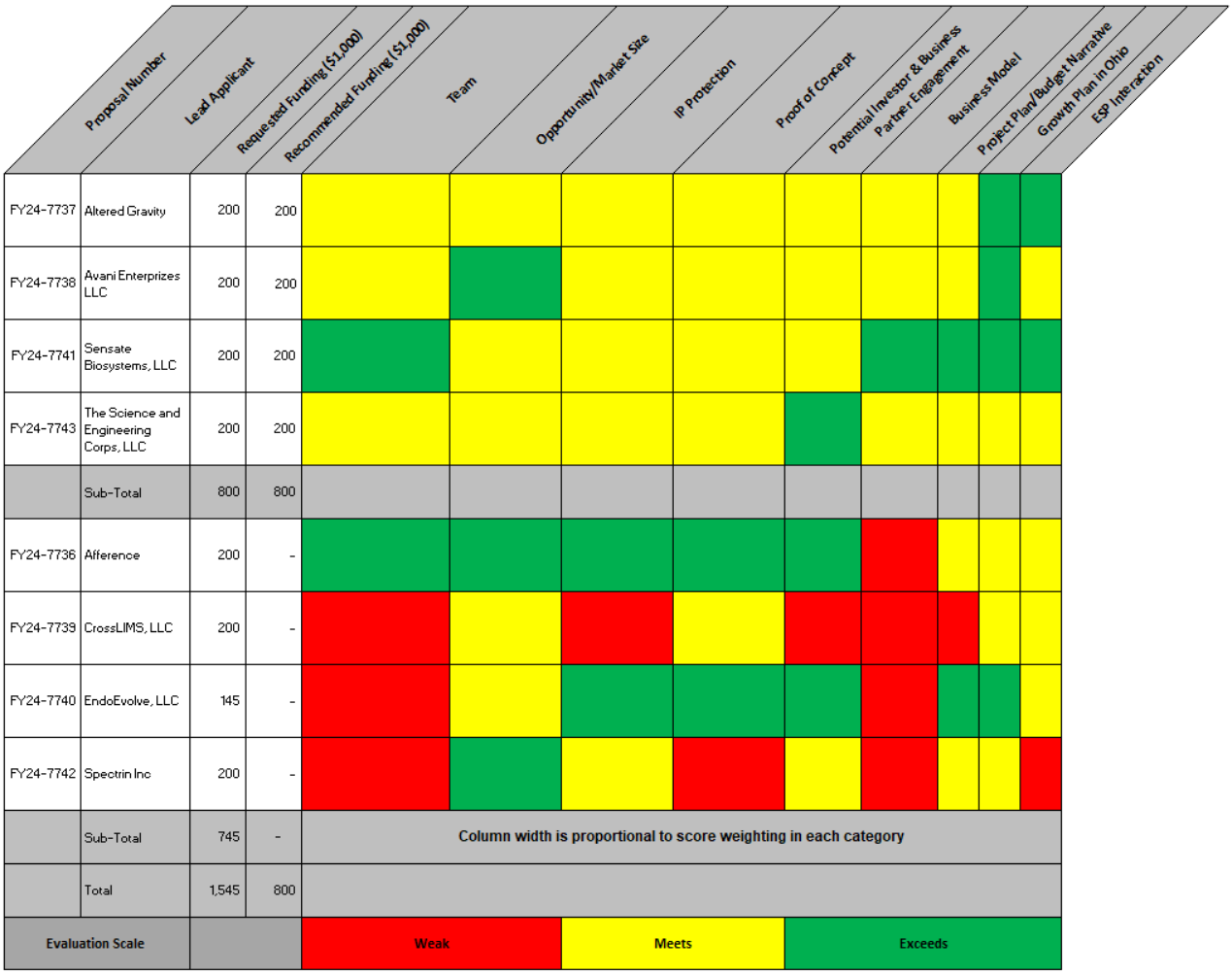


Table 2 lists the funding approval rate by TVSF round. This round's approval rate is 50% of the total reviewed proposals. The historical range of individual rounds has spanned 27 – 100%, with an average of 49%.

Table 2. TVSF Approval Rate by Round

TVSF Round 35
Approval Rate by Round
Phase 2

Round	$ Recommended	Approval Rate
1 (APR 2012)	$950,000	35%
2 (AUG 2012)	$900,000	52%
3 (DEC 2012)	$610,000	44%
4 (JUN 2013)	$864,000	30%
5 (FEB 2014)	$1,462,000	46%
6 (JUN 2014)	$998,000	39%
7 (OCT 2014)	$1,100,000	57%
8 (FEB 2015)	$710,000	37%
9 (JUN 2015)	$550,000	31%
10 (DEC 2015)	$925,000	38%
11 (APR 2016)	$1,239,000	46%
12 (OCT 2016)	$3,537,269	46%
13 (MAR2017)	$1,567,500	38%
14 (SEP 2017)	$498,832	27%
15 (DEC 2017)	$2,250,000	38%
16 (MAR 2018)	$2,098,600	52%
17 (SEP 2018)	$2,100,000	42%
18 (DEC 2018)	$1,150,000	35%
19 (APR 2019)	$2,250,000	43%

Round	$ Recommended	Approval Rate
20 (NOV 2019)	$1,350,000	43%
21 (FEB 2020)	$3,944,000	56%
22 (JUN 2020)	$1,398,630	53%
23 (DEC 2020)	$900,000	50%
24 (MAR 2021)	$2,092,900	55%
25 (JUN 2021)	$800,000	75%
26 (OCT 2021)	$1,700,000	55%
27 (FEB 2022)	$850,000	43%
28 (APR 2022)	$2,499,976	64%
29 (JULY 2022)	$850,000	100%
30 (OCT 2022)	$3,700,000	71%
31 (JAN 2023)	$100,000	50%
32 (APR 2023)	$850,000	64%
33 (JULY 2023)	$1,100,000	73%
34 (OCT 2023)	$250,000	33%
35 (JAN 2024)	$800,000	50%
Total Funding	**$48,945,707**	
Average/Round	**$1,398,449**	**49%**

3) Proposal Summaries

Proposal Summaries – Phase 2 Recommended for Funding

Proposal 24-7737	**Altered Gravity, LLC**	Amount Requested: $200,000
Licensing Institution	University of Toledo	Amount Recommended: $200,000
Prior Phase 1 Applications: No	Prior Phase 2 Applications: 33	***Biomimetic Engineered Space Technology (BEST)***
Biomedical/ Life Sciences	JumpStart Northwest	

Company Snapshot: Altered Gravity, LLC is developing biomimetic engineered Space Technology to simulate partial gravity conditions on Earth while culturing 3D tissues, tissue analogs, and organs to study human diseases, physiology, and drug efficacy.

Rating (R/Y/G)	Category	Highlights/Issues/Comments
Y	**Management Team**	The team has an appropriate combination of technical and entrepreneurial backgrounds. Since their application in Round 33, the team has added a dedicated CEO.
Y	**Opportunity/Market Size**	The market for space-based science and manufacturing is significant and growing. Altered Gravity's approach expands this opportunity.
Y	**Intellectual Property Protection**	A patent has been filed that maps to the intended product advantages. The initial PCT search report is encouraging.
Y	**Proof of Concept**	The proof of concept is well conceived and involves multiple collaborators / early adopters.
Y	**Potential Investor/ Business Partner Engagement**	Prospective early adopters are well engaged. Proof of concept will then allow effective engagement of pharma.
Y	**Business Model**	Initial business model is based on equipment sales. There is an upside with follow on services and disposable products.
Y	**Project Plan/ Budget Narrative**	The plan and associated budget are appropriate and reasonable.
G	**Growth Plan in Ohio**	A good discussion of Ohio based growth opportunities is provided.
G	**ESP Interaction**	The team has had significant engagement with the regional ESP.
	Evaluator Recommendation	This application is recommended for funding.

Evaluation Scale	Weak	Meets	Exceeds

Comments and Recommendations: This proposal is recommended for funding. The team has responded well to the Evaluators recommendations from Round 33.

Proposal 24-7738	**Avani Enterprizes LLC**	Amount Requested: $200,000
Licensing Institution	University of Toledo	Amount Recommended: $200,000
Prior Phase 1 Applications: No	Prior Phase 2 Applications: No	***Value PP: Pioneering Value Creation for Waste Polypropylene by Recycling to Virgin-Grade Plastic***
Advanced Materials	U Toledo Incubator and MAGNET	

Company Snapshot: Avani Enterprizes has developed a technology to selectively dissolve and recover polypropylene in pure form from mixed plastic wastes.

Rating (R/Y/G)	Category	Highlights/Issues/Comments
Y	**Management Team**	The team has a good combination of technical and entrepreneurial skills.
G	**Opportunity/Market Size**	The overall market for 'virgin-grade' recycled polypropylene (PP) is enormous. The initially targeted market segments of automotive and building products are themselves substantial.
Y	**Intellectual Property Protection**	A PCT application covering key aspects of the technology was filed in May 2022.
Y	**Proof of Concept**	The proof of concept is well conceived and spans recycling of medical PP waste to demonstrating the performance of the recycled material.
Y	**Potential Investor/ Business Partner Engagement**	The team has engaged with prospective partners / investors across the supply chain. Financial investor discussions have occurred.
Y	**Business Model**	The business model requires motivated recyclers. The company has done a good job of thinking this through.
Y	**Project Plan/ Budget Narrative**	Plan is appropriate & creditable; many options for design/ demo exist.
G	**Growth Plan in Ohio**	A clear commitment to the Ohio plastics ecosystem is shown.
Y	**ESP Interaction**	Avani has engaged with both the U Toledo Incubator and MAGNET.
	Evaluator Recommendation	This application is recommended for funding.

Evaluation Scale	Weak	Meets	Exceeds

Comments and Recommendations: This proposal is recommended for funding. Avani targets a significant environmental and economic opportunity with a simple, yet novel, approach. The team has a good combination of technical and entrepreneurial skills and a thoughtful plan.

Proposal 24-7741	**Sensate Biosystems, LLC**	Amount Requested: $200,000
Licensing Institution	University of Cincinnati	Amount Recommended: $200,000
Prior Phase 1 Applications: No	Prior Phase 2 Applications: No	***Wearable Lactate Monitoring Patch (Sensate)***
Biomedical/ Life Sciences	GLIDE, Dayton Entrepreneurs Center	

Company Snapshot: Sensate Biosystems, LLC is developing a wearable lactate monitoring patch to be worn by athletes to optimize training by monitoring lactate production.

Rating (R/Y/G)	Category	Highlights/Issues/Comments
G	**Management Team**	Highly experienced team with clearly defined roles and responsibilities.
Y	**Opportunity/Market Size**	Accessible opportunity exceeding $250 million with room for wider adoption.
Y	**Intellectual Property Protection**	In negotiations for a license to 4 key patent applications.
Y	**Proof of Concept**	Product concept is technically sound and achievable within TVSF time and funding. Proposal also addresses key market insights into specifications that will satisfy customers and investor expectations.
Y	**Potential Investor/ Business Partner Engagement**	Plans for follow-on funding are realistic. Conversations with potential investors and partners are in progress.
G	**Business Model**	Business approach is reasonable. Proforma is composed thoughtfully. Focusing on a logical series of market opportunities.
G	**Project Plan/ Budget Narrative**	Presented a well-developed plan to achieve the proposed goals.
G	**Growth Plan in Ohio**	Committed to grow in Ohio. Already using Ohio-based resources.
G	**ESP Interaction**	Engaged with Dayton Entrepreneurs Center and JumpStart.
	Evaluator Recommendation	This application is recommended for funding.

Evaluation Scale	Weak	Meets	Exceeds

Comments and Recommendations: The Sensate proposal was well written and clearly presented. Sensate has assembled a highly experienced, well-connected management team. They have demonstrated a detailed understanding of their markets and user needs within each. This application is recommended for funding.

Proposal 24-7743	**The Science and Engineering Corps, LLC**	Amount Requested: $200,000
Licensing Institution	Air Force Research Laboratory	Amount Recommended: $200,000
Prior Phase 1 Applications: No	Prior Phase 2 Applications: No	***Acclimate - Smart Thermo-regulation and Hydration Technology***
Biomedical/ Life Sciences	Entrepreneurs Center	

Company Snapshot: The Acclimate system is a hydration pack for military use combined with cooling and heating capabilities that is designed to Modular Lightweight Load Carrying Equipment (MOLLE) specifications.

Rating (R/Y/G)	Category	Highlights/Issues/Comments
Y	**Management Team**	Core management team has strong and complementary engineering, business development, and project management expertise and good track record of securing non-diluted funds (SBIR). Team recognizes and plans to acquire additional expertise as needed.
Y	**Opportunity/Market Size**	TAM for US military market is $630 MM (2.1 MM soldiers x $300 per soldier). TAM for global wearable cooling device is $151 MM. TAM for global hydration backpack is $309 MM.
Y	**Intellectual Property Protection**	Technology is protected under US Patent 11,717,074 that claims a "wearable, portable, personal hydration system with cooling and/or heating capacity. Potential for additional know-how and trade secrets.
G	**Proof of Concept**	"Third-generation" prototype (TRL 7) has completed tests under field conditions. TVSF funds will be used to design and build a "smart version" fourth generation prototype for field testing.
G	**Potential Investor/ Business Partner Engagement**	Initial talks with CENTCOM/PACAF to equip ~46,000 troops over two years. Secured $175,000 (of $1.25 MM) funding from Army/AF D2P2.
Y	**Business Model**	Direct sales to US military. In-house assembly, sales, administration. Rev $40 MM, GM = 58%, NM = 48%, SG&A = 9% on sales (Year 5),
Y	**Project Plan/ Budget Narrative**	Tasks outlined/vendors identified to design, build, field test prototype.
Y	**Growth Plan in Ohio**	Plan is to expand business in Ohio.
Y	**ESP Interaction**	Working with Entrepreneurs Center in Dayton.
	Evaluator Recommendation	This application is recommended for funding.

Evaluation Scale	Weak	Meets	Exceeds

Comments and Recommendations: Management team has relevant capabilities to execute proposed project tasks. Field testing of first three prototype versions has resulted in a strong market pull from US Military. Project tasks are well defined and include design, fabrication, and testing of a next generation prototype that include "smart features" requested by US Military.

Proposal Summaries – Phase 2 Not Recommended for Funding

Proposal 24-7736	**Afference**	Amount Requested: $200,000
Licensing Institution	Case Western Reserve University	Amount Recommended: $0
Prior Phase 1 Applications: No	Prior Phase 2 Applications: No	***Afference: Enabling touch for the spatial computing age***
Software/ Information Technology	JumpStart	

Company Snapshot: Afference is developing an electro-tactile fingerless glove to be used in spatial computing market, initially targeting hand tracking based virtual reality gaming.

Rating (R/Y/G)	Category	Highlights/Issues/Comments
G	**Management Team**	CTO and CEO both have academic research backgrounds. CEO has serial entrepreneurial experience in related fields with 2 medical device companies being sold to large corporate players.
G	**Opportunity/Market Size**	Beach head market is hand tracking based virtual reality market, which is a subsegment of the spatial computing market.
G	**Intellectual Property Protection**	Afference is licensing patents from Case Western and Afference has been awarded a patent in June 2023 describing the product and features of the product.
G	**Proof of Concept**	A minimum viable product has been developed and is currently at a TRL of 5.
G	**Potential Investor/ Business Partner Engagement**	Closed a $1.5 M PreSeed Round led by Konvoy Ventures and joined by Pathway Bioventures. In discussions with Seed funding investors.
R	**Business Model**	Afference has 2 unique business offerings - wearable technology and software interfaces. Questions on pro forma not amply addressed.
Y	**Project Plan/ Budget Narrative**	Project plan calls for making 150 units and algorithm development.
Y	**Growth Plan in Ohio**	States FTEs will be a direct result of TVSF funding in Cleveland OH
Y	**ESP Interaction**	JumpStart identified in interview as ESP with whom Co has worked.
	Evaluator Recommendation	This application is not recommended for funding.

Evaluation Scale	Weak	Meets	Exceeds

Comments and Recommendations: Afference has a strong suite of intellectual property from the inventor and states that all the IP will be licensed from CWRU. Letter of support does not identify the specific IP for licensing. The cofounders have raised capital in the past and have good connections. There is not significant connectivity between the Business Model, Project Plan/ Budget Narrative and Growth Plan in Ohio. Questions asked prior, during and subsequent to the interview did not adequately address the issues to clarify the lack of connectivity.

Proposal 24-7739	**CrossLIMS, LLC**	Amount Requested: $200,000
Licensing Institution	University of Cincinnati	Amount Recommended: $ 0
Prior Phase 1 Applications: Yes	Prior Phase 2 Applications: No	***CrossLIMS: A Collaborative Laboratory Information Management System***
Software/ Information Technology	CincyTech	

Company Snapshot: CrossLIMS integrates data points from across an organization into a single, secure, cloud-based e-system for data and workflow management.

Rating (R/Y/G)	Category	Highlights/Issues/Comments
R	**Management Team**	Team has two individuals with data management and health research software development. Two EIRs serve as advisors, bringing marketing, branding and software development. No startup, business development or entrepreneurial experience on the team.
Y	**Opportunity/Market Size**	Market Size for Laboratory Information Management Systems was $2.1 B in 2022 with a CAGR of 7%.
R	**Intellectual Property Protection**	An option agreement has been signed with the University of Cincinnati Technology Transfer office. No patents have been filed. LoS indicates license is for a software platform for data analysis.
Y	**Proof of Concept**	Significant market research has been performed providing feedback on the market needs. An MVP is targeted for early 2024.
R	**Potential Investor/ Business Partner Engagement**	The proposal states that scale will be achieved without outside investment. No Potential Business partner engagement identified.
R	**Business Model**	CrossLIMS will use a subscription-based business model. Pro forma shows over a half million-dollar cumulative loss after 5 years.
R	**Project Plan/ Budget Narrative**	The project plan is activity based, not milestone based.
Y	**Growth Plan in Ohio**	CrossLIMS plans to recruit, retain and train talent from within Ohio.
Y	**ESP Interaction**	Currently engaged with the regional ESP.
	Evaluator Recommendation	This application is not recommended for funding.

Evaluation Scale	Weak	Meets	Exceeds

Comments and Recommendations: The team consists of two individuals with data management and health research software development. Two advisor EIRs bring marketing, branding and software development experience. No one has business development or entrepreneurial experience on the team. This coupled with an activity-based project plan and weak business model with a proforma showing over half million-dollar cumulative loss after 5 years, does not add up to a good investment opportunity. The team is encouraged to work with an ESP to rethink the potential business and hone the product development and market introduction into a more favorable business model.

Proposal 24-7740	**EndoEvolve, LLC**	Amount Requested: $144,990
Licensing Institution	Ohio State University	Amount Recommended: $0
Prior Phase 1 Applications: No	Prior Phase 2 Applications: No	***EndoEvolve TVSF Phase 2***
Biomedical/ Life Sciences	Rev1	

Company Snapshot: EndoEvolve has developed an endoscopic ScopeStrap to support the weight of the endoscope control handle thus reducing muscle strain, fatigue and injury.

Rating (R/Y/G)	Category	Highlights/Issues/Comments
R	**Management Team**	The management team consists of the inventor, and numerous fractional personnel hired as contractors from one company with expertise in development, serial entrepreneur, regulatory and occupational therapy of the hand and upper extremity.
Y	**Opportunity/Market Size**	32M endoscopies performed annually, TAM estimated to be $800M for the ergonomic devices in this space. SAM estimated to be $405M based on a $25 per procedure price.
G	**Intellectual Property Protection**	Applied for patent and trademark using US utility patent application 17/597,783 and PCT application PCT/US2022/07029 having a priority date of 1 February 2021.
G	**Proof of Concept**	Multiple iterations, work with a design firm and end user feedback. The ScopeStrap is currently at a TRL 6 with the key advantage of being able to fit endoscopes across manufacturers and scope types.
G	**Potential Investor/ Business Partner Engagement**	Established relationships with 4 business partners with endoscopic products. Seeking grant, private equity and self-funding for capital.
R	**Business Model**	Commercialization plan to utilize direct sales resources and through established OEM and distribution partners sales channels.
G	**Project Plan/ Budget Narrative**	The project plan is well thought out and appropriate.
G	**Growth Plan in Ohio**	Plan to grow the company in central Ohio to 14 employees in Year 5.
Y	**ESP Interaction**	Working with local ESP advised on steps to encourage investment.
	Evaluator Recommendation	This application is not recommended for funding.

Evaluation Scale	Weak	Meets	Exceeds

Comments and Recommendations: EndoEvolve has a product that might be beneficial to endoscopists, particularly ones with smaller hands. There is a patent application covering this invention. EndoEvolve plans to sell ScopeStrap utilizing direct sales resources and through established OEM and distribution partners sales channels via alliance sales agreements. It is unclear if this could be a successful company manufacturing and selling the product or if licensing the technology to an OEM would be more successful. The company would do well to obtain additional guidance from the ESP and feedback from the potential buyers of the product, price point and purchase cycle.

Proposal 24-7742	**Spectrin Inc**	Amount Requested: $200,000
Licensing Institution	Ohio State University	Amount Recommended: $0
Prior Phase 1 Applications: No	Prior Phase 2 Applications: Yes, Round 22	***Spectrin Inc Cardiovascular Diagnostic Test***
Biomedical/ Life Sciences	Rev1	

Company Snapshot: Spectrin's diagnostic kit is an ELISA-based immunoassay that detects novel cardiac-specific fragments that are uniquely produced during cardiotoxic events, such as treatment with chemotherapeutic drug.

Rating (R/Y/G)	Category	Highlights/Issues/Comments
R	**Management Team**	The management team has experience developing products and fundraising in other fields but not medical diagnostics. More direct participation by experienced leadership is needed, especially adding market expertise to solidify its go to market strategy
G	**Opportunity/Market Size**	Clear unmet need and potential market size in $Billions.
Y	**Intellectual Property Protection**	In negotiations with OSU for rights to a relevant patent application pending in the US and Europe.
R	**Proof of Concept**	Clinical utility of the cardiac-specific fragments as a diagnostic or prognostic marker of chemotherapy-induced heart failure has not been clearly established.
Y	**Potential Investor/ Business Partner Engagement**	Spectrin has identified grant opportunities and venture investment sources. They will prioritize non-dilutive over dilutive funding.
R	**Business Model**	Business model is unrealistic without having clearly demonstrated clinical utility of the test and a market willing/eager to buy it.
Y	**Project Plan/ Budget Narrative**	Plan to develop ELISA with a well-known assay development partner.
Y	**Growth Plan in Ohio**	Team resides in, and is committed to company growth in Ohio.
R	**ESP Interaction**	Only minimal interaction with Rev1. Team would benefit from more.
	Evaluator Recommendation	This application is not recommended for funding.

Evaluation Scale	Weak	Meets	Exceeds

Comments and Recommendations: Spectrin proposes to develop an ELISA to use to verify the clinical utility of the marker and sell the ELISA as a kit or as service. However, the Spectrin team has not clearly established the clinical utility of the marker, nor have they demonstrated market pull for the proposed ELISA. Spectrin should pursue grant funding to prove clinical utility, and, if necessary, to develop a simpler test format than the current cumbersome test. This application is not recommended for funding.

4) Round 35 Analysis

Figure 1 shows the proposal activity and funding recommendations by technology source for Phase 2 proposals. There were two applications each with technology from University of Cincinnati, Ohio State University and University of Toledo and one submission each from Air Force Research Laboratory, and Case Western Reserve University. Two applications from the University of Toledo are recommended for funding. One application each from Air Force Research Laboratory and University of Cincinnati is recommended for funding.

Figure 1. Round 35 Funding by Technology Source

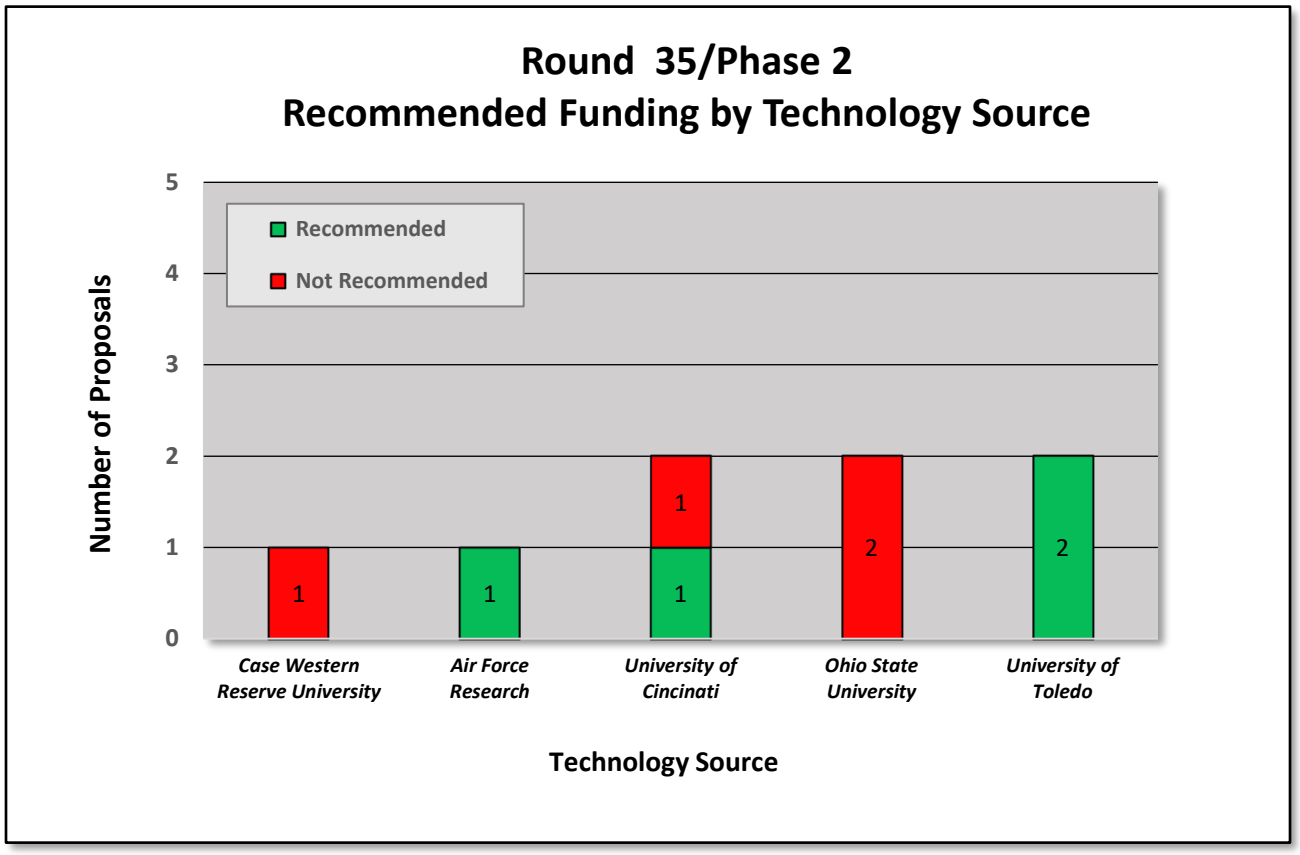


Figure 2 depicts Phase 2 proposal activity and funding recommendations by Third Frontier focus area. In this Round, five of eight proposals (63%) are in Biomedical/Life Sciences, two of eight (25%) are in Software/Information Technology and one of eight (13%) is in Advanced Materials. Two Biomedical/Life Sciences and one each in Advanced Materials and Software/Information Technology are recommended for funding. Rounds 20 to 34 prior round average is 55% in Biomedical/Life Sciences.

Figure 2. Round 35 Phase 2 Proposal Activity by Third Frontier Technology Area

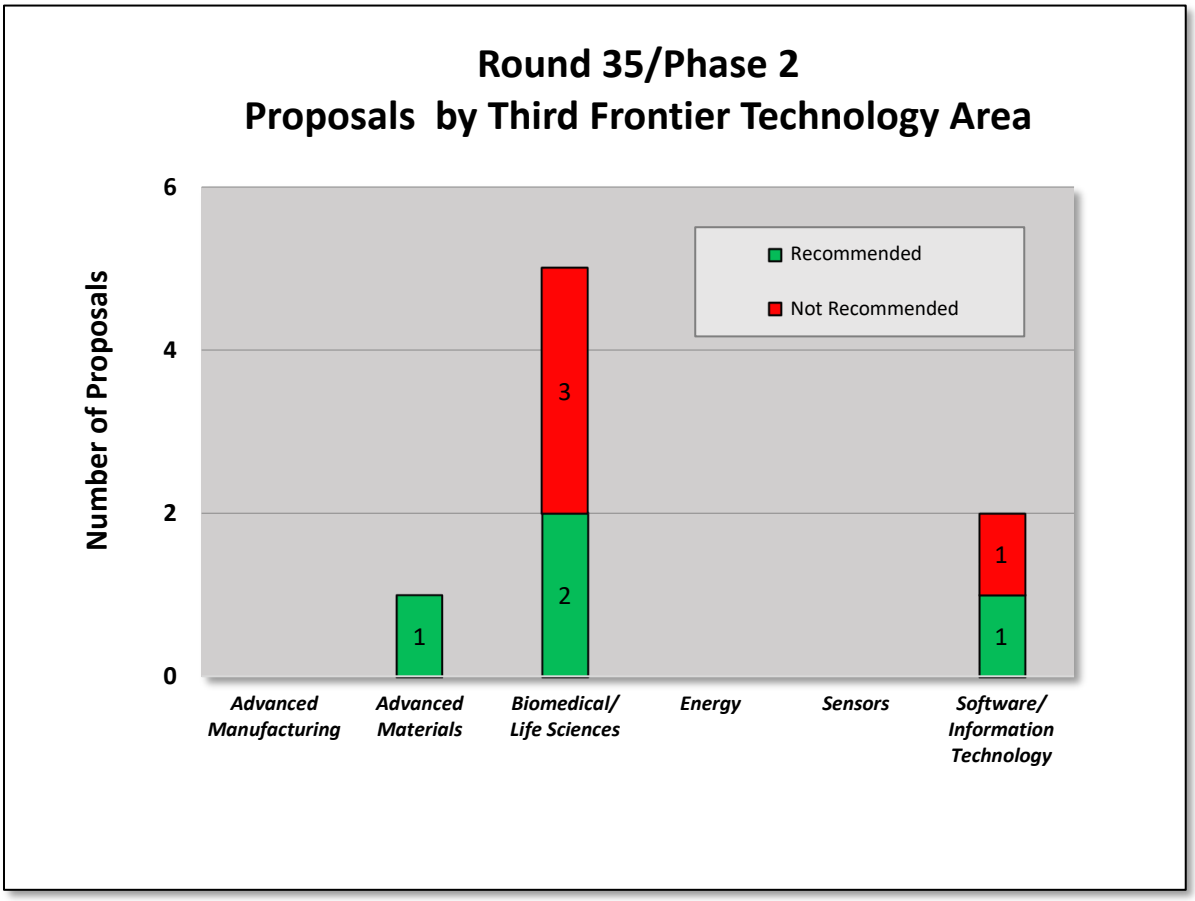


Figure 3 shows the aggregate ratings by evaluation criteria for all Phase 2 proposals. Opportunity/ Market Size and Growth Plan in Ohio were the strongest categories in this Round. Business Model, followed by Team, were rated as the weakest.

Figure 3. Round 35 Phase 2 Proposal Rating Summary

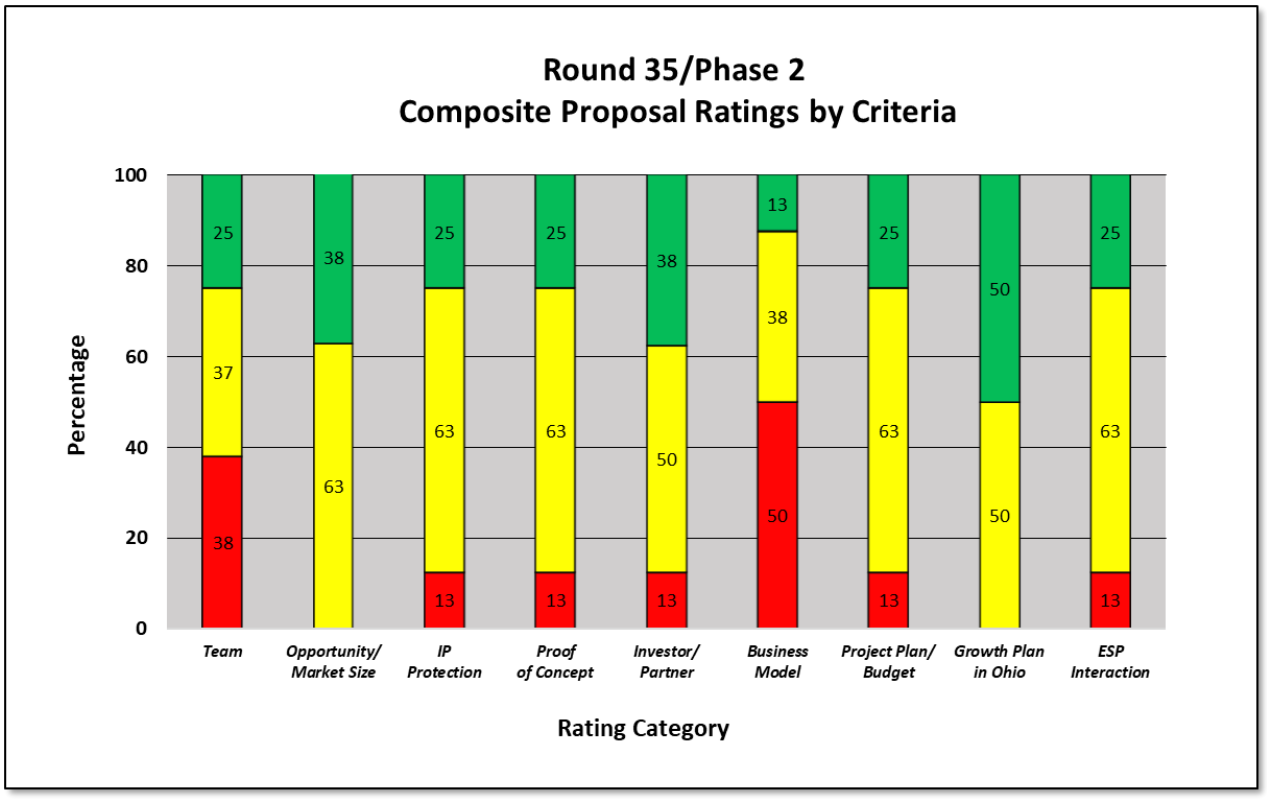


Figure 4 shows the percent meets or exceeds of the business model by Round. In the previous fifteen Rounds, business model was the lowest rating in Rounds 20-23 (53% average ≥ meets), Round 26 (28%) and Round 31 (50%). The RFP was revised to elicit stronger business models prior to Round 24 and it appears that the proposals have provided stronger business models in subsequent Rounds. The average of Rounds 24-34 is 69% average ≥ meets and 67% average for Rounds 24-35, even with the Round 26 (28%). The average over all 15 previous rounds is 65%. The two 50% average ≥ meets in Rounds 31 and 35 is concerning and should be monitored closely over the next few Rounds.

Figure 4: Rounds 20 to 35 Phase 2 Analysis of Business Model

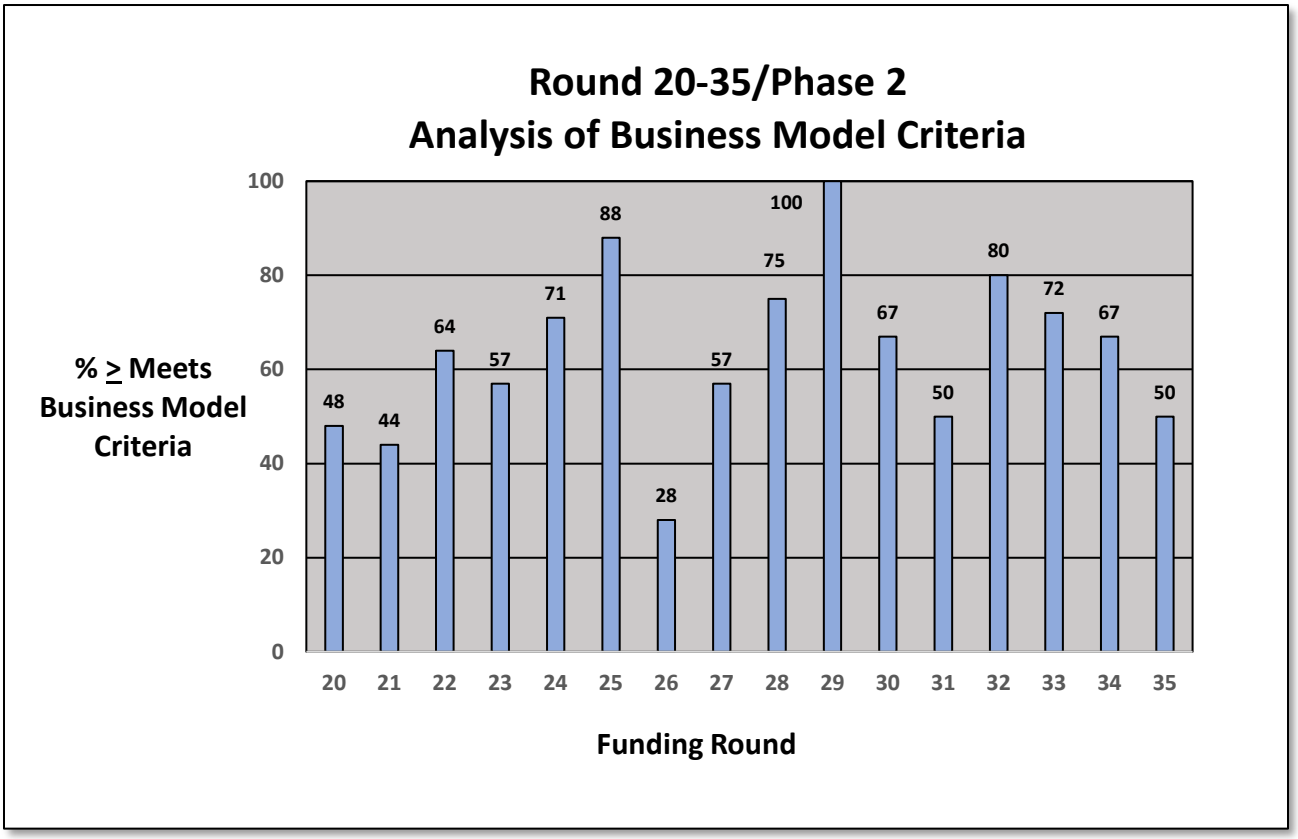
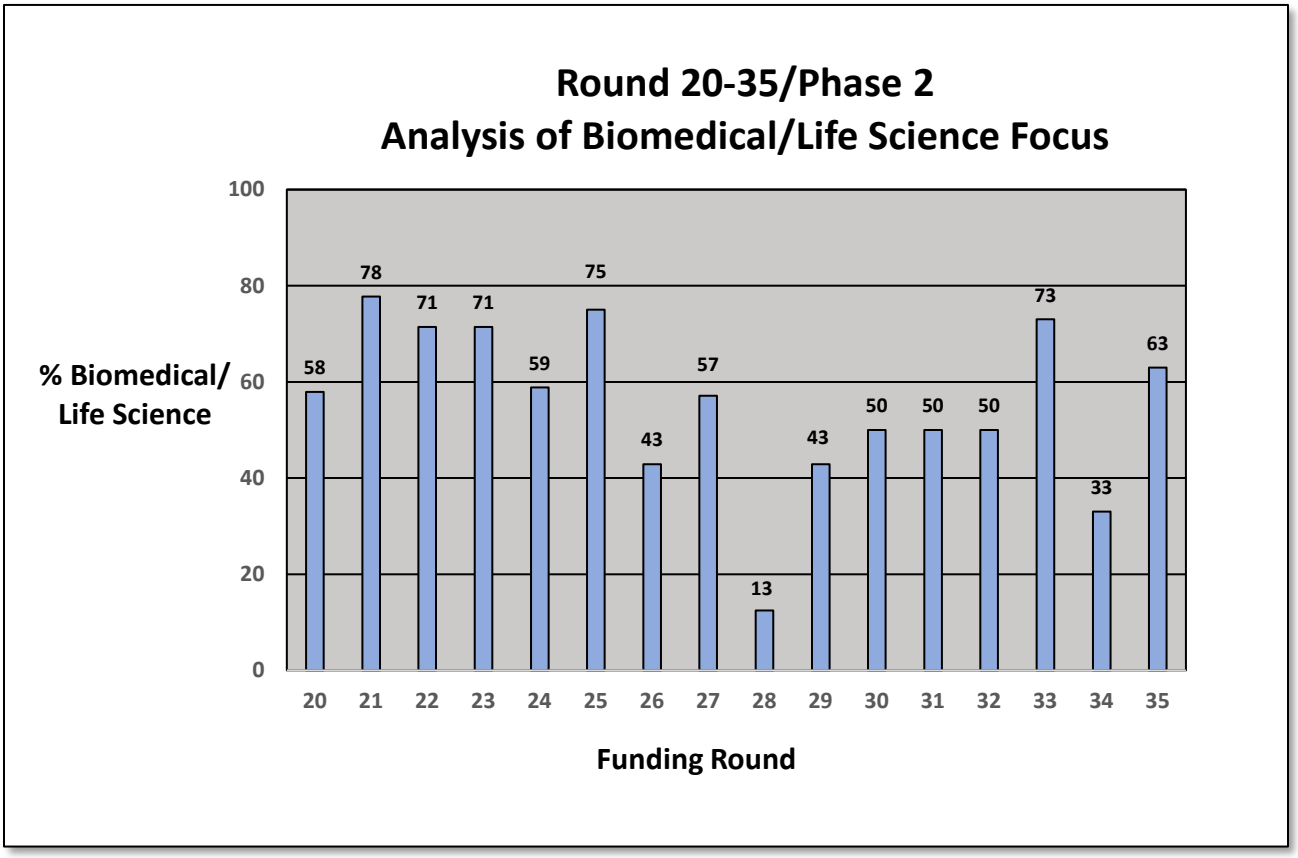


Figure 5 shows the percentage of Biomedical/Life Sciences applications for the last 16 Rounds. Round 35 represents 63% in Third Frontier Technology areas that are Biomedical/Life Sciences. Biomedical/ Life Sciences has been in the minority of the applications 4 times in the last 16 rounds. All fifteen rounds prior to Round 35 average 55% of the applications in Biomedical/Life Sciences.

Figure 5: Rounds 20-35 Phase 2 Analysis of Biomedical/Life Science Focus



Carry Through and Reapplication

Phase 1 Carry Through: There was one Phase 2 applicant that previously received Phase 1 funding and is not recommended for funding.

There are two Phase 2 reapplications for the first time (or second application) and one is recommended for funding.

5) Recommendations

Biomedical/ Life Sciences applications have been 50% or more of the applications in 12 of the last 16 rounds. Four of the last 9 rounds have had a minority of Biomedical/Life Sciences applications. It is recommended that continued outreach efforts be used to encourage more proposals in other Third Frontier Technology areas that reflect the diverse markets and economic activities in the State.

Appendix I

Summary of Redwood team and qualifications

Redwood, as a company, has been providing technology commercialization services for over 10 years while each team member has been active in this field for over 25 years.

Each Redwood team member

- possesses an advanced technical degree and extensive business proficiency
- has worked across the spectrum of technology commercialization from invention to successful market introduction
- understands how to assess a concept case from the perspective of aligning technologies to product applications in specific markets
- has lived, both conceptually and literally, the iterative process of understanding market needs and wants, value chains and who the customers are within the value chain

Team members have all worked for major corporations, research institutions, venture capital firms and technology start-up companies gaining a comprehensive understanding of what is necessary for development teams to successfully commercialize a technology. The Redwood team has served as evaluators for the Ohio Advanced Manufacturing program and an individual team member served as an evaluator for CALF, TIP and IOF loan programs for over a decade.

The five members of the Redwood team are highly qualified evaluators for the TVSF program and have combined experience and expertise in the following areas (combined years):

Commercializing technology into market pulled products (125+ years)

Market/Technology Assessment (140+ years)

Startup/ Spin out companies (50+ years)

Board member/Advisor to Startups (30+ years)

Evaluating/ monitoring RFPs/ Funding selection (40+ years)

The following is a brief summary of the five principal team members used in this evaluation Round.

Herb Bresler

- BS Biological Sciences, University of Maryland; BS Secondary Science Education, University of Maryland; PhD Immunology and Infectious Diseases, The Johns Hopkins University School of Hygiene and Public Health
- Former Senior Research Leader and Chief Scientist for Health and Life Sciences, Battelle Memorial Institute, responsible for evaluation of new technology-based business opportunities, intellectual property development, licensing and tech transfer; created and implemented new metrics to increase returns on discretionary R&D; cultivated approximately 1150 invention disclosures, 900 patent applications, and 120 granted patents, leading to $52 million company funding
- Recipient of four R&D 100 awards for breakthrough medical devices in neuroscience and diagnostics
- Former Director of the Laboratory of Cellular Immunotherapeutics at the Arthur G. James Cancer Hospital and Research Institute at The Ohio State University

John McArdle

- BE, Manhattan College, MS, Northeastern University, Chemical Engineering
- MBA, Finance / International Business, University of Chicago (Booth School of Business)
- Former Business Development Manager, Battelle
- Former Product Line Manager – Koch Industries
- Former Technical Sales Manager, Allied Signal Corporation
- Recognized expert in water and wastewater treatment technologies
- Successful track record of introducing innovative technologies for a variety of municipal, industrial, and military applications in domestic and overseas markets.

Jim Sonnett

- BS, University of Virginia, MS, University of Massachusetts, PhD, University of Delaware, all in chemical engineering
- Former Vice President – Science and Technology, Battelle Health & Life Sciences
- Former R&D Leader – W. L. Gore & Associates and E. I. DuPont
- Built and led high impact innovation organizations in aerospace, electronics, and life sciences
- Former Board Member – Velocys, Ventaira, Battelle Ventures
- Recipient of 3 R&D 100 awards.
- Distinguished Visiting Professor of Engineering and Applied Science, University of Virginia (Spring 2022)

Susan Stanton

- BS, Millersville University, Chemistry, MPh, Syracuse University, Organic Chemistry, PhD, University of Rochester, Organic Chemistry
- Personally developed 12+ products and led new product development teams at Mobay, Alcoa & Nexicor
- Holder of 10+ patents
- Former VP Market and Technology Assessment at the National Technology Transfer Center
- Over 15 years as an angel investor in technology-based startups
- Over 15 years as an evaluator for Ohio Third Frontier funds including IOF, CALF and TIP and Jobs Ohio
- Over 8 years teaching market and business analytics to STEM graduate and post doc students.

Bhima Vijayendran

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- Former Senior Research Leader and Vice President Business Development, Battelle Memorial Institute; Chief Research Officer, Battelle Science and Technology, Malaysia
- Former Director, Discovery Research, PPG Industries
- Recognized as one of the leading authorities on advanced materials, special chemical and polymer systems in numerous markets including: Renewable and clean technology, Energy, Nano Technology and Industrial Products.
- Recipient of ten R&D 100 awards and over 100 patents and numerous other awards.

Appendix 2

TVSF objectives and phases

The Technology Validation and Start-up Fund (TVSF) provides grants under two phases to transition technology from Ohio Eligible Research Institutions into the marketplace through Ohio start-up companies. Under Phase 1, Ohio Research Institutions may apply for a pool of funds to support validation/ proof that will directly impact and enhance both the commercial viability of their unlicensed technologies and ability to support a start-up company. Under Phase 2, Ohio start-up and young companies may apply for funding to commercialize a technology they intend to license from a university or an Ohio research institution.

The goals of Phase 1 include:

- Generate the proof needed to move technologies to the point that they are either ready to be licensed by an Ohio start-up company or deemed unfeasible for commercialization. The institutions are encouraged to work with potential Ohio licensees to identify the proof needed.
- Perform validation activities such as demonstration and assessment of critical failure points in subsequent development, prototyping, scale-up and commercialization in order to generate this proof with strong preference for these activities being performed by an independent 3rd party source.

The goals of Phase 2 include:

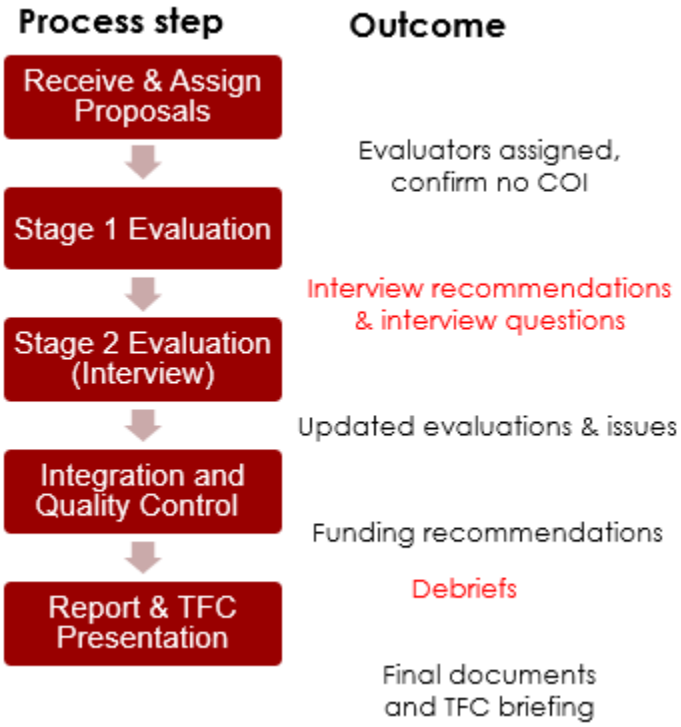
- Accelerate the commercialization of technology by Ohio start-up companies that license technology developed at Eligible Institutions during the critical early stage of life of the company.
- Generate the proof needed to move technology to the point where it is able to be commercialized or additional funds for commercialization can be raised. A clearly identified path to subsequent funding opportunities and working directly with potential investors to define the proof needed for investment into the company is strongly encouraged.
- Funded activities may include, but may not be limited to, beta prototype development and deployment to potential customers for testing and evaluation and market research/ business development in order to generate the proof needed.

Based upon these goals, the proposal evaluation criteria were developed. The proposals were then evaluated based on the criteria.

Description of review process

Review summary. Our overall review process flow and outcomes by stage are shown in Figure 1. A similar process has been successfully used by Redwood in prior projects for public and private clients. Discussions were held with the TVSF program manager after all but the initial step in Figure 1.

Figure 1. TVSF Evaluation Process



Review and Assign Proposal In this first step proposals were summarized and a primary evaluator was assigned who has the appropriate background and no conflict of interest.

Stage 1 Evaluation Stage 1 evaluations were conducted for each proposal using the criteria shown below in Tables 1 and 2. Differentially weighted criteria were used to evaluate Phase 1 and Phase 2 proposals. Each proposal was rated on a 0 (absent) – 5 (Outstanding) scale for each criterion, an approach used by the NSF and in other State of Ohio programs. The weightings reflect the experience of the Redwood team and our belief that some factors, for example team and market opportunity in Phase 2, are more important than others.

The entire review team subsequently discussed all the evaluations to ensure consistency and agreed upon which applicants to invite for interviews. Interview questions were then provided in advance to each applicant.

Stage 2 Evaluations (Interviews) The standard procedure for this step is: In-person or Zoom (due to Covid restrictions), 45-minute interviews were held with each invited applicant to discuss the advance questions plus other topics of interest to the evaluators. A minimum of two Redwood team members participated in the interviews in person or Zoom with additional team members joining via conference call or Zoom. Interviews in this round were held via Zoom video conference call.

Integration and Quality Control Proposal evaluations were updated based on interview results. A calibration review was held by the review team to ensure that evaluations were performed consistently and that any changes made were a result of team consensus. Based on this review, proposals were recommended for funding.

Table 1 – Phase 1 Evaluation Criteria

Criterion	Weighting	Description
Alignment and Compliance	Go / No go	Institutional alignment with TVSF intent and compliance with RFP
Project Selection Committee	20	Skills, background and commitment of the committee members
Deal Flow; Budget Strategy	15	Is the projected deal flow consistent with the requested budget to enable committing funds within 1 year?
External Participation	15	Does process ensure validation activities will be performed by 3rd parties; ESPs and state-funded programs/organizations are enlisted to enhance commercialization activities of the project?
Track Record	15	Is there a strong Phase 1 or comparable program track record of licensing and newco creation? If not, is there a plan for improvement?
Metrics	15	Realism and impact of proposed metrics, including licensing, start-ups.
Project Management & Experience	15	Is there a strong project management strategy and appropriate experience of people who allocate the pool of funds and manage individual projects?
Project Selection Process	5	Is there a clear, appropriate process for project selection?

Table 2 – Phase 2 Evaluation Criteria

Criterion	Weighting	Description
Alignment & compliance	Go / No Go	Proposal alignment with TVSF intent and compliance with RFP
Management Team	20	Skills, background and commitment
Opportunity / Market size	15	What is the market segment and total addressable market? Is it a platform or breakthrough technology or incremental improvement? If breakthrough, is it compatible with viable commercialization pathways?
IP Protection	15	Is IP adequately protected, does it enable the business model, is it differentiated from likely competition, is license likely within 9 months?
Proof of Concept	15	Was meaningful input from potential customers and key performance metrics used to design Proof of Concept? Are the competitive advantages compelling for potential customers?
Potential Investor / Business Partner Engagement	10	Is there company engagement / collaboration independent of licensing institution, including financial backing?
Business Model	10	Is the business model realistic AND achievable? Can the service / manufacturing model be scaled?
Project Plan / Budget Narrative	5	Is the budget consistent with proof in 1 year?
Growth Plan in Ohio	5	Does a start-up exist or is it planned? Will the start-up be in Ohio? Are growth plan details provided?
ESP Interaction	5	Is team engaged with ESP? Has team incorporated feedback from ESP into the project, proposal or business plan?