

# *Technology Validation and Start Up Fund*

## *Round 24 Proposal Evaluations*

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# TECHNOLOGY VALIDATION AND STARTUP FUND

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## 1) Executive summary

Redwood is a Columbus, Ohio based LLC founded by former Battelle executives over 8 years ago. Redwood has assembled an extraordinary team for this Program. Each member of the four-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](http://www.Redwdinnnov.com)). Details of the TVSF program and the review process are provided in Appendix 2.

Twenty-one (21) TVSF Round 24 applications were received and evaluated. One (1) Phase 2 proposal was withdrawn by the applicant. (Note: this proposal was evaluated but not included in the statistical results below.)

There were 3 Phase 1 applications totaling \$1,200,000 and 17 Phase 2 applications totaling \$2,128,400 for a combined total of \$3,328,400. Funding is recommended for the three Phase 1 applications totaling \$1,050,000 and eight Phase 2 applications for a total of \$1,042,900 yielding a combined total of \$2,092,900. This translates to a 55% recommended application funding rate for this TVSF round, compared to the average of 43% over all 24 TVSF rounds. The recommended approval rate for Phase 2 proposals in this round is 47%.

## 2) Evaluation Results

Summaries of the evaluations of the proposals, including the interview and funding recommendations, are shown below in Tables 1 and 2. Video interviews were conducted for the third time due to COVID-19 concerns. The total recommended funding for Phase 1 and Phase 2 projects is, respectively, \$1,050,000 and \$1,042,900. Note that the Table 1 and 2 column widths are proportional to the weighting of the evaluation criteria. For example, in Table 1, Selection Committee which is weighted at 20 is four times as wide as project selection 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 1 and Phase 2 proposal may be found in Section 3 of this report.

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Table 1 – Phase 1 Proposal Evaluation and Funding Recommendation

TVSF Round 24 Proposal Evaluations										
Phase 1 Proposals										
Proposal #		Requested funding (\$1000)	Funding recommended (\$1000)	Selection Committee	Deal Flow: Budget Strategy	External Participation	Track Record	Metrics	Project Management & Experience	Project Selection Process
21-1313	RI at Nationwide Children's Hospital	\$200	\$200							
21-1314	Bon Secours Mercy Health Fdn.	\$500	\$350							
21-1315	Case Western Reserve University	\$500	\$500							
			\$1,050							
				<b>Evaluation Scale</b>	<b>Absent</b>	<b>Poor</b>	<b>Weak</b>	<b>Meets</b>	<b>Exceeds</b>	<b>Outstanding</b>

Table 2 – Phase 2 Proposal Evaluation and Funding Recommendation

TVSF Round 24 Proposal Evaluations													
Phase 2 Proposals													
Proposal #		Requested funding (\$1000)	Funding recommended (\$1000)	Team	Opportunity / Market Size	IP Protection / License	Compelling Proof of Concept	Potential investor / Business Partner Engagement	Business model	Project plan / budget narrative	Start-up in Ohio	ESP interaction	
21-1290	A Cubed Healthcare Technologies, Inc.	\$150	\$150										
21-1291	Autism Eyes, LLC	\$150	\$150										
21-1292	BioChip Labs	\$150	\$150										
21-1293	CelerPurus	\$150	\$150										
21-1297	Lighthouse Avionics, Inc.	\$100	\$100										
21-1299	Parcell Company	\$100	\$100										
21-1300	Rapidect, Inc.*	\$150	\$150										
21-1310	Soil1	\$93	\$92.90										
			\$1,043										
21-1289	Acumen Applied Science	\$100	\$0										
21-1294	Flexenergy LLC	\$100	\$0										
21-1295	HuMed Lifesciences LLC	\$150	\$0										
21-1296	illum fit LLC	\$100	\$0										
21-1298	MSTAT LLC	\$150	\$0										
21-1301	Rixa Tech LLC	\$86	\$0										
21-1303	SciFi Innovations LLC	\$100	\$0										
21-1311	ValCor LLC	\$150	\$0										
21-1312	Zehna Therapeutics, LLC	\$150	\$0										
21-1302	QC EYE LLC	\$150		Proposal withdrawn by applicant									
	* = Contingent funding recommendation												
				<b>Evaluation Scale</b>	<b>Absent</b>	<b>Poor</b>	<b>Weak</b>	<b>Meets</b>	<b>Exceeds</b>	<b>Outstanding</b>			



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Table 3 lists the funding approval rate by TVSF round. This rounds approval rate of 55% of the total submitted proposals is on the high side of the average over all twenty-four rounds. The historical range of individual rounds has spanned 27 – 57%, with an average of 43%

**Table 3. TVSF Approval Rate by Round**

<b>Round</b>	<b>\$ Recommended</b>	<b>Approval Rate</b>
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%
20 (NOV 2019)	\$1,350,000	43%
21 (FEB 2020)	\$3,944,000	56%
22 (MAY 2020)	\$1,398,630	53%
23 (OCT 2020)	\$900,000	50%
24 (JAN 2021)	\$2,092,900	55%
<b>Overall</b>	<b>\$35,445,731</b>	
<b>Average</b>	<b>\$1,476,905</b>	<b>43%</b>

### 3) Proposal Summaries

#### Phase 1 Proposal Summaries and Recommendations

<b>Proposal 21-1313</b>	<b>The Research Institute at Nationwide Children's Hospital</b>	Amount Requested: \$200,000
Prior Phase 1 Applications: Yes	<i>Research Institute at Nationwide Children's Hospital TVSF Phase 1</i>	Amount Recommended: \$200,000

**TOTAL BUDGET: \$400,000**

**Institution Snapshot: Phase 1 funds will provide resources to selected inventions to derisk the technology to a point where it is ready to be licensed to a startup or young company.**

Rating (R/Y/G)	Category	Highlights/Issues/Comments
G	Selection Committee	Each of the 4 member TVSF selection committee has strong life sciences and commercialization, entrepreneurship backgrounds. Combined Newco creation credentials of team members are strong.
G	Deal Flow; Budget Strategy	TDF currently receives 10-14 applications annually totaling almost \$700K in requested funds. TVSF applicants are a subset of these applicants. Deal flow is consistent with TVSF level of funding.
Y	External Participation	Third party validation activities expected, no funds directed to science research. Regional ESP on selection committee and meets with applicant to assess opportunity. Outside advisors encouraged.
G	Track Record	Of the 8 previously funded applications, 5 are either licensed, optioned or intended to be licensed, 2 have interested entrepreneurs and 1 is looking for a licensee.
G	Metrics	Office of Technology Commercialization technologies that have received funding from the NCHRI TDF program have been successfully out-licensed at a rate of approximately 70%.
G	Project Management & experience	Each member of the 4-person committee has fund and project management experience.
G	Project Selection	Selection process has distinct steps, roles of each member identified.
G	Evaluator Recommendation	This application is recommended for funding.

<b>Evaluation Scale</b>	<b>Absent</b>	<b>Poor</b>	<b>Weak</b>	<b>Meets</b>	<b>Exceeds</b>	<b>Outstanding</b>
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**Comments and Recommendation:** The Research Institute at Nationwide Children's Hospital has a strong track record of supporting advancement of researcher's technologies to licensing and commercialization. The project selection process is well documented. Of the 8 previously supported Phase 1 projects, 4 are completed with 2 licensed to a startup, the 4 continuing projects have 2 option agreements to local entrepreneurs and 1 intended to be licensed to a startup.

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<b>Proposal 21-1314</b>	<b>Bon Secours Mercy Health Foundation</b>	Amount Requested: \$500,000
Prior Phase 1 Applications: Yes	<i>BSMH-TVF #2</i>	Amount Recommended: \$350,000
<b>TOTAL BUDGET: \$700,000</b>		

**Institution Snapshot: The Technology Validation Fund #2 will formalize a commercialization process to advance new products and ideas throughout the hospital network.**

Rating (R/Y/G)	Category	Highlights/Issues/Comments
Y	Selection Committee	The Selection Committee includes members from the local ESP, BSMH, local businesses and serial IT entrepreneurs. Several have strong backgrounds including health care. One is skilled in medical devices, especially regulatory.
Y	Deal Flow; Budget Strategy	The anticipated increases in deal flow quantity / quality and companion efforts are encouraging. It would be good to demonstrate this increase before making a 'full' award.
G	External Participation	A relevant, detailed list of third-party providers is given.
Y	Track Record	The BSMH track record to date is \$376 K of \$400 K has been invested in 5 months. Innovation team principals have good track records at prior employers.
Y	Metrics	Applicant estimates that 2-5 companies will form and 2-4 technologies will be licensed. No clear indication of progress metrics.
Y	Project Management & experience	Interview question responses and discussion confirms there is an experienced team managing the projects. Increasing the bandwidth of EIRs is suggested as the portfolio grows.
Y	Project Selection	Appropriate criteria - great to see external validation is required.
Y	Evaluator Recommendation	This application is recommended for funding at \$350,000.

<b>Evaluation Scale</b>	<b>Absent</b>	<b>Poor</b>	<b>Weak</b>	<b>Meets</b>	<b>Exceeds</b>	<b>Outstanding</b>
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**Comments and Recommendation:** Bon Secours Mercy Health’s (BSMH) initial Phase 1 award from Round 21 has made good progress. We recommend an award of \$350,000 for this round to allow BSMH to demonstrate an increase in deal flow quantity and quality. If progress continues, BSMH are encouraged to apply for additional funding in one of the multiple rounds planned in the next year.

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Proposal 21-1315	Case Western Reserve University	Amount Requested: \$500,000
Prior Phase 1 Applications: Yes	Case Western Reserve University –TVSF Phase 1: Pool of Funds Renewal 2021	Amount Recommended: \$500,000

**TOTAL BUDGET: \$1,000,000**

**Institution Snapshot: The CTP program provides funds to a select group of technologies to accelerate CWRU’s highest potential intellectual assets to be primed for commercialization success through the establishment and growth of Ohio-based startup and early-stage technology companies.**

Rating (R/Y/G)	Category	Highlights/Issues/Comments
G	Selection Committee	Strong selection committee of biotech and med tech startup experience, venture funding, healthcare. It would be helpful to understand strengths that exist in therapeutics and engineering related areas as committee targets these areas for increased deal flow.
G	Deal Flow; Budget Strategy	CWRU has consistent deal flow vetted through several Advancement Programs, particularly from the School of Medicine. Working to increase the maturity of deal flow from the School of Engineering.
Y	External Participation	Good generic description of external providers in application. More information provided in pre interview question responses showing a more robust network of external providers.
Y	Track Record	CWRU has received 4 consecutive Phase 1 awards. A strong track record of spin outs, follow on funding and in-market products is provided.
G	Metrics	Since 2017, 30 funded projects have resulted in 8 licenses/options and 7 startups, 2 of which were IPOs.
G	Project Management & experience	Program management from TVSF Director. Tranching of funds as project meets objectives. Team appears to be the same as the experienced team from last proposal.
G	Project Selection	Clear process Is commercial experience required on teams?
G	Evaluator Recommendation	This application is recommended for funding.

<b>Evaluation Scale</b>	<b>Absent</b>	<b>Poor</b>	<b>Weak</b>	<b>Meets</b>	<b>Exceeds</b>	<b>Outstanding</b>
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**Comments and Recommendation:** Case Western Reserve University has a robust project pipeline and process for funding medical and life science projects. The TVSF funded projects are first vetted by various Advancement Programs, all of which are targeted to the medical and life sciences. Feedback from the Advancement Programs to projects strengthens the applications. CWRU is encouraging more deal flow from the School of Engineering to diversify the portfolio.



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Proposal Summaries - Phase 2 Recommended for Funding

<b>Proposal 21-1290</b>	<b>A Cubed Healthcare Technologies, Inc.</b>	Amount Requested: \$150,000
<i>Licensing Institution</i>	<b>Ohio State University</b>	Amount Recommended: \$150,000
Prior Phase 1 Applications: Yes	Prior Phase 2 Applications: 20, 21	<b><i>aHEART (Heart health Evaluation Algorithm in Real Time)</i></b>

**Company Snapshot: A-Cubed Healthcare Technologies, Inc. (DBA EngageHealth) is developing aHEART (Heart health Evaluation Algorithm in Real Time) to assess and manage heart health in cancer survivors.**

Rating (R/Y/G)	Category	Highlights/Issues/Comments
Y	Management Team	The team has strong technical skills and market understanding. There is good experience in direct sales. It would be ideal to add more fund-raising experience.
G	Opportunity and Market Size	This is a very substantial market. The applicants have done a comprehensive job of identifying the market and key unmet needs. The embedded application links were very helpful.
G	Intellectual Property Protection/ License	The OSU trade secrets are central to the software architecture and the scoring of heart health. aHeart has renegotiated their exclusive license to OSU trade secrets.
G	Compelling Proof of Concept	Key features for a beta version have been identified through extensive primary and secondary market research and the project plan is creditable.
Y	Potential Investor/ Business Partner Engagement	Initial discussions have been held with multiple Health Care Organizations and potential channel partners.
Y	Business Model	The proposed business model is reasonable. The team did a good job understanding shared savings revenue and market channels.
G	Project Plan/ budget narrative	The project plan is clear and creditable.
G	Start-up in Ohio	Team has deep roots in Columbus and its' Healthcare ecosystem.
G	ESP Interaction	The application indicates significant ESP engagement.
G	Evaluator Recommendation	This application is recommended for funding.

<b>Evaluation Scale</b>	<b>Absent</b>	<b>Poor</b>	<b>Weak</b>	<b>Meets</b>	<b>Exceeds</b>	<b>Outstanding</b>
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**Comments and Recommendations:** Post cancer treatment heart health is a VERY important medical need and significant business opportunity. The team has made major strides since their initial Round 20 application, and is recommended for TVSF funding.

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<b>Proposal 21-1291</b>	<b>Autism Eyes, LLC</b>	Amount Requested: \$150,000
<i>Licensing Institution</i>	<b>Cleveland Clinic Foundation</b>	Amount Recommended: \$150,000
Prior Phase 1 Applications: Yes	Prior Phase 2 Applications: No	<b>Autism Eyes Pilot</b>

**Company Snapshot:** The Autism Eyes® platform is a clinical decision support system delivered as software as a service tool which reports guidance to a clinician about their patient’s symptoms of Autism Spectrum Disorder.

Rating (R/Y/G)	Category	Highlights/Issues/Comments
G	Management Team	Very strong team with technical, clinical, and target market, business, fund raising and healthcare investment expertise. Scientific advisory board to be formed.
Y	Opportunity and Market Size	Total addressable market and service addressable market identified and quantified.
G	Intellectual Property Protection/ License	IP consists of patent application published in 11/2020 comprises system and method claims for the platform technology, trademark and proprietary database. Licensing discussions have commenced.
G	Compelling Proof of Concept	Current MVP is objective and accurate. It is a rapid (15 minute) measure of a patient's ASD symptoms. System included in an existing multi-center NIH Phase II grant.
Y	Potential Investor/ Business Partner Engagement	Seed Funds for MVP. Pilot partner to assist with product development, regulatory compliance, product marketing and sales.
Y	Business Model	Autism Eyes is a SAAS clinical decision support (CDS) with 3 revenue sources. Conservative adoption rate to \$2.5M in 2025.
Y	Project Plan/ budget narrative	Building 10 units to run a commercial pilot study.
G	Start-up in Ohio	Services from Ohio software contractor. Plan to stay in OH.
Y	ESP Interaction	Local ESP involved in selection committee for Phase 1 commitments.
G	Evaluator Recommendation	This application is recommended for funding.

<b>Evaluation Scale</b>	<b>Absent</b>	<b>Poor</b>	<b>Weak</b>	<b>Meets</b>	<b>Exceeds</b>	<b>Outstanding</b>
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**Comments and Recommendations:** Autism Eyes has developed a tool and service to potentially detect Autism and guide therapy early in a child’s life. The management team is very strong. An MVP exists. TVSF funds to be used to build 10 units to run a commercial pilot. The infrastructure in Ohio can support this startup.

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<b>Proposal 21-1292</b>	<b>BioChip Labs</b>	Amount Requested: \$150,000
<i>Licensing Institution</i>	<b>Case Western Reserve University</b>	Amount Recommended: \$150,000
Prior Phase 1 Applications: Yes	Prior Phase 2 Applications: No	<b><i>Endothelialized microfluidic platforms for emerging therapies in sickle cell disease</i></b>

**Company Snapshot: Endothelium-on-a-chip is a microfluidic platform functionalized with human endothelial cells that operates under precisely controlled and physiologically relevant flow conditions to provide targeted therapies in sickle cell disease.**

Rating (R/Y/G)	Category	Highlights/Issues/Comments
G	Management Team	CEO is very well qualified to lead this company from a medical and entrepreneurial perspective. There appears to be an appropriate blend of full-time staff and part time CWRU specialists.
G	Opportunity and Market Size	The markets are well described and sizeable. The companion diagnostic market alone totals \$600M in EU and the US.
Y	Intellectual Property Protection/ License	Patent applications directly address the key need for scalable manufacturing.
G	Compelling Proof of Concept	The proposed work directly targets diagnostic characteristics which are essential for efficacy.
G	Potential Investor/ Business Partner Engagement	Funded potential investor / business collaborations are already underway.
G	Business Model	A sophisticated, realistic multi-segment adoption is described. Regulatory requirements and timelines are well integrated.
G	Project Plan/ budget narrative	The project plan is creditable and timely.
G	Start-up in Ohio	A strong commitment to building businesses in NE Ohio is clear.
Y	ESP Interaction	ESP discussions underway, anticipate market research from ESP.
G	Evaluator Recommendation	This application is recommended for funding.

Evaluation Scale	Absent	Poor	Weak	Meets	Exceeds	Outstanding
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**Comments and Recommendations:** This application targets the significant and underserved market for sickle cell anemia therapeutic development and companion diagnostics. This is a strong team and a well-conceived approach.

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<b>Proposal 21-1293</b>	<b>CelerPurus</b>	Amount Requested: \$150,000
<i>Licensing Institution</i>	<b>Case Western Reserve University</b>	Amount Recommended: \$150,000
Prior Phase 1 Applications: No	Prior Phase 2 Applications: No	<b>CelerPurus Decontamination Chamber Commercialization</b>

**Company Snapshot: The CelerPurus device is a small, easy-to-use mask decontamination chamber designed for convenient point-of-care accessibility for healthcare professionals within medical settings.**

Rating (R/Y/G)	Category	Highlights/Issues/Comments
Y	Management Team	A well-rounded Team for this stage of development. CEO is the key driver with needed business and entrepreneurial background. A good advisory Team. Need to make critical hires soon.
G	Opportunity and Market Size	A very large market with good potential for the first mover. Addressable market is identified as \$1.3 B/yr.
Y	Intellectual Property Protection/ License	Provisional patent application filed. Non provisional to be filed in August 2021. Claims involve device, system and method. Licensing negotiations are in progress.
Y	Compelling Proof of Concept	A well laid out plan to make the 20 prototype devices for target field trials.
Y	Potential Investor/ Business Partner Engagement	Still in the early stage. Seems to have needed staff, knowledge/ awareness and contacts for investments and partner engagements.
Y	Business Model	Consists of effectively testing the prototypes ordered, finding effective deployment process as sales grow.
Y	Project Plan/ budget narrative	Reasonable and well-articulated.
Y	Start-up in Ohio	Plan to build company and partners in Ohio
Y	ESP Interaction	Adequate and well positioned to interact with ESP provider.
G	Evaluator Recommendation	This application is recommended for funding.

<b>Evaluation Scale</b>	<b>Absent</b>	<b>Poor</b>	<b>Weak</b>	<b>Meets</b>	<b>Exceeds</b>	<b>Outstanding</b>
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**Comments and Recommendations:** A strong Team composed of technical/ marketing, product development and commercialization skill sets. IP is strong and addresses a large and growing market.

TECHNOLOGY VALIDATION AND STARTUP FUND

<b>Proposal 21-1297</b>	<b>Lighthouse Avionics, Inc.</b>	Amount Requested: \$100,000
Licensing Institution	<b>U.S. Navy</b>	Amount Recommended: \$100,000
Prior Phase 1 Applications: None	Prior Phase 2 Applications: None	<b>AUV Local Airspace Management System for Emergency Response</b>

**Company Snapshot: Lighthouse Avionics is developing an integrated, fully autonomous, Virtual Control Tower (VCT) and Unmanned Aerial Vehicle (UAV) system to support local community emergency response.**

Rating (R/Y/G)	Category	Highlights/Issues/Comments
G	Management Team	CEO and CTO are investors with start-up company management experience including fund raising. Another team member has a military background and is an expert in autonomous drone systems. Another is the Police Deputy for the City of Hilliard, Ohio.
G	Opportunity and Market Size	In Ohio, there are 477 municipalities with a total addressable market of more than \$166 M. In the USA there are 42,335 municipalities with a total addressable market of more than \$14.5 B.
Y	Intellectual Property Protection/ License	Licensed IP resides in three US Navy patents for Unmanned Aerial Vehicles (UAV). It is expected that modifications to the UAV to adapt to the airspace management system will result in additional patents.
G	Compelling Proof of Concept	VCT prototype has been designed to provide airspace management for first responder drone system. Navy has developed and tested (TRL 7) their UAV platform.
G	Potential Investor/ Business Partner Engagement	Converge has committed \$500,000 funding and Sumeru has verbally committed \$2 million funding after TVSF project for system piloting.
G	Business Model	Provide autonomous drone system to municipalities for emergency response. Systems can be procured using DOJ automation grants.
G	Project Plan/ budget narrative	VCT and UAV systems have been designed with initial testing.
G	Start-up in Ohio	Manufacturing in Ohio. Projected \$17 MM annual payroll (Year 5).
Y	ESP Interaction	Lighthouse has been working with TEC Dayton.
G	Evaluator Recommendation	This application is recommended for funding.

Evaluation Scale	Absent	Poor	Weak	Meets	Exceeds	Outstanding
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**Comments and Recommendations:** Management team has the necessary experience to complete the project and grow a successful business. Market opportunity is large and well defined. Licensed IP is strong with opportunities for additional patent coverage. VCT and UAV are designed but need modifications for integration. Potential investors have been identified. Business model is credible with a strong combination of meeting existing target customer needs with convenient service offering and accessible price point. DOJ grant opportunities are available to targeted municipal customers to cover product investment cost. This will further enhance and accelerate product acceptance.

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<b>Proposal 21-1299</b>	<b>Parcell Company</b>	Amount Requested: \$100,000
<i>Licensing Institution</i>	<b>Air Force Research Laboratory</b>	Amount Recommended: \$100,000
Prior Phase 1 Applications: No	Prior Phase 2 Applications: 23	<b>Smart Home Container for Secure Deliveries</b>

**Company Snapshot: Parcell is developing a secure, cyberthreat resistant solution for securing packages delivered to homeowners.**

Rating (R/Y/G)	Category	Highlights/Issues/Comments
Y	Management Team	CEO and COO have early-stage company management experience including fund raising. CRO has channel relationships and consumer electronics sales experience. Expertise in software development and manufacturing will need to be hired or contracted from outside.
Y	Opportunity and Market Size	Market size for this initial product and ability to maintain subscription fee is tenuous. Follow-up products could increase market size. Limited competitive advantage will need to be overcome.
Y	Intellectual Property Protection/ License	US Patent 10,111,094 to secure wireless connection with storage box from hacking will be licensed from AFRLC. It is not expected that the storage box is patentable with or without licensed technology.
Y	Compelling Proof of Concept	Four secure box prototypes have been field tested with generally positive results reported. These prototypes did not incorporate the licensed AFRC technology.
Y	Potential Investor/ Business Partner Engagement	Proposal states that 3-5 potential investors have been identified to fund a future seed round with anticipated \$500,000 funding.
Y	Business Model	Sales channels include direct, retailers, websites, strategic partners. Projected revenue \$30 MM (Yr 5) for product sales and monthly fees.
Y	Project Plan/ budget narrative	Project plans and milestones are detailed and complete.
G	Start-up in Ohio	Ohio based companies will be selected to support business.
G	ESP Interaction	The Entrepreneur Center (TEC) reviewed business plan pro-forma.
G	Evaluator Recommendation	This application is recommended for funding.

<b>Evaluation Scale</b>	<b>Absent</b>	<b>Poor</b>	<b>Weak</b>	<b>Meets</b>	<b>Exceeds</b>	<b>Outstanding</b>
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**Comments and Recommendations:** Homeowner's interest in securing delivered packages in a convenient and reliable manner is considered real and represents a potentially large market opportunity. However, projected sales revenues for the proposed initial product are considered questionable because of uncertain customer acceptance. Nevertheless, it is believed that follow-up products have the potential to increase revenue. Proposed product is considered to have limited barriers to entry. This will need to be addressed to achieve ongoing sales projections in the face of expected competition. Management will need to hire or contract for additional technical capabilities in product manufacturing, software development and system security.

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<b>Proposal 21-1300</b>	<b>Rapidect, Inc.</b>	Amount Requested: \$150,000
<i>Licensing Institution</i>	<b>Cleveland State University</b>	Amount Recommended: \$150,000
Prior Phase 1 Applications: Yes	Prior Phase 2 Applications: 21,22	<b><i>A near real-time analyzer for MRSA and S. aureus</i></b>

**Company Snapshot: Rapidect Inc has developed the Rapidect Analyzer that performs detection-ID-AST diagnostic processes of MRSA and MSSA infections without culture.**

Rating (R/Y/G)	Category	Highlights/Issues/Comments
Y	Management Team	The experience of the team in developing partnerships, raising money and selling is developing. Until a CEO with diagnostics background is hired, it will be essential to add an experienced person, like someone from Jump Start, to all discussions.
G	Opportunity and Market Size	The market for MRSA testing alone is in excess of \$840 M and growing. The time sensitive MRSA testing market is estimated to be in excess of \$400M.
Y	Intellectual Property Protection/ License	The issued patent is directly relevant to the planned product. This is an active field, so it is not possible to confirm freedom to operate.
G	Compelling Proof of Concept	Proof of concept is well structured and will create value with prospective customers and investors. Prototype vendors are qualified. Good to see inclusion of regulatory assessment.
Y	Potential Investor/ Business Partner Engagement	Encouraging preliminary discussions have been held with Key Opinion Leaders, lead adopters and prospective investors.
Y	Business Model	The business model components and timing are reasonable. Potential early adopters are clearly identified. Can timing be faster?
G	Project Plan/ budget narrative	The plan looks appropriate and efficient.
G	Start-up in Ohio	The Ohio roots of the company and its' partners are clear.
G	ESP Interaction	There is significant ESP interaction.
Y	Evaluator Recommendation	This application is recommended for funding, with a contingency noted below.

Evaluation Scale	Absent	Poor	Weak	Meets	Exceeds	Outstanding
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**Comments and Recommendations:** This application targets a large, important medical market with a novel approach. The business has substantially advanced their approach since their initial application. This application is recommended for funding contingent that a Jump Start entrepreneur with diagnostics experience is appointed to the board of the company and participates in all discussions with prospective customers and investors until a CEO with diagnostics background is hired.

TECHNOLOGY VALIDATION AND STARTUP FUND

<b>Proposal 21-1310</b>	<b>Soil1</b>	Amount Requested: \$92,900
<i>Licensing Institution</i>	<b>Ohio State University</b>	Amount Recommended: \$92,900
Prior Phase 1 Applications: No	Prior Phase 2 Applications: No	<b>Regenerative Agriculture Virtual Agronomist (RAVA)</b>

**Company Snapshot: Soil1 is developing a product to provide farmers and ranchers the ability to replenish the health of their fields and pasture land and to provide documentation of their ReAg practices for carbon credit market.**

Rating (R/Y/G)	Category	Highlights/Issues/Comments
Y	<b>Management Team</b>	A well-balanced Team with relevant experience and Track record in taking early-stage ag technologies to market, including Soil Kit from OSU, digital tools and others to the Ag markets in the Midwest.
Y	<b>Opportunity and Market Size</b>	A large market for carbon credit and renewable agriculture. Need to clearly articulate addressable market size. Revenue projection in 2025 is \$53 M.
Y	<b>Intellectual Property Protection/ License</b>	Software aspects of WO 2020/047531 A 1 under discussion. Working with OSU to secure license rights.
Y	<b>Compelling Proof of Concept</b>	Early lab results are encouraging.
Y	<b>Potential Investor/ Business Partner Engagement</b>	Total investment needs are projected as 350 K in 2021, 3.5 M in 2022, 6.5 M in 2023. Soil1 targeting funding with Ag Venture entities.
Y	<b>Business Model</b>	Soil 1 has significant contacts and presence in the Midwest due to successful soil kit. Will model this approach and expand.
Y	<b>Project Plan/ budget narrative</b>	Looks reasonable; Mitigation steps to address risks are given.
Y	<b>Start-up in Ohio</b>	All the key Team members are Ohio based.
Y	<b>ESP Interaction</b>	Has needed interactions and access to local ESP.
<b>G</b>	<b>Evaluator Recommendation</b>	This application is recommended for funding.

<b>Evaluation Scale</b>	<b>Absent</b>	<b>Poor</b>	<b>Weak</b>	<b>Meets</b>	<b>Exceeds</b>	<b>Outstanding</b>
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**Comments and Recommendations:** A credible and well- balanced Team with many years of experience and successful track record in taking early-stage university technology to the market with needed field, market and fund-raising experiences. The markets for renewable/ sustainable agriculture and carbon credit are growing and Soil 1 is well positioned to gain a significant share of them, in an industry which is a significant economic driver in Ohio.



Proposal Summaries - Phase 2 Not Recommended for Funding

<b>Proposal 21-1289</b>	<b>Acumen Applied Science</b>	Amount Requested: \$100,000
<i>Licensing Institution</i>	<b>Air Force Research Laboratory</b>	Amount Recommended: \$0
Prior Phase 1 Applications: No	Prior Phase 2 Applications: No	<b><i>On-Demand Hydrogen Production for Remote Locations</i></b>

**Company Snapshot: The Acumen team seeks to commercialize a product created by the Air Force Research Laboratory (AFRL) that is capable of providing the on-demand onsite hydrogen needs for austere military and civilian uses.**

Rating (R/Y/G)	Category	Highlights/Issues/Comments
R	<b>Management Team</b>	Two-person team comprised of seasoned AFRL researchers with extensive DoD project and funding background. The team does not have marketing/ fund raising experience.
Y	<b>Opportunity and Market Size</b>	Overall market opportunity for hydrogen is large; total addressable market not identified nor quantified, stated special operations DoD-based opportunity.
Y	<b>Intellectual Property Protection/ License</b>	IP is covered by an issued US patent. Negotiating a license, unclear if exclusivity is included.
Y	<b>Compelling Proof of Concept</b>	The main objective is to demonstrate that the chemistry disclosed in the 2105 patent, developed by AFRL chemists, is still reproducible and scalable to a lab scale hydrogen fuel system.
R	<b>Potential Investor/ Business Partner Engagement</b>	Relying on TVSF and FY21 DoD funding. Pro forma shows equity funding of \$260K in 22/23. No indication of source of funds provided.
R	<b>Business Model</b>	Focus is on the smaller DoD market; Need to expand to the larger commercial markets with a well-rounded Team and business plan.
Y	<b>Project Plan/ budget narrative</b>	Proposed tasks and milestones for the first year look reasonable.
Y	<b>Start-up in Ohio</b>	Plan is to produce the integrated generation system in Ohio.
Y	<b>ESP Interaction</b>	Very limited interactions with ESP.
R	<b>Evaluator Recommendation</b>	This application is not recommended for funding.

<b>Evaluation Scale</b>	<b>Absent</b>	<b>Poor</b>	<b>Weak</b>	<b>Meets</b>	<b>Exceeds</b>	<b>Outstanding</b>
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**Comments and Recommendations:** The Team lacks the market/ product development, critical fund raising and customer engagement skill sets required to take an early-stage technology to market. Proposed project plan and associated budgets need to be more clearly articulated to move the lab R&D results to the next stage. A significant rewrite with a focus on addressing the questions raised would be needed prior to any resubmission.

TECHNOLOGY VALIDATION AND STARTUP FUND

<b>Proposal 21-1294</b>	<b>FlexEnergy LLC</b>	Amount Requested: \$100,000
<i>Licensing Institution</i>	<b>Air Force Research Laboratory</b>	Amount Recommended: \$0
Prior Phase 1 Applications: No	Prior Phase 2 Applications: No	<b><i>Flexible Li-ion battery for Wearable</i></b>

**Company Snapshot: FlexEnergy LLC is developing a flexible, thin film solid state battery that can achieve novel form factors for wearables that traditional Li-ion battery technologies cannot provide.**

Rating (R/Y/G)	Category	Highlights/Issues/Comments
R	Management Team	Mainly CEO/COO with AFRL/DoD program management skills. Working with a potential customer for inputs, market intelligence. Need to strengthen business/ market development and fund-raising skill sets.
Y	Opportunity and Market Size	Global market for wearable batteries is projected to be over \$5 Billion / yr. in 2024. The addressable markets are 1. medical clothing and 2. high end recreational textile, which are not quantified.
Y	Intellectual Property Protection/ License	Negotiating with AFRL for an exclusive or partial exclusive license. Two patent publications mentioned in the application. Only one cited application mentioned in support letter.
Y	Compelling Proof of Concept	Technology has been successfully demonstrated. Specific MVP desired for wearables demonstration will be ~6x6 oval demonstration cells.
R	Potential Investor/ Business Partner Engagement	Very early stage; projected equity funding of \$150 K next 2 years from partners, family and friends. \$1 M from angels/partners in 2024.
Y	Business Model	Adequate for the early entry stage; need a more robust model
Y	Project Plan/ budget narrative	Project plan over 12 months includes battery and performance eval.
Y	Start-up in Ohio	Principals and support infrastructure are in Ohio.
Y	ESP Interaction	Extensive engagement with The Entrepreneurs Center.
R	Evaluator Recommendation	This application is not recommended for funding.

Evaluation Scale	Absent	Poor	Weak	Meets	Exceeds	Outstanding
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**Comments and Recommendations:** The Team is strong in DoD type R&D/ product development and funding. Need to add skill sets related to fund raising, commercialization and customer relationships. Develop a more implementable business plan—timeline, funding sources, engagement with market leaders, product optimization, etc.—over two-year and five-year time frame. The markets look attractive and should be further segmented with relevant partners/ funding. The Team is encouraged to submit a revised proposal addressing these gaps.

TECHNOLOGY VALIDATION AND STARTUP FUND

<b>Proposal 21-1295</b>	<b>HuMed Lifesciences LLC</b>	Amount Requested: \$150,000
<i>Licensing Institution</i>	<b>Ohio State University</b>	Amount Recommended: \$0
Prior Phase 1 Applications: No	Prior Phase 2 Applications: No	<b>Hybrid dental implant</b>

**Company Snapshot: HuMed Lifesciences' hybrid dental implant system provides an innovative architecture to deliver therapeutic agents to stimulate bone in growth in the open inner space of the implant.**

Rating (R/Y/G)	Category	Highlights/Issues/Comments
Y	Management Team	The team consists of two persons and two advisors with life science, investment, entrepreneurial, and business experience in medical fields. The inventor is on the team providing R&D and dentistry knowledge.
G	Opportunity and Market Size	Well documented TAM- global dental implant, denture, \$7 B in 2019, and SAM- US dental implant, for dental implant denture market. SOM - complex case implants in US is identified ~\$0.5B.
Y	Intellectual Property Protection/ License	Issued US patent with no PCT filing. Continuation in Part filed in 2017 has been abandoned. No new patent applications have been made.
R	Compelling Proof of Concept	Product is theoretically positioned to address more complex implant procedures. Company plans to outsource manufacturing to be compatible with major brands. Dentists use existing surgical tools.
Y	Potential Investor/ Business Partner Engagement	Investment interest expressed from several angel investors. Strategic partner discussions initiated.
R	Business Model	Business model is common in medical field. Company believes this is unique and confidential in the dental implant field.
Y	Project Plan/ budget narrative	Budget is consistent with developing MVP within 1 year.
Y	Start-up in Ohio	Company maintains that it will be located in Columbus Ohio.
Y	ESP Interaction	Company has engaged with the regional ESP.
R	Evaluator Recommendation	This application is not recommended for funding.

Evaluation Scale	Absent	Poor	Weak	Meets	Exceeds	Outstanding
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**Comments and Recommendations:** The applicant is encouraged to reapply for TVSF funding. The CEO has experience in investing in startups and financing R&D projects at large pharma organization. The applicant is encouraged to address the compelling proof of concept and business model as well as status of strategic partner discussions.

TECHNOLOGY VALIDATION AND STARTUP FUND

Proposal 21-1296	illume fit LLC	Amount Requested: \$100,000
Licensing Institution	Air Force Research Laboratory	Amount Recommended: \$0
Prior Phase 1 Applications: No	Prior Phase 2 Applications: No	illume SOS Beacon

**Company Snapshot:** illume fit is developing a wearable and easily accessible emergency device that allows wearer to alert predefined contacts using a simple button sequence from locations without GPS coverage.

Rating (R/Y/G)	Category	Highlights/Issues/Comments
R	Management Team	Management team has product design, manufacturing and marketing expertise. Expertise in business operations or fund raising is not indicated. Proposal does not state time commitment of management team to project and business.
R	Opportunity and Market Size	Opportunity for simpler, less inexpensive SOS device is uncertain given other alternatives and low barriers to entry. Proposal does not specifically report estimated Total Addressable Market (\$).
Y	Intellectual Property Protection/ License	US Patent 10,267,891 licensed from AFRC provides a method that allows device to monitor users' location for emergency alerts even when GPS connection is unavailable.
R	Compelling Proof of Concept	Proposal does not describe any specific customer outreach; for example, customer survey to identify desired product features and provide level of confidence in the sales projections.
R	Potential Investor/ Business Partner Engagement	Proposal does not indicate any outreach for financial backing or engagement with other possible collaborators.
Y	Business Model	E-commerce web site appears to be the only sales channel being considered.
R	Project Plan/ budget narrative	Aggressive project plan to complete "product launch" in one year.
Y	Start-up in Ohio	Headquarters in Cincinnati area. Manufacturing site is not indicated.
Y	ESP Interaction	Guidance has been provided by The Entrepreneurs Center in Dayton
R	Evaluator Recommendation	This application is not recommended for funding.

<b>Evaluation Scale</b>	<b>Absent</b>	<b>Poor</b>	<b>Weak</b>	<b>Meets</b>	<b>Exceeds</b>	<b>Outstanding</b>
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**Comments and Recommendations:** Proposal does not indicate time commitment of the management team to the project. Several of the team have full time positions with established companies. Proposal does not directly state an estimate of Total Addressable Market (\$). "Primary research" that was used to identify target customers, product features and pricing was not described in the proposal. Other than reliance on AFRC IP, there is limited discussion on other possible barriers of entry envisioned that can be used with competitors that already have very strong brand presence (Garmin, Spot) in this market. Achieving "product launch" in one year is considered very aggressive. Provide information to increase confidence in the ability of the team to complete funded project tasks in one year. It appears that the only sales channel being considered is "e-commerce web site". Explain reason to limit sales channels to "e-commerce web site".

TECHNOLOGY VALIDATION AND STARTUP FUND

<b>Proposal 21-1298</b>	<b>MSTATT LLC</b>	Amount Requested: \$150,000
<i>Licensing Institution</i>	<b>Cleveland Clinic Foundation</b>	Amount Recommended: \$0
Prior Phase 1 Applications: No	Prior Phase 2 Applications: No	<b><i>Laser Otoscope for Improved OME Diagnostics</i></b>

**Company Snapshot: MSTATT plans to commercialize Laser Otoscope to general practitioners and pediatricians to improve diagnostic accuracy of Otitis media with effusion (OME) childhood hearing loss.**

Rating (R/Y/G)	Category	Highlights/Issues/Comments
R	Management Team	Team consists of 2 Ph.D. students and 1 person with business and development experience in medical devices. The team has technical skills to advance technology.
R	Opportunity and Market Size	The Market segment and US market are calculated based on number of hospital beds, primary care physicians, market price and 5-year device life. Overall market is dominated by several large players.
G	Intellectual Property Protection/ License	The invention is protected by 2 US patents that claim priority from November 2010.
Y	Compelling Proof of Concept	Have 3-D printed proof of concept prototype. MVP at end of 12 months. Published papers and presentations since 2014.
R	Potential Investor/ Business Partner Engagement	Plan relies on yet to be obtained TVSF and SBIR funding to get results of MVP and clinical trial, respectively. MAGNET Discussions.
Y	Business Model	Distributor sales model with 5-year revenue <\$4M and gross profit <\$800K.
G	Project Plan/ budget narrative	MVP and units for clinical trial by end of TVSF funding.
G	Start-up in Ohio	Ecosystem exists in Ohio to support this business.
Y	ESP Interaction	Regional ESP involved on business plan, proforma and assumptions.
R	Evaluator Recommendation	This application is not recommended for funding.

Evaluation Scale	Absent	Poor	Weak	Meets	Exceeds	Outstanding
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**Comments and Recommendations:** If the applicant reapplies, it is recommended that specific details regarding strategy for market entry and fund raising be included in the proposal. Disclose any discussions with distributors and the responsibilities of each party. The team has the technical skills to advance the technology and commitment to utilize Ohio resources for developing MVP.

TECHNOLOGY VALIDATION AND STARTUP FUND

<b>Proposal 21-1301</b>	<b>Rixa Tech LLC</b>	Amount Requested: \$85,500
<i>Licensing Institution</i>	<b>Air Force Research Laboratory</b>	Amount Recommended: \$0
Prior Phase 1 Applications: No	Prior Phase 2 Applications: No	<b><i>Super Swimmer</i></b>

**Company Snapshot: Super Swimmer is a wearable device targeted for swimming children that monitors blood oxygen levels and heart rate to predict loss of consciousness and creates an actionable call for help.**

Rating (R/Y/G)	Category	Highlights/Issues/Comments
R	Management Team	The management team has significant technical expertise, however there is limited entrepreneurial business or start-up experience on team.
R	Opportunity and Market Size	The market segment is identified as both water sports gear market and sports protective equipment market. No addressable market or market size identified.
G	Intellectual Property Protection/ License	IP has 1 issued patent and 1 published pending patent application. The pending application covers pulse oximeter sensor for determining heartbeat rate and blood oxygen saturation level.
R	Compelling Proof of Concept	It is unclear if this product will perform accurately in a variety of water temperatures.
R	Potential Investor/ Business Partner Engagement	Rixa engaged with The Entrepreneur Center. No connection with down-stream investors, plan to start with Crowdfunding campaigns.
Y	Business Model	Business model targets parents of school aged children. Plan to expand to adult swimmers and training and performance swimmers.
Y	Project Plan/ budget narrative	Have MVP. Project intended to create commercially ready product.
G	Start-up in Ohio	Startup in Ohio. Ecosystem exists in Ohio for the product.
Y	ESP Interaction	Applicant received assistance from The Entrepreneur Center.
R	Evaluator Recommendation	This application is not recommended for funding.

<b>Evaluation Scale</b>	<b>Absent</b>	<b>Poor</b>	<b>Weak</b>	<b>Meets</b>	<b>Exceeds</b>	<b>Outstanding</b>
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**Comments and Recommendations:** The team is encouraged to reevaluate the application and provide additional information in the areas noted above. In addition, the management team would do well to add an advisor or part time person with start-up and B to C entrepreneurial experience. The opportunity and market size need to clearly be identified and quantified. It is suggested that the team provide performance characteristics in line with potential use in a variety of conditions including water temperatures.

TECHNOLOGY VALIDATION AND STARTUP FUND

<b>Proposal 21-1303</b>	<b>SciFi Innovations LLC</b>	Amount Requested: \$100,000
<i>Licensing Institution</i>	<b>Ohio State University</b>	Amount Recommended: \$0
Prior Phase 1 Applications: No	Prior Phase 2 Applications: No	<b>Smart Carbon Fiber Integration (SciFi)</b>

**Company Snapshot:** SciFi innovations is a company that is commercializing a platform technology to manufacture hybrid polymer/metal integrated components with the advantages of weight reduction, increased strength, and integral sensors.

Rating (R/Y/G)	Category	Highlights/Issues/Comments
R	Management Team	The team does not appear to have experience in sales or fund raising. In addition, time commitments are not provided. It is difficult to envision making the planned progress with part time professors.
Y	Opportunity and Market Size	Aerospace parts is a large market. A creditable initial market of military drone parts is identified. The specifics of why adoption will rapidly occur in the military and civilian sectors are not clear.
R	Intellectual Property Protection/ License	The IP rights, including fields and exclusivity, that the company intends to acquire are not clear. Additionally, there appears to be a complication of Honda co-ownership.
R	Compelling Proof of Concept	The STTR Phase 1 has generated some customer requirements. The requested TVSF investment does not lead to a significant progress (proof of concept) milestone.
R	Potential Investor/ Business Partner Engagement	No prospective investor / partner engagement is mentioned.
R	Business Model	The rate of revenue ramp appears overly optimistic especially since the claimed product / process advantages are generic.
R	Project Plan/ budget narrative	\$100K TVSF funds not associated with a meaningful milestone.
Y	Start-up in Ohio	Technical principals are Ohio based. CEO looks to live in Chicago.
Y	ESP Interaction	Proposal states repeated Zoom engagement with Rev1.
R	Evaluator Recommendation	This application is not recommended for funding.

<b>Evaluation Scale</b>	<b>Absent</b>	<b>Poor</b>	<b>Weak</b>	<b>Meets</b>	<b>Exceeds</b>	<b>Outstanding</b>
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**Comments and Recommendations:** Hybrid metal / fiber composites is an interesting market opportunity in multiple markets including aerospace. The application could be substantially improved by being more specific about product advantages, clearly linking TVSF funding to a value creating milestone and engagement of prospective partners and / or investors. The team is also urged to consider adding a person with entrepreneurial experience in the target market(s) / technology.

TECHNOLOGY VALIDATION AND STARTUP FUND

<b>Proposal 21-1311</b>	<b>ValCor LLC</b>	Amount Requested: \$150,000
<i>Licensing Institution</i>	<b>ProMedica Health System Inc</b>	Amount Recommended: \$0
Prior Phase 1 Applications: No	Prior Phase 2 Applications: No	<b>Cardiac No Exchange Catheter</b>

**Company Snapshot: The ValCor “No Exchange Catheter” technology platform simplifies complex cardiac interventional catheterizations by reducing procedural steps and the number of devices used.**

Rating (R/Y/G)	Category	Highlights/Issues/Comments
Y	Management Team	Team has technical skills and business experience in the field of cardiology. Inventor, an MD, is a member of the management team. JumpStart mentor serves as an advisor to the team.
Y	Opportunity and Market Size	TAM US for guide catheters is >\$100M/year, global, ~\$500M/year. 2 potential applications- Percutaneous Coronary Intervention (PCI), or coronary stenting and Transcatheter Aortic Valve Replacement.
G	Intellectual Property Protection/ License	Two published patent applications support this technology. Patent search performed. A separate landscape patent search conducted. Agreement has been reached on an option to exclusively license IP.
Y	Compelling Proof of Concept	The product theoretically solves a specific problem in stent placements. Key opinion leaders were interviewed and a survey of 50 interventional cardiologists was very positive.
Y	Potential Investor/ Business Partner Engagement	Discussions held with a potential strategic partner helped validate value proposition. Additional information to be shared as developed.
R	Business Model	Business model is known for Medical device company. ValCor unable to articulate status of strategic partner discussions.
Y	Project Plan/ budget narrative	Produce data in 1 yr to validate device performance to raise Series A
Y	Start-up in Ohio	Company based in Toledo, Ohio. Supportive infrastructure in Ohio.
G	ESP Interaction	JumpStart involved with market and commercial assessment.
R	Evaluator Recommendation	This application is not recommended for funding.

<b>Evaluation Scale</b>	<b>Absent</b>	<b>Poor</b>	<b>Weak</b>	<b>Meets</b>	<b>Exceeds</b>	<b>Outstanding</b>
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**Comments and Recommendations:** The applicant is encouraged to reapply for TVSF funding. JumpStart has provided significant support to the evaluation of the market need, commercial assessment and interviews and surveys of potential users of the technology. The patent applications and technology lend itself to being a platform technology potentially commercialized to other medical applications. Expansion on the business model to clearly articulate status of potential strategic partner discussions and contingency plans is recommended.



TECHNOLOGY VALIDATION AND STARTUP FUND

<b>Proposal 21-1312</b>	<b>Zehna Therapeutics, LLC</b>	Amount Requested: \$150,000
<i>Licensing Institution</i>	<b>Cleveland Clinic Foundation</b>	Amount Recommended: \$0
Prior Phase 1 Applications: Yes	Prior Phase 2 Applications: No	<b><i>Small Molecule Microbiome Therapeutic</i></b>

**Company Snapshot: Zehna Therapeutics was formed to develop treatments for cardiovascular disorders, initially targeting Chronic Kidney Disease (CKD) with an orally available, small molecule, known as CC-199.**

Rating (R/Y/G)	Category	Highlights/Issues/Comments
R	Management Team	No permanent team -planning to bring in a new CEO with industry background, fund raising experience, and business development/ FDA regulatory staff in 2021
G	Opportunity and Market Size	A large market in the billion-dollar range, with the potential to impact kidney and cardiovascular disease. Addressable market depends on prodrug success.
Y	Intellectual Property Protection/ License	Issued IP is extensive, but not directly relevant. Plan to complete demonstration of and negotiations for the new Prodrug IP in FY 2021
Y	Compelling Proof of Concept	Sounds reasonable, given in-vitro results, multiple candidates and P&G feedback.
Y	Potential Investor/ Business Partner Engagement	Historical P&G engagement, and have secured a \$6M convertible note; identified need for > \$40 MM equity investment
R	Business Model	Not possible to rate as meets until CEO is on board. A very standard model in the industry. Need to refine it with details.
Y	Project Plan/ budget narrative	Plan to develop Prodrug looks reasonable
Y	Start-up in Ohio	Sounds likely – no specific mention.
G	ESP Interaction	Significant interactions with Jump Start
R	Evaluator Recommendation	This application is not recommended for funding

<b>Evaluation Scale</b>	<b>Absent</b>	<b>Poor</b>	<b>Weak</b>	<b>Meets</b>	<b>Exceeds</b>	<b>Outstanding</b>
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**Comments and Recommendations:** Team is lacking in fulltime CEO/ COO to aggressively move forward with the promising early-stage technology to capture a significant market share in years > 5. A well-articulated business plan along with resource requirements, funding, FDA compliance, engagement with partners, funding VCs, etc. is needed. To the Team’s credit, this has been recognized and actions are being taken to fill these needs in the next few months. Early results and preliminary feedback on the technology are very promising. The Team is recommended to resubmit the application, once the identified gaps are addressed.

Proposal Summary - Phase 2 Withdrawn by Applicant

<b>Proposal 21-1302</b>	<b>QC EYE LLC</b>	Amount Requested: \$150,000
<i>Licensing Institution</i>	<b>Ohio State University</b>	Amount Recommended: \$0
Prior Phase 1 Applications: No	Prior Phase 2 Applications: No	<b>QC EYE</b>

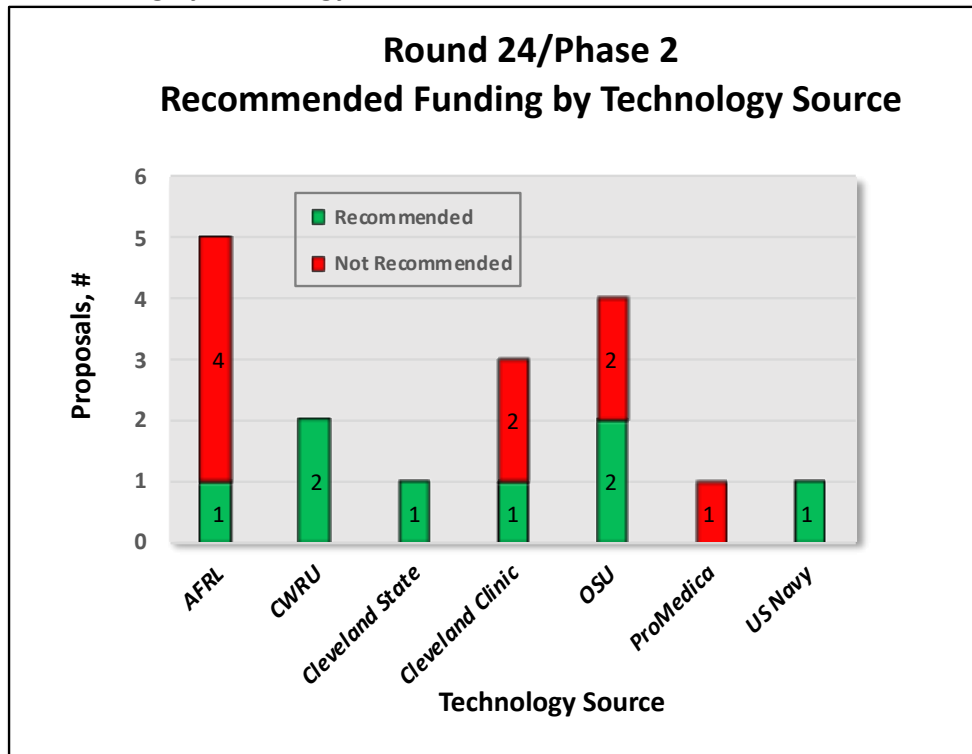
**Company Snapshot:** QC-Eye is a handheld, easy to use, spectrographic analytical tool that incorporates sophisticated machine learning (ML) models to quickly identify if a personal care product or a life-saving pharmaceutical is real or counterfeit.

Proposal 21-1302 was withdrawn at the request of the applicant and is not included in the Round 24 Analysis. *The applicant is encouraged to resubmit a proposal in an upcoming round of TVSF.*

4) Round 24 Analysis

Figure 1 shows the proposal activity and funding recommendations by technology source for Phase 2 proposals. AFRL was the most active with five submissions followed by four submissions from OSU, three from Cleveland Clinic, two from Case Western Reserve University (CWRU) and one each from Cleveland State, ProMedica, and the US Navy. Two each from CWRU and OSU and one each from AFRL, Cleveland Clinic, Cleveland State, and US Navy are recommended for funding.

Figure 1. Round 24 Funding by Technology Source



## TECHNOLOGY VALIDATION AND STARTUP FUND

Figure 2 depicts Phase 2 proposal activity and funding recommendations by Third Frontier focus area. In Round 24, ten of the seventeen proposals (59%) are in Biomedical/Life Sciences, three of the seventeen (18%) are in Sensors, two of the seventeen (12%) are in Energy and one of the seventeen in each of Advanced Manufacturing (6%) and Software/Information Technology (6% each). Six of the Biomedical/Life Sciences (75% of the total eight) and one Sensors (12.5% of the total eight) and one Software/Information Technology proposal (12.5% of the total eight) are recommended for funding. This round represents 41% in Third Frontier Technology areas that are non-Biomedical/Life Sciences. While a significant improvement from previous rounds, in Section 5, we still recommend additional efforts to encourage proposals in non-Biomedical/Life Science areas.

**Figure 2. Round 24 Phase 2 Proposal Activity by Third Frontier Technology Area**

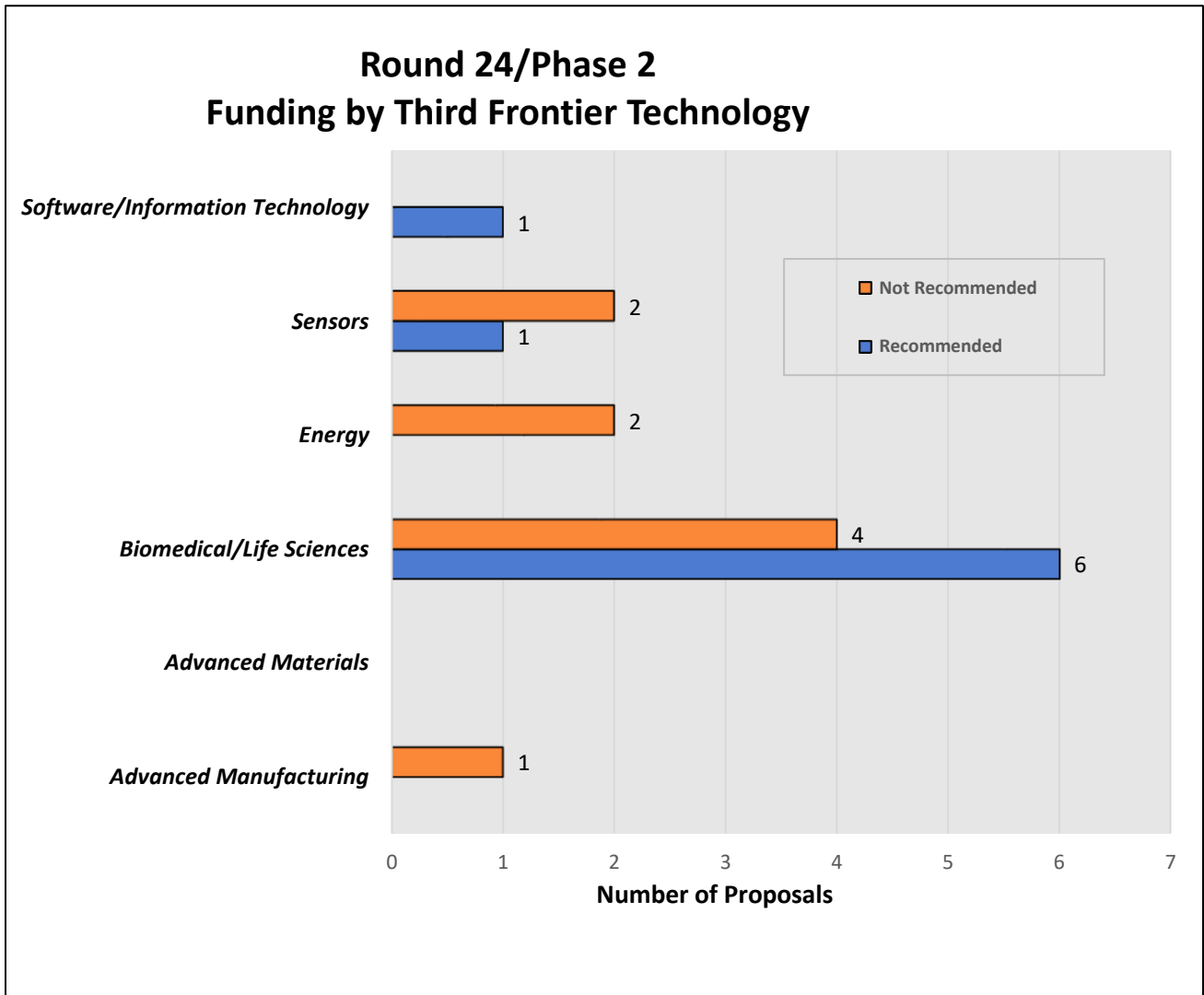
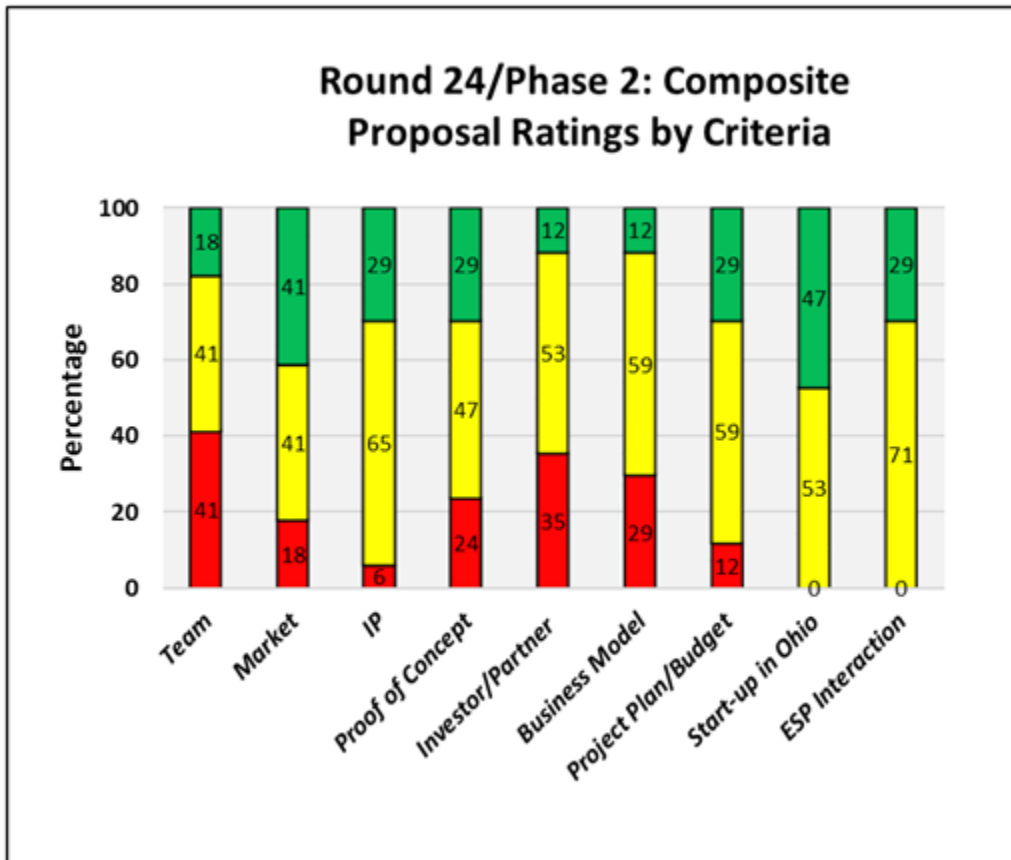


Figure 3 shows the aggregate ratings by evaluation criteria for all Phase 2 proposals. Setting aside the Start-up in Ohio and ESP interaction categories, the quality of the intellectual property and project plan/ budget were the strongest categories in Round 24. Management team was rated as the weakest, followed by investor/partner and business model. In the previous four Rounds, business model was the lowest rating. The RFP was revised to elicit stronger business models and it appears that the proposals have provided stronger business models in this round (71%  $\geq$  meets vs 53% average in Rounds 20 - 23). Further rounds will be monitored to see if this improvement continues.

Figure 3. Round 24 Phase 2 Proposal Rating Summary



**Carry Through and Reapplication**

Phase 1: There were 3 reapplications in Round 24 which are recommended for funding.

Phase 2: There were 5 Phase 2 applicant that previously received Phase 1 funding. Four of the 5 applicants are recommended for funding. The fifth is encouraged to reapply.

There were three Phase 2 reapplications, one was a second time applicant and two applied for the third time. All three applications are recommended for funding.

## 5) Recommendations

As is shown in Figure 2, the majority of proposals are in Biomedical/Life Sciences. The same pattern is noted in the previous four TVSF rounds. It is encouraging to see more applications from other Third Frontier Technology areas in this Round. It is still recommended that active outreach efforts be developed 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 7 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 evaluator for CALF, TIP and IOF loan programs for over a decade.

The four 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 four principal team members used in this evaluation Round.

#### John McArdle

- BE, Manhattan College, MS, Northeastern University, Chemical Engineering
- MBA, Finance / International Business, University of Chicago (Booth School of Business)

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- 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
- Adjunct professor – Ohio State University Fisher School of Business

### **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 10 years as an angel investor in technology-based startups
- Over 10 years as an evaluator for Ohio Third Frontier funds including IOF, CALF and TIP
- Over 6 years teaching market and business analytics to STEM graduate and post doc students.

### **Bhima Vijayendran**

- BS, University of Madras, MS, University of Madras, PhD, University of Southern California in Polymer and Surface Science, MBA, University of New Haven
- 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 3<sup>rd</sup> 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.

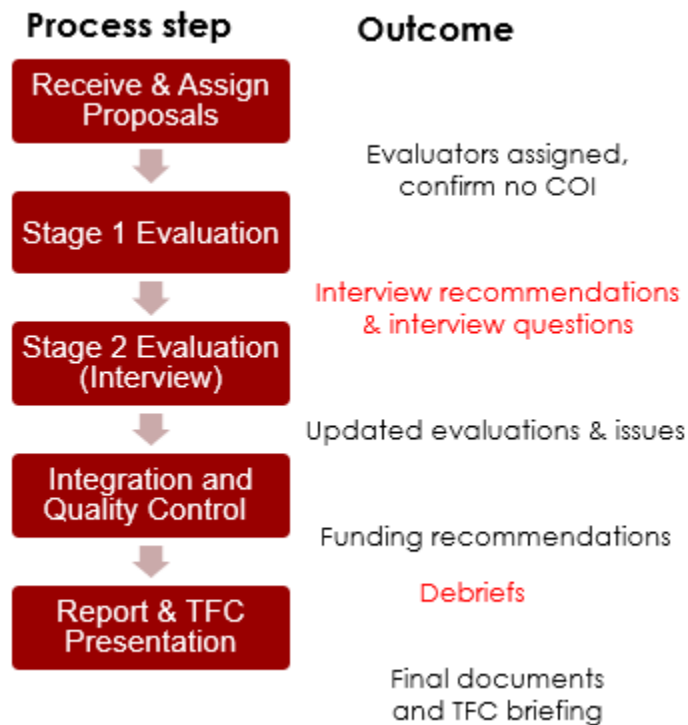
Based upon these goals, the proposal evaluation criteria were developed. The proposals were then evaluated based on the criteria.



## 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.

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**Stage 2 Evaluations (Interviews)** The standard procedure for this step is: In-person, 45-minute interviews were held with each invited applicant to discuss the advance questions plus other topics of interest to the evaluators. Two Redwood team members participated in the interviews in person with additional team members joining via conference call. However, due to Covid-19, interviews in this round were held via Zoom video conference call interviews.

**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 3 <sup>rd</sup> 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?

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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 / License	15	Is IP adequately protected, does it enable the business model, is it differentiated from likely competition, is license likely within 9 months?
Compelling 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?
Start-up in Ohio	5	Does a start-up exist or is it planned? Will the start-up be in Ohio?
ESP Interaction	5	Is team engaged with ESP? Has team incorporated feedback from ESP into the project, proposal or business plan?