



**Development
Services Agency**

John R. Kasich, Governor

David Goodman, Director



Third Frontier
Innovation Creating Opportunity

www.OhioThirdFrontier.com

Commission Meeting

October 8, 2014

Agenda

11:30	Call to Order Approve 9/17/2014 Meeting Minutes	David Goodman (Chair)
11:40	Innovation Platform Program (Vote)	Paul Jackson/ National Academies
12:20	Technology Validation & Start-up Fund Awards (Vote)	Paul Jackson/ YourEncore
12:50	Other Business	All
1:00	Adjourn	

Innovation Platform Program

Purpose

To link the development and innovation capabilities and capacities of an already established **Innovation Platform** at an Ohio college or university or not-for-profit research institution to specific late stage development and innovation needs of Ohio client companies

***Innovation Platform** – an already existing capacity that incorporates unique technology capabilities and strengths, talent, equipment, facilities, engaged industry partners, a track record of research commercialization and innovation, intellectual property, and other resources in a particular technology area that collectively can serve as a vehicle for significant, industry-defined and directed opportunities through the development and commercialization of new products and innovations*

Program Basics

- **Lead Applicants** - Ohio colleges or universities or an Ohio not-for-profit public or private research institution. Proposals must include collaboration with at least three or more Ohio for-profit companies as clients of the platform.
- **Funding**
 - \$21 million available (CY14)
 - Award range of \$1 – \$3 million
 - 1:1 cash cost share, at least half of which must come from Ohio client companies
- **External Evaluator** - National Academies of Science

Changes for 2014

- **Mandatory Bidder's Conference AFTER Letters of Intent**
- **Significant Engagement with Applicant Teams**
- **Increased Minimum Number of Clients to 3**
- **Allowed Prior IPP Awardees**
- **Created a Dedicated "Resubmission" Section for Resubmitted Proposals**

CY2014 Proposals

- 9 proposals submitted - 9 interviewed - 5 recommended (**green**)
- Proposals spanned 5 technology focus areas:
 - *Advanced Materials* (4) **(2)**
 - *Medical Technology* (4) **(2)**
 - *Shale* (1) **(1)**
 - *Fuel Cells & Energy Storage* (1)
 - *Sensing/Automation* (1) **(1)**
- Applicant institutions:
 - *Ohio State University* (1) **(1)**
 - *Cleveland Clinic* (3) **(1)**
 - *National Composites Center* (1)
 - *Ohio University* (1) **(1)**
 - *University of Akron* (3) **(2)**

Review of Proposals to Ohio's Third Frontier Program, 2014-2015:

Innovation Platform Program (IPP) 2014

The National Academies
October 8, 2014

Substantial Difference in Review Process in 2014 Compared to Previous Years

First meeting: July 21-23, 2014—Questions sent to all nine proposal teams requesting additional information.

Second meeting: September 8-9, 2014—All nine proposal teams interviewed at this time. Many were also asked for additional written information both prior to and after the interview process.

All proposal teams were given substantial opportunity to clarify and provide additional information at multiple stages of the review. In some cases it made the difference between them being selected or not selected.

The National Academies

- The National Academies bring together committees of experts in all areas of scientific and technological endeavors. These experts serve on a volunteer basis to address critical national issues.
- The National Research Council, which operates under the auspices of the National Academies, is committed to providing elected leaders, policy makers, and the public with expert advice based on sound scientific evidence.

Committee of 12 includes:

- Working engineers, scientists, inventors, academics, investors, and businessmen and women;
- 2 are CEOs or company presidents;
- 1 has venture capital experience;
- 2 are elected members of the National Academy of Engineering or the National Academy of Sciences;
- 10 have Ph.D.s (fields include: materials engineering, aeronautics and astronautics, physics, inorganic chemistry, mechanical engineering, immunoparasitology, electrical engineering, biological chemistry, biochemistry and economics,);
- 5 are professors at universities;
- 3 are department heads at universities or research laboratories;
- 4 are financial analysts;
- 1 has an M.B.A. and 1 is a Certified Public Accountant;
- Geographically diverse: members are from all over the United States;
- 3 are inventors for at least 10 patents;
- 9 have previously served on the 2013 IPP review.

Committee Membership

T. S. Sudarshan, *Chair*, CEO and President, Materials Modification, Inc.

Catherine G. Ambrose, Associate Professor of Orthopaedic Surgery,
Univ. of Texas

David E. Aspnes (NAS), Distinguished Professor, Dept. of Physics,
North Carolina State Univ.

Enrique Brito, Tatum, LLC-Merger and Acquisitions

Carol Cherkis, Life Sciences Industry Consultant, NewCap Partners

Bruce Gitter, Professor of Radiology and Imaging sciences, Indiana
University School of Medicine

Srinivas Iyer, Los Alamos National Laboratory

Jahan K. Jewayni, Independent Wealth Management Consultant

Shalini Prasad, Professor of Bioengineering, Univ. of Texas, Dallas

James C. Stevens, Dow Chemical Company

Norman A. Wereley, Professor and Chair of Aerospace Engineering,
University of Maryland

Jim Wheeler, Senior VP of Economic Competitiveness Policy and
Research, Thomas P. Miller and Associates

IPP Evaluation Criteria

Technical Merit & Plan

- Can the technical challenges be met?
- Are the project goals and objectives realistic?
- Does the proposal include a plan for sustainment beyond the 3-year time period?

Commercialization Strategy

- What are the specific value propositions of the different commercial applications?
- Is sufficient evidence provided to support the contention that the market values these benefits?
- Has the Innovation Platform already achieved at least proof of principle?
- How closely matched is the project with the existing or emerging supply chain's capabilities?

Performance Goals

- What is the project's impact on Ohio in job creation, personal wealth, new sales of products, and follow-on investment? Are the reported numbers realistic?
- How successful was the performance of the team on related prior OTF grants?

Experience and Qualifications

- Is leadership demonstrated in all critical phases of the proposal?
- Does the applicant team have the relevant experience to perform the work involved?

IPP Evaluation Criteria

Budget & Cost Share

- *Budget:*
 - Is the budget justified and adequate?
 - Will a supermajority of OTF funds remain with the lead applicant?
- *Cost Share:*
 - Is the cost share necessary and reasonable? Does a majority of the cost share come from the clients?
 - Does the cost share represent a specific new commitment, and is it in the form of cash?
 - Is the cost share being used directly in support of the Innovation Platform?
 - Is the cost share firmly committed, with no contingencies or conditions, from known sources and available to the Innovation Platform at the time of Proposal submittal?
- Does the proposal contain sufficiently detailed commitment letters, including an explanation of cost share commitment?

2014 IPP Proposals

23 Letters of Intent submitted, but only 9 actually proposed. Why?

- Increased coaching provided by ODSA may have deterred some applicants who were not appropriate for this specific program.
- Increased requirement for number of clients (i.e. commercial partners) from 2 to 3 may have prevented some teams from applying.

Special challenge for health-care related proposals.

- Because regulatory approval of biomedical products (known as “510(k) approval”) by the Food and Drug Administration (FDA) requires several years or more, the committee does not think that the IPP RFP-required timeline for delivery of jobs and revenues at years 3 and 5 is realistic for most medical proposals *unless they have already initiated discussions with the FDA and charted a course of action to get the necessary regulatory approval.*
- Unless they have already filed a q-sub and had an initial meeting with the FDA, their models may not be acceptable to the FDA.

Evaluation of Proposals

TMP	Technical Merit and Plan
CS	Commercialization Strategy
PG	Performance Goals
EQ	Experience and Qualifications
BCS	Budget and Cost Share

E	Exceeds Requirements of the RFP
M	Meets Requirements of the RFP
D	Does Not Meet Requirements of the RFP

Proposal (Lead Applicant)							
Recommended		R	TMP	CS	PG	EQ	BCS
14-322	Cleveland Clinic Rodent Imaging Center (Cleveland Clinic)	1	E	E	M	E	M
14-306	Akron Functional Materials Center (University of Akron)	2	M	M	M	E	M
14-317	Smart Sensor System Design, Development, and Commercialization (University of Akron)	3*	M	M	M	M	M
14-305	The OHIO Shale Platform (Ohio University)	4*	M	M	M	M	M
14-301	Carbon Nanomaterials Based Platform Technology (Ohio State University)	5*	M	M	M	M	M

***See conditions**

Interviewees Not Recommended						
Not Recommended		TMP	CS	PG	EQ	BCS
14-311	Materials Manufacturing Technology Hub (National Composites Center)	M	D	D	M	M
14-312	Scalable Nanomanufacturing of Functional Films (University of Akron)	D	M	D	E	M
14-319	Endovascular Technology Innovation Center (Cleveland Clinic)	M	D	D	M	D
14-320	Gene Reprogramming Therapeutics (Cleveland Clinic)	D	D	D	D	D

Recommended Proposals

Proposal (Lead Applicant)							
Recommended		R	TMP	CS	PG	EQ	BCS
14-322	Cleveland Clinic Rodent Imaging Center (Cleveland Clinic)	1	E	E	M	E	M

Goal

- Purchase, install, and multiple application development of a rodent MRI facility
- Commercialization of an integrated platform of rodent MRI imaging, image analysis, image validation services, MRI-based translatable biomarker discovery, and MRI-biomarker-based drug discovery efforts

Clients	State Funds By Client	Cost Share by Client
Renovo Biosciences	\$199,800	\$485,448
Renovo Neural	\$200,160	\$286,700
Juventas Therapeutics	\$200,400	\$228,000
ImageIQ	\$200,000	\$300,000
ChanTest	\$199,000	\$300,000

Budget			
	State Funds	Cost Share	Total
Operating	\$1,377,216	\$2,466,082	\$3,843,298
Capital	\$1,622,720	\$657,304	\$2,280,024
Total	\$2,999,936	\$3,123,386	\$6,123,322

Recommended		R	TMP	CS	PG	EQ	BCS
14-306	Akron Functional Materials Center	2	M	M	M	E	M
	(University of Akron)						

Goal

- Optimize multi-component materials
- Testing and optimization support of efforts to leverage existing materials and supply chains to accelerate commercialization of novel medical devices that address unmet needs and provide a competitive advantage
- Integrated clinical utility and regulatory assessment focused upon managing and accelerating the approval and commercialization processes

Clients	State Funds By Client	Cost Share by Client
PolyOne	\$300,000	\$600,058
Lubrizol	\$0	\$1,000,000
SNS NanoFiber	\$0	\$150,008
Viscus Biologics	\$0	\$150,545
Austen Bio	\$150,001	\$0

Budget			
	State Funds	Cost Share	Total
Operating	\$2,600,000	\$2,752,047	\$5,352,047
Capital	\$400,000	\$250,000	\$650,000
Total	\$3,000,000	\$3,002,047	\$6,002,047

Recommended		R	TMP	CS	PG	EQ	BCS
14-317	Smart Sensor System Design, Development, and Commercialization	3	M	M	M	M	M
	(University of Akron)						

Goal

- Develop sensor solutions in the areas of
 - Automobiles
 - Power grids
 - HVAC systems.

Clients	State Funds By Client	Cost Share by Client
Bendix	\$264,000	\$264,000
Exacter, Inc	\$336,500	\$501,500
Jacco & Associates	\$297,962	\$405,462

<u>Budget</u>			
	State Funds	Cost Share	Total
Operating	\$1,975,692	\$2,016,705	\$3,992,397
Capital	\$32,500	\$32,500	\$65,000
Total	\$2,008,192	\$2,049,205	\$4,057,397

Smart Sensor System Design, Development, and Commercialization (University of Akron)

- Recommended with conditions:
 - Bendix will not meet the RFP requirement because the product idea and evolution is still in the research stage and will need to be proven out to meet several metrics before it can be commercialized. This is unlikely to happen in the 3-year time frame. (Bendix representative indicated during the interview phase that 10 years was more likely.)
 - Eliminate Bendix from proposal, reducing State funds by \$264,000 (and Bendix cost share by \$264,000).

The committee suggests pursuing the smart grid and energy harvesting applications and recommends that the intelligent brake application be removed from the platform. The committee recommends that this proposal be considered for funds by the Ohio Third Frontier Innovation Platform Program if Bendix is eliminated, reducing the budget by \$528,000 (reducing the state funds by \$264,000, resulting in a state contribution of \$1,744,192).

Recommended		R	TMP	CS	PG	EQ	BCS
14-305	The OHIO Shale Platform (Ohio University)	4	M	M	M	M	M

Goal

- Expand the capabilities of Ohio University's existing innovation platform for shale wastewater treatment/ management to meet the increasing commercial needs for water management and re-use in unconventional oil/gas development
- Reduce wellhead development costs and mitigating water disposal issues.
- Provide wastewater treatment technologies and envisioned applications – such as heavy oil recovery, brown grease conversion and animal feeding operations wastewater treatment – an expedited development pathway to market entry

Clients	State Funds By Client	Cost Share by Client
Babcock & Wilcox	\$0	\$90,000
RF Advanced Technologies	\$0	\$1,000,000
Utility Technologies Int'l	\$0	\$50,000
Steel Warehouse	\$0	\$50,000
Watershed Management	\$0	\$50,000

<u>Budget</u>			
	State Funds	Cost Share	Total
Operating	\$2,396,000	\$1,430,000	\$3,826,000
Capital	\$84,000	\$1,050,000	\$1,134,000
Total	\$2,480,000	\$2,480,000	\$4,960,000

The OHIO Shale Platform (Ohio University)

- Recommended with conditions:
 - The committee strongly recommends that the issue of corrosion and materials of construction be identified and solved as soon as possible using the laboratory and bench-scale process equipment before all of the requested funding is released.

The committee recommends that this proposal be considered for funds under the Ohio Third Frontier Innovation Platform Program with conditions. In view of the significant uncertainties related to the selection and performance of materials of construction, the committee believes that this key barrier has to be overcome. As a result, the committee has reduced the funding to first provide the demonstration and testing of the piece of equipment and no funding beyond that amount. Furthermore, the committee recommends that the disbursement of state funds be made in tranches corresponding to the successful completion of project milestones as follows:

Project Milestone	OTF		Cost Share		Total
Pilot Unit Design	\$250,000		\$250,000		\$500,000
Pilot Unit Fabrication *	\$600,000		\$600,000		\$1,200,000
Pilot Unit Field Demonstration	\$600,000		\$600,000		\$1,200,000
Total	\$1,450,000		\$1,450,000		\$2,900,000

NOTE: * Including solving the materials of construction issue.

Recommended		R	TMP	CS	PG	EQ	BCS
14-301	Carbon Nanomaterials Based Platform Technology	5	M	M	M	M	M
	(Ohio State University)						

Goal

- Develop a group of new foam, coating and composite products for industrial applications using well-established innovative carbon nanomaterials and the associated processing platform

Clients	State Funds By Client	Cost Share by Client
OCF	\$200,000	\$400,000
OMNOVA Solutions	\$200,000	\$400,000
GDC	\$200,000	\$400,000
Engineering Mechanics	\$200,000	\$400,000
NIL	\$200,000	\$200,000

Budget			
	State Funds	Cost Share	Total
Operating	\$2,836,000	\$3,000,000	\$5,836,000
Capital	\$164,000	\$0	\$164,000
Total	\$3,000,000	\$3,000,000	\$6,000,000

Carbon Nanomaterials Based Platform Technology 1 (Ohio State University)

- Recommended with conditions:
 - Structural Foams: Insufficient preliminary test data was provided to substantiate the strength / modulus / fatigue augmentation resulting from dispersion of nanoparticles at the proposed particle volume fractions. The nanoparticles will introduce inclusions that degrade fatigue resistance, especially in tensile bending which is commonplace in wind turbine blades. The proposal team was asked to clarify this both at the interview and in a follow-up request sent after the interview and did not provide sufficient data at either opportunity. Based on these oversights on critically important mechanical properties, the structural foam component does NOT meet the requirements of the RFP.
 - Bio-nanocomposites: The bio-nanocomposites component of this work has not been explained in sufficient detail to enable the assessment of technology benefits, mechanical properties, and the potential success of biocomposites products or processes. These sections of the proposal are vague and seem to be an afterthought. Based on this lack of justification, it is not recommended that this task area be funded.

Carbon Nanomaterials Based Platform Technology 2 (Ohio State University)

It is not recommended that the bio-nanocomposites or the structural foam activities move forward. This means that the Budget Form 2C (GDC) state-funded expenditures (State \$200,000) and Form 2D Engineering Mechanics (State \$200,000) should both be eliminated. In addition, the committee estimates that approximately \$400,000 going to the Lead Applicant is for these activities and should also be eliminated for a total reduction in State funds of \$800,000. This reduction also makes the proposal consistent with the RFP's requirement of a 1:1 Cost Share ratio.

The committee recommends that this proposal be considered for funds under the Ohio Third Frontier Innovation Platform Program, except that the structural foam and bio-nanocomposites components of the proposal should be eliminated. The committee recommends that the maximum amount of Ohio funding be limited to \$2.2 million.

Final Remarks

- Total state funds requested by the 5 proposals: \$13,488,128 (or \$11,394,128 if the recommended changes are followed)
- The remaining 4 proposals, when ranked against the RFP's criteria and requirements, scored significantly lower than the recommended 5

Thank You!

The National Academies would like to thank the State of Ohio for placing its trust in our process and in our outstanding volunteer committee members.

QUESTIONS?

Interviewees
Not Recommended

Not Recommended		TMP	CS	PG	EQ	BCS
14-311	Materials Manufacturing Technology Hub	M	D	D	M	M
	(National Composites Center)					

Goal

- Introduce new processing and manufacturing practices, to commercialize products and services primarily in the area of reclaimed carbon fiber products to meet the needs of Ohio based high-tech manufacturers in a number of industries
- Incorporate reclaimed carbon fiber into traditional composite processes, as well as recycling for thermoplastic composites

Clients	State Funds By Client	Cost Share by Client	Clients	State Funds By Client	Cost Share by Client
Airbus	\$0	\$600,000	CRI	\$0	\$42,500
Siemens	\$0	\$533,974	Cannon	\$0	\$100,000
Atlas	\$0	\$250,000	EWI	\$0	\$30,000
Adisco Inc	\$294,000	\$201,000	Techsolve	\$0	\$30,000
Renegade	\$250,000	\$75,000	GrafTech	\$0	\$250,000
Nanosperse	\$195,000	\$68,882	Argonne Nat'l Lab	\$0	\$150,000

<u>Budget</u>			
	State Funds	Cost Share	Total
Operating	\$2,587,000	\$1,437,051	\$4,024,051
Capital	\$125,000	\$1,274,949	\$1,399,949
Total	\$2,712,000	\$2,712,000	\$5,424,000

Not Recommended		TMP	CS	PG	EQ	BCS
14-312	Scalable Nanomanufacturing of Functional Films	D	M	D	E	M
	(University of Akron)					

Goal

- Use electric, magnetic and thermal gradient fields to organize and orient minor phases (polymers, nanoparticles, copolymer phases) in the thickness direction of a flexible film at demonstration commercial scale
- Develop commercial scale R2R solutions that enhance the performance of films and membranes

Clients	State Funds By Client	Cost Share by Client
KRATON	\$0	\$900,000
PolyOne	\$253,516	\$600,000
Stratum Energy	\$97,826	\$225,000
FLEXcon	\$0	\$150,000

<u>Budget</u>			
	State Funds	Cost Share	Total
Operating	\$2,535,749	\$3,301,596	\$5,837,345
Capital	\$464,000	\$260,000	\$724,000
Total	\$2,999,749	\$3,561,596	\$6,561,345

Not Recommended		TMP	CS	PG	EQ	BCS
14-319	Endovascular Technology Innovation Center	M	D	D	M	D
	(Cleveland Clinic)					

Goal

- Achieve the technology improvements, testing and validations, and manufacturing optimizations that will make the Intra-Operative Positioning System and its sensor-equipped guide wires and catheters ready for commercialization

Clients	State Funds By Client	Cost Share by Client
CENS	\$826,785	\$1,046,785
ImagelQ	\$160,000	\$115,000
Hileman	\$50,000	\$62,500
Steris	\$180,000	\$200,000

<u>Budget</u>			
	State Funds	Cost Share	Total
Operating	\$2,828,135	\$3,228,417	\$6,056,552
Capital	\$0	\$0	\$0
Total	\$2,828,135	\$3,228,417	\$6,056,552

Not Recommended		TMP	CS	PG	EQ	BCS
14-320	Gene Reprogramming Therapeutics	D	D	D	D	D
	(Cleveland Clinic)					

Goal

- Commercialize novel epigenetic therapeutics and companion diagnostics for precision clinical applications in multiple biomedical domains, including regenerative, oncology and general internal medicine
- Achieve FDA approval and market entry for the technology platform in the disease indication of myeloproliferative neoplasm (MPN) within 3 years

Clients	State Funds By Client	Cost Share by Client
Pivot Drug, Inc	\$495,000	\$502,290
CompDx	\$497,520	\$505,080
NectAu, Inc	\$498,600	\$508,939

Budget			
	State Funds	Cost Share	Total
Operating	\$2,999,520	\$3,091,354	\$6,090,874
Capital	\$0	\$0	\$0
Total	\$2,999,520	\$3,091,354	\$6,090,874

Committee Process

Committee Membership

- Committee members were recruited based on technical expertise as well as experience with business practices, technology transfer, venture capital, and economic development.
- Bias and Conflict of Interest
 - Potential members reviewed full list of participating institutions and collaborators before nomination
 - After nomination, each member completed bias and conflict forms which were reviewed by NRC staff and discussed by the committee

Technology Validation & Start-up Fund Program

Technology Validation & Start-up Fund Program

Purpose

- Support Ohio institutions of higher education and other Ohio not-for-profit research institutions in doing a better job at licensing and monetizing their technological discoveries.
- Create economic growth in Ohio based on start-up companies that license and commercialize technologies developed by Ohio institutions of higher education, other Ohio not-for-profit research institutions and federal labs located in Ohio.

Technology Validation & Start-up Fund Program

- **Lead Applicants/Phases:**

Phase 1 – Technologies developed at Ohio research institutions needing additional validation/proof before an Ohio start-up company will license. Up to \$50,000 w/ 1:1 cash cost share.

Phase 2 – Ohio start-ups and young companies that are a prospective licensee of a technology from an Ohio institution. Up to \$100,000 as initial capitalization w/ no cost share.

- **External Evaluator:** YourEncore

Technology Validation & Start-up Fund Program

- 7th Cycle of the TVSF program. To date, including this cycle:
 - Phase 1 proposals - 139 Phase 1 awards - 59
 - Phase 2 proposals - 98 Phase 2 awards - 40
- To date, 13 Phase 1's and 8 Phase 2's are complete
 - Including this cycle: 5 Phase 1's have received a Phase 2 award
- Staff and Evaluators continued mandatory TVSF debriefs for proposals not recommended in Cycle 6
- Current cycle
 - 28 proposals w/ 16 recommended for award
 - 13 proposals are re-submits, of which 9 are recommended



Innovative Results through Proven Expertise

Technology Validation and Start Up Fund-Round 7

4350 Glendale-Milford Rd., Suite 110
Cincinnati, OH 45242
www.yourencore.com

P: 513.794.9777
F: 513.794.9781

Overview

- 57% of grants submitted this round recommended for approval (16 of 28). Total grant dollars recommended is \$1,100,000

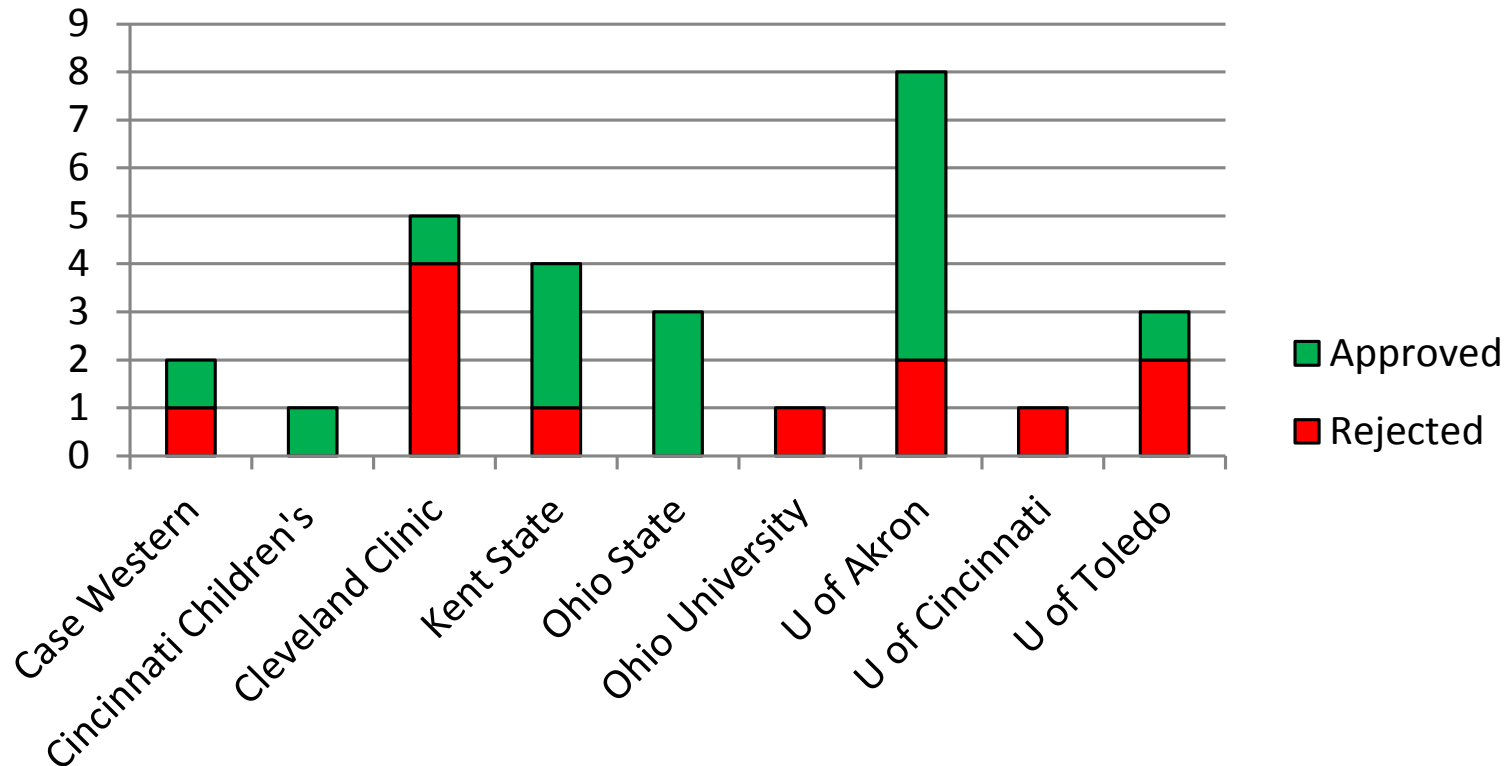
Round	Approval Rate	\$\$ Recommended
1	35%	\$950,000
2	52%	\$900,000
3	44%	\$610,000
4	30%	\$864,000
5	46%	\$1,462,000*
6	39%	\$998,000
7	57%	\$1,100,000

- Proposal quality varied broadly
 - *However, submissions this round were of higher quality than last round*
- Continue to encourage potential resubmissions to take advantage of the opportunity to debrief
 - *It was evident that many benefited from the discussion*
 - *Resubmission success rate was 69%*

**Note: \$100K conditional award for 13-541 in round 5 has been superseded by 14-524 this round for the same amount*

Overview

■ Round 7 Results: Applications by Institution



Trends

■ Phase 1

- *Strong with Plan timeline and 3rd Party Review*
- *Primary opportunities for improvements were in Path to Market, Proof Generation, IP Protection, and Use of Funds*
 - Lack of meaningful and/or measureable proof end points
 - Path to Market undefined or missing value proposition, or was subject to significant competitive pressures
 - Missing or nascent IP protections

■ Phase 2

- *Strong with Plan timeline, Funding potential, Company Backing, IP, Market Opportunity, and Licensing of technology*
- *Primary opportunities for improvement are Business Model and Team*
 - Business Models lacked financial robustness and market focus
 - Teams lacked participants with business expertise

Resubmission and Carry Through

Round 7

■ Resubmission

— *Phase 1*

- Six of 18 (33%) Phase 1 proposals are resubmissions
- Four of those Six (67%) are Recommended for Funding

— *Phase 2*

- Seven of 10 (70%) Phase 2 proposals are resubmissions
- Five of those seven (71%) are Recommended for Funding

■ Carry Through

— *Three of 10 (30%) Phase 2 proposals were previous Phase 1 awardees*

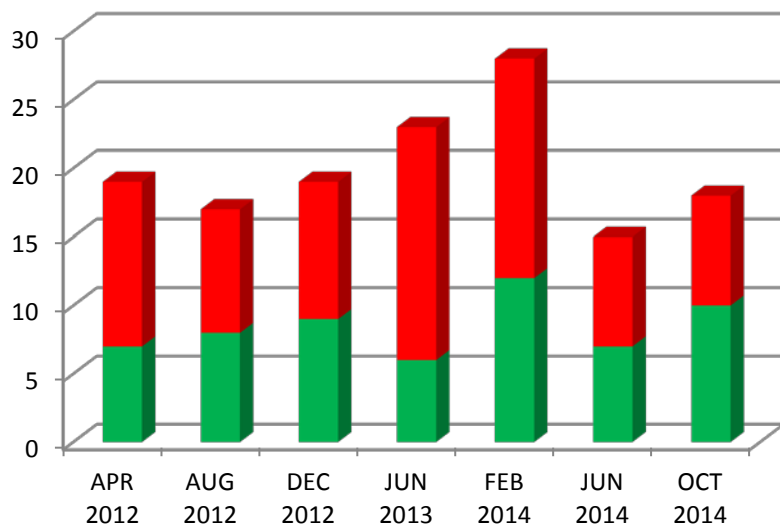
- All three (100%) are Recommended for Funding in this round

Trends

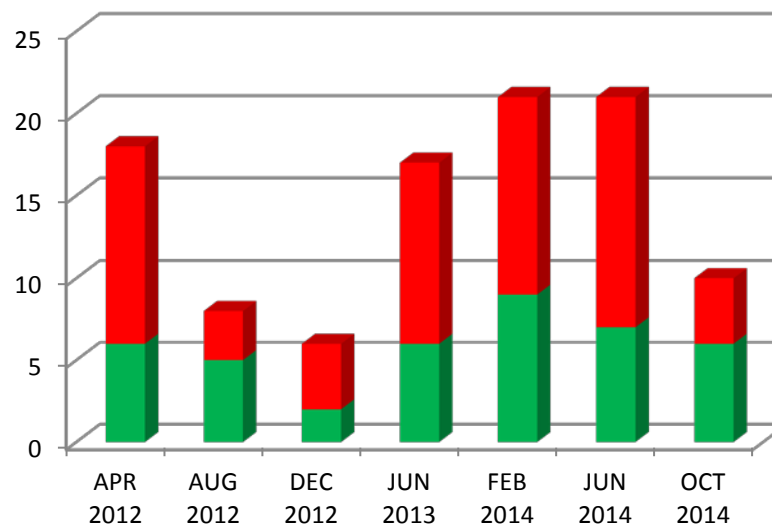
Comparative Results (all rounds to date)

Rounds 1 – 7 Results

Phase 1 Applications



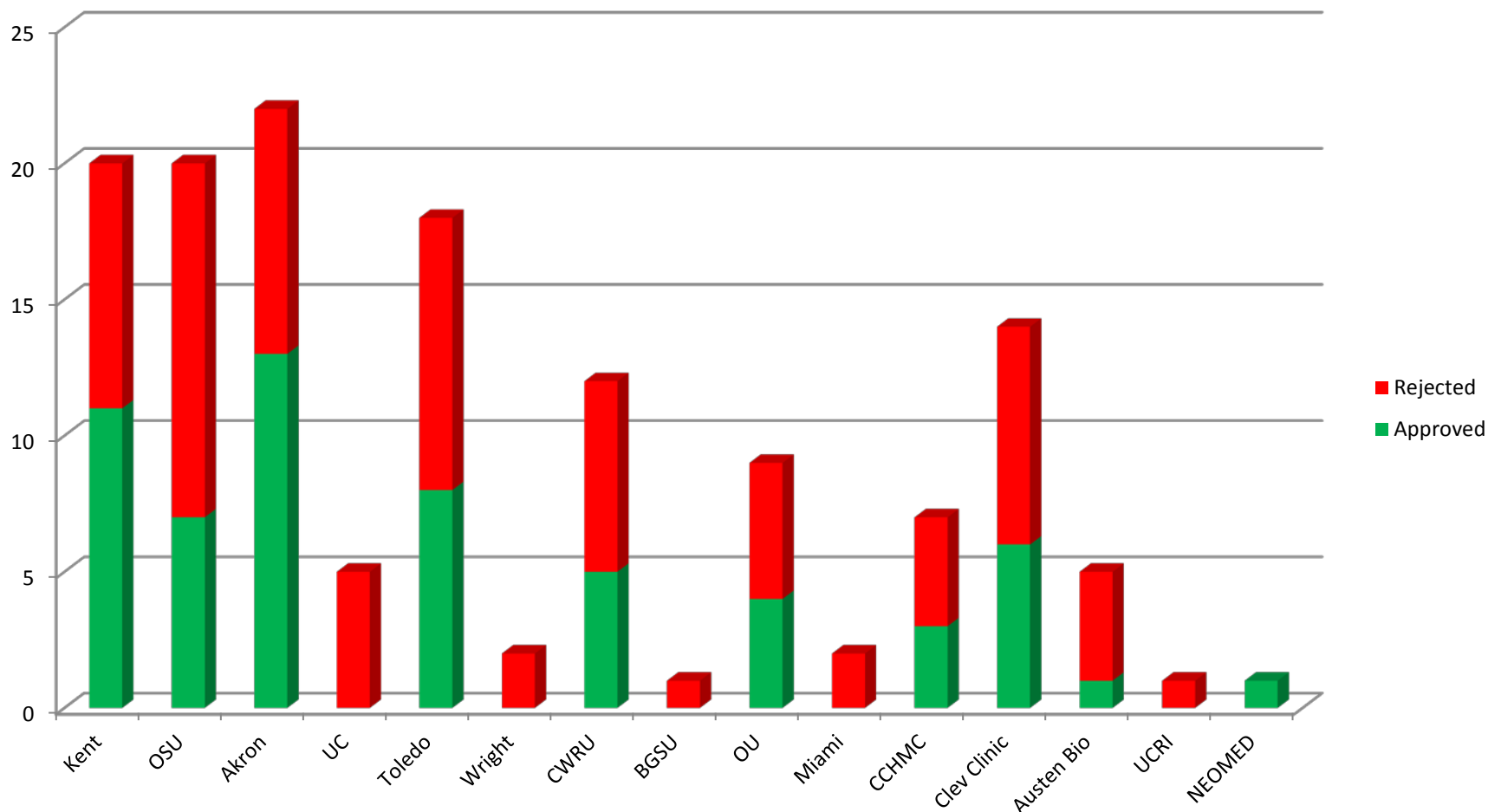
Phase 2 Applications



Trends

Cumulative Results – Phase 1 (all rounds to date)

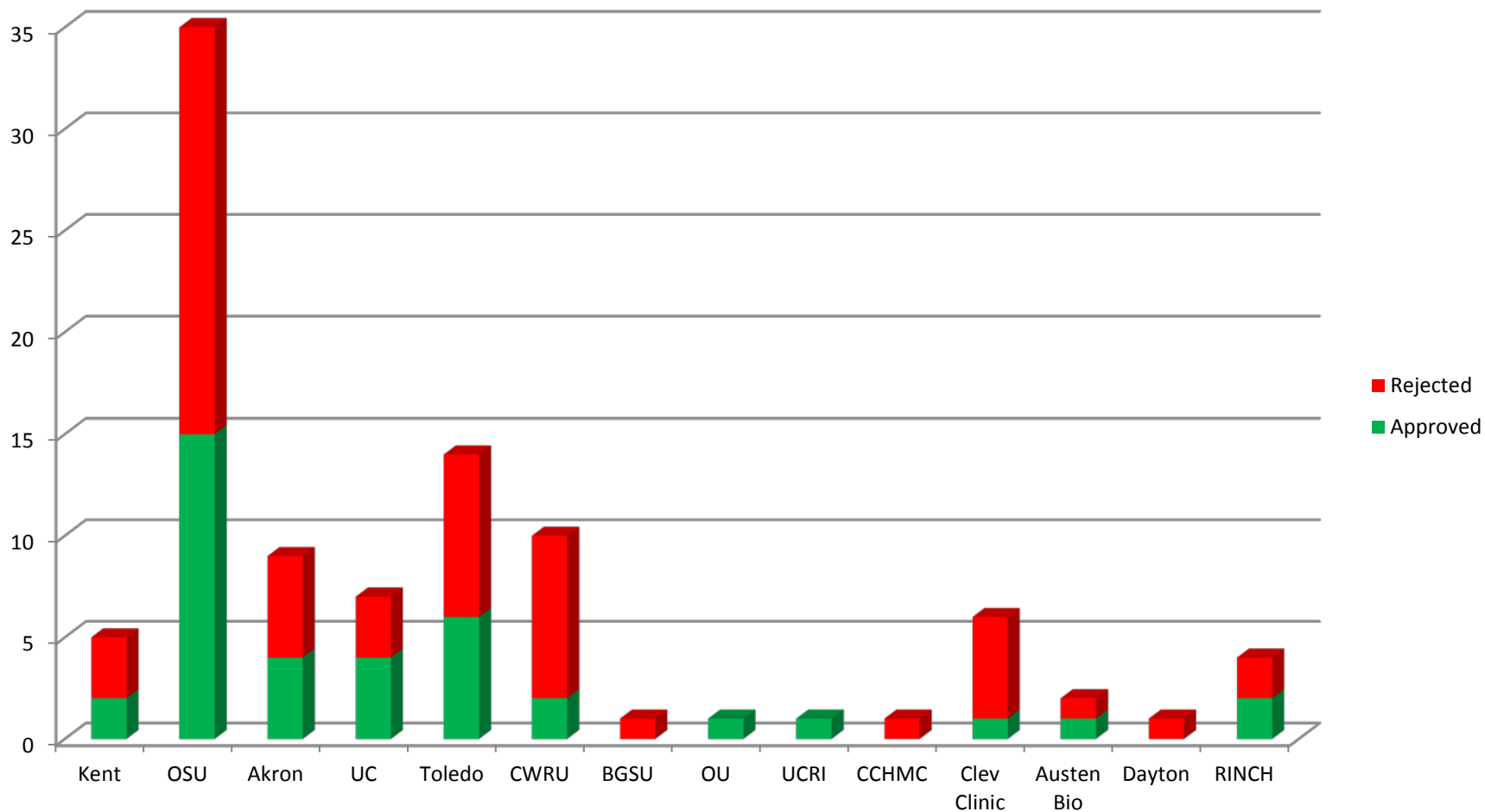
Phase 1 Approved/Rejected by Institution



Trends

Cumulative Results – Phase 2 (all rounds to date)

Phase 2 Approved/Rejected by Institution



Phase I

Summary of Recommendations

PROPOSAL #	Licensing Institution	PROJECT TITLE	Generation of Proof to be Licensed	Project Plan / Team (1 Year)	Independent 3rd Party Review	Reasonable Path to Mkt	IP Protection	Start-up in Ohio	Market Opportunity / Size	Budget Narrative / Use of Funds
14-501	Cincinnati Children's Hospital	Human Assisted Needle Delivery System								
14-502	University of Akron	Rare-Earth-Material-Free Multiphase Electric Machine (FMEM) for Low Power Applications								
14-503	University of Akron	Integrated Imaging Goggles for Guiding Basal-cell Carcinoma Surgeries								
14-504	University of Akron	Transparent Conductive Coating for Flexible Electronics								
14-509	Kent State University	Polarizing Waveguide Plate for Liquid Crystal Displays								
14-510	University of Akron	Additively Manufactured Prosthetic Socket Cooling System								
14-512	Kent State University	Bistable Light Modulator for Light Extraction in OLED Device Applications								
14-515	University of Akron	Akron Fast Fourier Transform (FFT)								
14-516	The Cleveland Clinic Foundation	Autism Spectrum Disorder								
14-518	The Ohio State University	KAir Battery								

Phase I

Summary of Recommendations

PROPOSAL #	Licensing Institution	PROJECT TITLE	Generation of Proof to be Licensed	Project Plan / Team (1 Year)	Independent 3rd Party Review	Reasonable Path to Mkt	IP Protection	Start-up in Ohio	Market Opportunity / Size	Budget Narrative / Use of Funds
14-505	University of Toledo	Ring-closing metathesis approach for conversion of oleic acid to Nylon 11-13								
14-506	University of Toledo	Injectable Macroporous Bone Growth Substitute								
14-507	Kent State University	Low-Cost Electrically Tunable Color Filter with Wide Tuning Range								
14-508	Case Western Reserve University	NeuroRadVision™: Decision Support Toolkit to reduce unnecessary surgical interventions for brain tumors								
14-511	University of Akron	Active clamp injection technology for health-monitoring of electric conducting cables								
14-513	Ohio University	Intelligence for Diabetes Support System (I4DSS)								
14-514	The Cleveland Clinic Foundation	Bronchial Stent								
14-517	The Cleveland Clinic Foundation	Sleep Apnea								

Phase 1 Proposals Recommended for Funding

Proposal #	Lead Applicant	Title	State Funds Requested	Total Budget	Recommend
14-501	Cincinnati Children's Hospital Medical Center	<i>Human Assisted Needle Delivery System</i>	\$50,000	\$100,000	\$50,000
14-502	University of Akron	<i>Rare-Earth-Material-Free Multiphase Electric Machine (FMEM) for Low Power Applications</i>	\$50,000	\$100,000	\$50,000
14-503	University of Akron	<i>Integrated Imaging Goggles for Guiding Basal-cell Carcinoma Surgeries</i>	\$50,000	\$100,000	\$50,000
14-504	University of Akron	<i>Transparent Conductive Coating for Flexible Electronics</i>	\$50,000	\$100,000	\$50,000
14-509	Kent State University	<i>Polarizing Waveguide Plate for Liquid Crystal Displays</i>	\$50,000	\$100,000	\$50,000
14-510	University of Akron	<i>Additively Manufactured Prosthetic Socket Cooling System</i>	\$50,000	\$100,000	\$50,000
14-512	Kent State University	<i>Bistable Light Modulator for Light Extraction in OLED Device Applications</i>	\$50,000	\$100,000	\$50,000
14-515	University of Akron	<i>Akron Fast Fourier Transform (FFT)</i>	\$50,000	\$100,000	\$50,000
14-516	The Cleveland Clinic Foundation	<i>Autism Spectrum Disorder</i>	\$50,000	\$100,000	\$50,000
14-518	The Ohio State University	<i>KAir Battery</i>	\$50,000	\$100,000	\$50,000

Phase II

Summary of Recommendations

PROPOSAL #	Licensing Institution	Lead Applicant	PROJECT TITLE	Proof	Project Plan (one year)	Likelihood of Additional Funds at project end	Team	Business Model	Company Backing	IP Protection	Opportunity / Mkt. Size	Budget / Use of Funds	Start-up in Ohio	License with Ohio Institution
14-520	Case Western Reserve University	Miach Medical Innovation, Inc.	Novel, Cost-effective, Smart Feeding Tubes											
14-521	Kent State University	iRxReminder LLC	iLidRx: Interoperating Medication Container for mHealth Management of Chronic Illnesses											
14-522	University of Akron	Akron Ascent Innovations LLC	Bio-Inspired Reusable Adhesives Using Scalable Electrospinning Techniques											
14-524	Ohio State University	QuTel, Inc.	Quantum Tunneling Electronics for Ultra-Low Power Electronics											
14-525	University of Toledo	OsteoNovus, Inc.	Improving Bone Graft Technology											
14-527	The Ohio State University	Rekovo, LLC	Synaptic Arts											

Phase II

Summary of Recommendations

PROPOSAL #	Licensing Institution	Lead Applicant	PROJECT TITLE	Proof	Project Plan (one year)	Likelihood of Additional Funds at project end	Team	Business Model	Company Backing	IP Protection	Opportunity / Mkt. Size	Budget / Use of Funds	Start-up in Ohio	License with Ohio Institution
14-519	Cleveland Clinic Foundation	IntelliRod Spine	Wireless Spine Load Sensor											
14-523	University of Akron	Cratus, LLC	Ultra High Energy Density Nanocomposite Capacitor											
14-526	Cleveland Clinic Foundation	SportSafe, LLC	Intelligent Mouthguards for concussion monitoring and injury prevention in youth and adult contact sports											
14-528	University of Cincinnati	Xanthostat Diagnostics, Inc.	Bilistat™ I Clinical Trial											

Phase II

Summary of Recommendations

PROPOSAL #	Licensing Institution	Lead Applicant	PROJECT TITLE	Proof	Project Plan (one year)	Likelihood of Additional Funds at project end	Team	Business Model	Company Backing	IP Protection	Opportunity / Mkt. Size	Budget / Use of Funds	Start-up in Ohio	License with Ohio Institution
14-427	University of Cincinnati	Xanthostat Diagnostics, Inc.	Develop Balistat II & 5 Unit Clinical Trial											
14-428	Ohio State University	QuTel, Inc.	Quantum Tunneling Electronics for Ultra-Low Power Electronics											
14-429	University of Toledo	Integrated Solar, LTD	Maximum Power Point Tracker to Interface BIPV to DC Lighting											
14-430	The Ohio State University	Rekovo, LLC	Synaptic Arts											
14-432	The University of Toledo	OsteoNovus, Inc.	Improving Bone Graft Technology											
14-433	Case Western Reserve University	ProImage Diagnostics, LLC	PTPmu Molecular Imaging Probes Identify Cancer Cells During Surgical Resection of Tumors											
14-435	Nationwide Children's Hospital Research Institute	GenomeNext	GenomeNext: Cloud Genomic Analysis solution											

Phase 2 Recommendations for Funding

Proposal #	Lead Applicant	Licensing Institution	Proposal Title	State Funds Requested	Total Project Budget	Recommended
14-520	<i>Miach Medical Innovation, Inc.</i>	<i>Case Western Reserve University</i>	<i>Novel, Cost-effective, Smart Feeding Tubes</i>	\$100,000	\$120,000	\$100,000
14-521	<i>iRxReminder LLC</i>	<i>Kent State University</i>	<i>iLidRx: Interoperating Medication Container for mHealth Management of Chronic Illnesses</i>	\$100,000	\$200,000	\$100,000
14-522	<i>Akron Ascent Innovations LLC</i>	<i>University of Akron</i>	<i>Scalable Electrospinning Techniques</i>	\$100,000	\$100,000	\$100,000
14-524	<i>QuTel, Inc.</i>	<i>Ohio State University</i>	<i>Quantum Tunneling Electronics for Ultra-Low Power Electronics</i>	\$100,000	\$100,000	\$100,000
14-525	<i>OsteoNovus, Inc.</i>	<i>University of Toledo</i>	<i>Improving Bone Graft Technology</i>	\$100,000	\$113,000	\$100,000
14-527	<i>Rekovo, LLC</i>	<i>The Ohio State University</i>	<i>Synaptic Arts</i>	\$100,000	\$100,000	\$100,000



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