



National
Science
Foundation



ILO Summit

Autumn 2024



Held in Alexandria, VA
September 11-12, 2024

Annual ILO/SPI Summit – 2024

Location

Catholic Charities USA Building at 2050 Ballenger Ave #400 in Alexandria, VA (across from the Biennial Westin Hotel)
Room: O'Grady Conference Center

Dates

Wednesday, Sept 11 – Thursday, Sept 12, 2024 (immediately following the 2024 ERC Biennial Meeting)

Planning Committee

Owen Doyle, Chris Finberg, Don Linford, Scott Ransom (chair)

Synopsis

The Planning Committee held conference calls and exchanged emails to gather agenda topics, assign discussion leaders/presenters to each topic and refine the schedule. Each topic was also assigned an “Owner” – a member of the planning committee charged with ensuring presenters were selected and coached for that topic and any needs (flip charts, etc) were identified prior to the event. The team communicated progress and solicited input during ILO Working Group calls leading up to the Summit. Some form of this strategy has been successfully used for ILO Summit planning for over a decade.

The agenda was organized around three high level sections as follows: 1) Embracing the new Gen4 ERCs and other recent ILO additions to the group; 2) Focusing on Stakeholder Engagement, a core objective for not only Gen4 but also maturing Gen3 centers, and 3) Sustainability, which has become a key focus for ERCs regardless of their maturity.

To that end, a panel conversation was crafted to discuss sustainability and share examples of successful ERCs. This has been successful in previous Summits. Messaging and Networking was also highlighted, not only in a session format but also through breaks and working meals as well as a team dinner.

The attendees also participated in two breakout sessions during the Biennial meeting, where they heard from NSF leadership the importance of innovation and sustaining, two important components of the ILO role, as well as discussed best practices for Innovation Ecosystems at ERCs. Notes from this best practice session are included herein, with the intention that they may be used in crafting updates to the Best Practices Manual.

In previous years, the NSF provided funds to pay for the retreat costs as well as much of the travel expense for attendees. Since the Summit this year was adjacent to the ERC Biennial meeting, funds budgeted for ILO expenses by each Center for that meeting would be applied to the Summit. ASEE coordinated the Biennial meeting as well as the ILO Summit, covering the costs of the venue and supplies.

The Planning Committee implemented several best practices for meeting logistics. For example, it is important to have at least an informal gathering the evening before the Summit and to have several people involved the morning of the Summit to help gather and direct the attendees. This was facilitated by having the Biennial meeting just prior to the Summit, as well as sending detailed logistics information to all the attendees including the room layout and location. Even so, it was helpful to have a planning committee member in the lobby the morning of to help direct people. Further, it is extremely helpful to obtain cell phone numbers for attendees to facilitate last minute contact. These strategies proved to be extremely helpful in managing this Summit.

The goal of the Planning Committee was to have as many people as possible involved in the meeting whether presenting or assisting in some manner. The ILO group will easily engage in extended and meaningful discussions so the guideline for each speaker was to plan for about 50% presentation and 50% discussion in the allotted time. This fostered significant and beneficial discussion. We also adopted feedback from previous Summits, where ILOs asked for a reduced list of topics in favor of more time to discuss each topic. This Summit did just that, though we found we were ending early for some topics. Two attendees later suggested that if we went longer on the first day we could perhaps depart that night rather than staying a second day. Future Summits will have to consider whether this is possible.

Agenda

	Time	Topic	Moderators / Presenters
Day 1 Wednesday Sept 11	8:30am	Networking Breakfast and Welcome	Scott Ransom
	9:00am	ERC Round Robin Brief introductions of centers – center description, ILO/SPI background, one win/one challenge, fun fact	All ILO/SPI's – 2 min each
	10:00am	Break	
	10:15am	Sustainability Panel The Changing IAB Landscape & value proposition pre- & post-graduation Part I: CPES Example Part 2: Panel Discussion	Chris Finberg (Mod) Ravi Chilukuri Schaeffer Grimm Silvia Mioc Dennis Grove
	12:00pm	Networking Lunch	
	1:00pm	Stakeholder Management: Mini Topic Sessions <ul style="list-style-type: none"> • Software Support Options <ul style="list-style-type: none"> ○ CRM Software Options ○ Tracking Center Alumni • Student Engagement <ul style="list-style-type: none"> ○ Internship Opportunities ○ Innovation Ecosystem • Membership Management 	Moderators: John Hartnett Owen Doyle Don Linford
	2:30pm	Center Messaging Crafting center narrative and networking to communication value propositions	Moderator: Don Linford
	5:00pm	Group Dinner: Ted's Montana Grill	10min walk
	Day 2 Thursday	8:30am	Working Breakfast Discussion on Mentor Matching & BioBook
9:30am		Open Forum Floor open for any/all discussion topics	Owen Doyle

Sept 12	11:00am	Networking Lunch	
	12:00pm	Adjourn	

Attendee Roster

Name	ERC / Institution	email
Carla Pavone	ATP-Bio	pavo0003@umn.edu
Alireza Shibani	CQN	alireza.shabani@gmail.com
Dmytro Pokhylko	Center for Smart Streetscapes (CS3)	dp2992@columbia.edu
Andrew Smyth	Center for Smart Streetscapes (CS3)	smyth@civil.columbia.edu
Eric Willman	NEWT	ew57@rice.edu
Nikki Riojas	CASFER	nriojas@ttu.edu
Alex Bandar	HAMMER	bandar.3@osu.edu
Don Linford	ASPIRE	Don.linford@usu.edu
Anurodh Tripathi	PreMier	anurodh.tripathi@duke.edu
Ibrahim Mohedas	PreMiEr	Ibrahim.mohedas@duke.edu
Owen Doyle	POETS	odoyle@illinois.com
Steven Weiner	IoT4Ag	ssweiner@upenn.edu
John Hartnett	Cell-Met	johnhart@bu.edu
Scott Ransom	CMaT	scott.ransom@gatech.edu
Chris Finberg	PATHS-UP	chrisfinberg@tamu.edu

Summit Photos





Session Notes

ILO Breakout during Biennial ERC Meeting: IE Best Practices

**2024 NSF ERC BIENNIAL MEETING:
ROLE-BASED BREAKOUT COLLABORATIVE WORKSHEET**

Group: ILOs

Facilitator: Scott Ransom

Best Practices Manual: [Chapter 5](#)

PART 1: SHARING SUCCESSES, CHALLENGES, AND BEST PRACTICES

I. Participants

Name	Email	ERC/Institution
Carla Pavone	ATP-Bio	pavo0003@umn.edu
Cameron Smith	CASFER	Cameron.smith@ttu.edu
Todd A Watkins	EARTH	toddawatkins@gmail.com
Dmytro Pokhylko	Center for Smart Streetscapes (CS3)	dp2992@columbia.edu
Susie Y. Dai	CURB	sydai@tamu.edu
Eric Willman	NEWT	ew57@rice.edu
Carmel Majidi	HAND	cmajidi@andrew.cmu.edu

Nikki Riojas	CASFER	nriojas@ttu.edu
Tricia Bergman	EARTH	tricia.bergman@ku.edu
Josh Knights	TARDISS	Knights.16@osu.edu
Alex Bandar	HAMMER	bandar.3@osu.edu
Don Linford	ASPIRE	Don.linford@usu.edu
Anurodh Tripathi	PreMier	anurodh.tripathi@duke.edu
Ibrahim Mohedas	PreMiEr	ibrahim.mohedas@duke.edu
Owen Doyle	POETS	odoyle@illinois.com
Steven Weiner	IoT4Ag	ssweiner@upenn.edu
John Hartnett	Cell-Met	johnhart@bu.edu
Scott Ransom	CmaT	scott.ransom@gatech.edu
Chris Finberg	PATHS-UP	chrisfinberg@tamu.edu

Scott Ransom led the breakout and divided the best practices discussion into four topics based on Kemi's earlier session on these four focus areas for NSF:

- 1) Broadening Participation
- 2) Highlighting Research & Innovation in Accessible Language
- 3) Tech Adoption/Engaging
- 4) Self-Sustaining Graduation

This session was 90 minutes in duration, therefore about 20 minutes were given to discuss each topic. The discussions were facilitated by Dr. Ransom. Several senior ILO's gave feedback and guidance to each topic. Below is a summary of the discussion points and findings.

Broadening Participation

ERC	Name	Best Practice
Poets	Owen Doyle	Understand what each stakeholder wants – and why they want to engage with the Center
CELL-MET	John Hartnett	<p>Get Industry Practioner Advisory Board (IPAB) members engaged in workforce development. It develops a deeper relationship with the Center beyond technology/tech transfer</p> <p>Use other groups on campus to assist in WFD or DEI efforts. Those groups are happy to help and the additional advantage of being located near the Center</p> <p>Innovation Partners (non-paying members) can based on in-kind contributions.</p>
CMaT	Scott Ransom	<p>Have at least 2-3 contacts at each company, including upper level directors who can write the checks as well as research & scientists who understand the tech</p> <p>Get competitors to join based on a current IPAB member(s) using FOMO</p> <p>Look at the entire span of your value chain, including tool makers, suppliers, and OEM / finished product. You want broad participation.</p> <p>Same with innovation partners, you want the whole spectrum of stakeholders including regulatory authorities, clinical, utilities, patient advocacy, all the way to community groups.</p>
CS3	Dmytro Pokhylko	Sell the non-industry stakeholders to the industry as value-add networking
ASPIRE	Don Linford	Do outreach to national organizations and as a service and they can connect you to their members- can even be reciprocal members

Highlighting Research & Innovation in Accessible Language

ERC	Name	Best Practice
CS3	Dmytro Pokhylko	When bringing in the community, focus on benefit(s) vs technology
NEWT	Eric Willman	Review Stanford Research Institute NABC approach: start with the need Suggest a weekly or quarterly newsletter
CELL-MET	John Hartnett	EEK and STEM NOLA
CASFER	Nikki Riojas	Child education kits/science fairs/4H fairs
PATHS UP	Chris Finberg	Community outreach to underserved populations – understand their needs, issues, and gaps – will drive changes in research
CS3	Dmytro Pokhylko	Use LinkedIn to subscribe industry members Develop a Newsletter Develop a Innovation Summit with various stakeholders. Use “flash” talks and exposure to all pillar’s vs just long research talks Intersperse Pitch Perfect throughout the day
POETS	Owen Doyle	Allow industry to sit in on weekly research meetings for SEED programs Maintain contact with ex-students...some might join the IPAB Students have been hired based on direct interactions with IPAB and other Industry interactions
CMaT	Scott Ransom	Practice your pitch in everyday language and have those not associated with the center listen, you may find you’re using words most people don’t know. The more easily you can explain your center in everyday terms the better for broader recognition. Our site visit team at CNT wanted our center to become a household name in the region.

Tech Adoption/Engaging Stakeholders Early

ERC	Name	Best Practice
CELL-MET	John Hartnett	May have to adjust value proposition away from the end product. Suggest engaging with an outside organization (industry) on platform technologies or associated technology roadmap areas that have nothing to do with the ERC focus Sell recruiting and ability to learn vs IP and tech transfer
ATP Bio	Carla Pavone	Platform technology assessment: Use resources like an NSF I-corp for technology and business model development., Inform IPAB to what platforms would be available and when on the technology roadmap. Identify and showcase the small victories on our path upward on the roadmap: usually leads to many IP disclosures
Premier	Anurodh Tripathi	Partner with Institutions Foundations about the good works of the Center. The ERC makes the school look good to alumni and some alum may join for fund

Self-Sustaining Graduation

ERC	Name	Best Practice
General	General	Start early Year 5 would be good- many fed/local govt funding sources can take several years Centers that do well have strong relationships across institutions; the leadership truly wants the center to sustain Get Deans to agree to a 3-year support for admin in writing prior to 5 year renewal

		<p>Use a zero-based budget process to see how big your appetite is relative to realistic funding sources</p> <p>Ransom says it's a "patchwork quilt", there's no silver bullet but many small patches sewn together make a cover enough to sustain the Center. He also recommends crafting what the center looks like post grad so you can march towards that form. Do you keep education? WFD? Diversity?</p> <p>Often partner institutions leave off a graduating center, assess whether you can keep them and craft plans for that early.</p>
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Sustainability Insights: CPES

Fred C. Lee: Virginia Tech Emeritus professor, Center of Power Electronic Systems (CPES), moderated by Chris Finberg

IP Management at CPES

- Fred refused to sell an important IP even with 7 figure offer from a company
- This was in ethical consideration in favor of serving industrial consortium
- This created tension with OTT office
- OTT head understood and backed off. Fred didn't sell the IP
- While becoming ERC director
 - Intellectual property protection fund established from a portion of membership funds
 - Member who sign the agreement have right to use future IP
 - Now legally industry member can use it
 - The industry members decide if the IP is worth patenting thus bypassing OTT and speeding decision making
 - The only focus was US patent application
- Members who signed IPPF, do all of them get right to use it?
 - All members who have Fred's IP can use IP. Other faculty also followed same philosophy
- How does this model impact startup?
 - Did not really impact the startup
- How you kept the inter-institutional collaborations?
 - There is a group that stayed together in a shared open lab. Currently, there are 10 people working together
 - There is a shared understanding and motivation of working together
- What is the percentage breakdown of the funding sources?
 - Do not know exactly
 - See this link for details
 - <https://cpes.vt.edu/library/download/33358/serve>
 - In 2024
 - Total funds 10.1 Million USD
 - Industry- 2.5 million USD
 - Rest from others
- Legally are they under university umbrella?
 - They do not take money from the company that want to use the IP solely
 - Still under university umbrella

Sustainability Panel Discussion

Panelists:

Silvia Mioc:

Schaffer Grimm: TAMS ILO

Ravi Chilukuri: ASSIST Ecosystem director

Moderated by Chris Finberg

Any change in industry board during the course of ERC and after graduation?

- Silvia didn't stay with ERC post graduation
 - Biggest value proposition of NSF funding goes away
 - Some companies stay because of deeper connections
 - Students, research and IP are the value proposition for industry, which is also difficult to maintain for some ERC
- Schaffer:
 - An attrition happens after Year 3.
 - Gets to steady state after that as the value proposition to both parties become clear
 - TAMS developed some unique services and developed a fee for services model
 - None of the research thrusts had a unique value prop. To bring companies in.
- Ravi
 - Joined after graduation
 - Early phases were unclear. Only those companies stayed that bought into vision
 - Types of companies that stayed
 - Product Companies with Entrepreneurial mindset
 - Service companies: want to work with translational grants
 - R&D companies: want to publish

Value proposition of the center post-graduation?

- Silvia
 - Challenge is to maintain administrative support, which results in less services that ERC can provide
 - If university provides resources, that helps
 - The value proposition changes even during the tenure
- Schaffer
 - Leveraging unique capabilities that center developed and charge services fee for those
 - Such as custom-built equipment for TAMS
 - Going for other grants
- Ravi
 - Support from NC State, such as using space rent free, committing to pay for admin for few years
 - Prototyping and testing lab- Service for fee
 - Go beyond the ASSIST Vision, expanding into other technologies, which allows go into new markets
 - Launched a new institute ICONS that brings all the sensor work into one umbrella

Attrition of members after graduation

- Would setting expectation with industry members stem attrition?
- Silvia:
 - Agrees with the hypothesis
 - Merger and acquisitions affect the member attrition too
 - Established partnerships don't just die
- Schaffer
 - TAMS lost momentum with faculty more than with industry partners
 - This was the nature of the research this center did with natural progression towards diverse research areas
- Ravi
 - Agrees that they set-up expectation with partners that nothing changes
 - Industry champion has to provide value proposition internally which may not be always possible.

How centers pivot after graduation?

- Silvia:
 - Creating institutes to pull in resources and research together
 - Getting endowment
 - Unique technology: Fee for service
- Schaffer
 - Try and fail. See what works
 - Fee for service model
- Ravi
 - Its about Change Management
 - Developing a brand helps in bringing new talent into the center

How the responsibility shared within ERC towards Sustainability?

- Schaffer:
 - In hindsight: How to prioritize the research
- Silvia:
 - Increased the membership fee
 - Products: Students, research, professors
- Ravi:
 - Started with a plan in place
 - Different model to change the membership fee
 - Develop a core group of people after discussions with director
 - Use INTERN program to get students

Stakeholder Management: Lightning Topics

Moderated by Drs. John Hartnet, Owen Doyle, and Don Linberg

	Stakeholder Management		
CRM Systems	ERC	Name	Notes
	CELL-MET	John H	Slides on CRM systems Salesforce is good if you can get a seat license from a pre-existing install For the needs of an ILO you only need 5% of Salesforce power You need to put some initial effort into reap the benefits- eg training AI Make sure students understand how their work/project fits into the goal of the Center
	POETS	Owen	Have a seat on Salesforce from Alumni Dev for \$1,300/year
	Premier	Anurodh	Use Air table- can import a CRM module and customize Has good functionality for meeting planning, building GANNT, org charts etc...
	ATP Bio	Carla Pavone	Use Zoho and is more than adequate for the ILO ri=ole
	CiStar	P Keeling	Use Zoho- \$7/month per seat Track IPAB and alumni (sent in over email prior to the Summit)
Student Engagement	POETS	Owen	Students are one of largest assets of ERC vs research or IP 60 hires from center 3 IPAB members are POET grads Put on a workshop on how to interact with industry
	Aspire	Don	Challenges in communication with students> don't check email
	CMat	Scott	Relationship with SLC is key, they know what app is "cool" at the moment, they can then use those to communicate with the rest of the students
	Paths Up	Chris	In the last 2-3 years of the ERC, the level of student engagement has dropped- maybe less pressure from the PI?
	Premier	Anu	Do metrics only track to students funded by ERC funds, versus just in the lab
	PathsUp	Chris	Get faculty to help promote events Be mindful of academic calendars across all institutions

Center Messaging and Networking

Led by Dr. Don Lindberg

Format: Will do individual work, then some group work, then present back to the group

Approach to messaging is directly related to understanding networking.

The work of ILO has everything to do with IE, all about networking.

Map out networks, map out the modes. Center Dir is not the most important node.

Students is one node.

Industry is a node, but be more specific what kind of industry have nodes.

Faculty are nodes.

First tool of communication is listening - go in with big ears.

1. When meeting with industry is to make them talk about themselves.
2. You catch it the value prop is you don't know what they co's needs/strategy are.
3. Sometimes, going in without a presentation is the best approach. Or at least don't have to start with it, especially if you don't have a clear idea of the company's priorities

Leverage professional organizations to help build out your own network

1. UAPA/NAPA are connected to DOT --> who have their own networks, whose members can become ERC members
2. FAA was a gatekeeper to the likes of Boeing and others.

Technology Roadmaps can be quite helpful in mapping out industry/sector/valuechain

Don't fool potential partners about who you are and who you are not.

Different value props and templates don't fit uniformly across different center

Software MIND MANAGER can be helpful with mapping out

Don gave an interesting overview of his career and his experience doing network analysis in the finance industry, which later transitioned into network analysis for the government.

In this context, network analysis is the study of networks of individuals or groups of individuals, not to be mistaken with the IT context of network analysis.

Don used the example of including the Utah Asphalt Paving Association (UAPA) in their center stakeholders despite their initial reaction being not necessarily supportive. Don explained that while SPIRES research does not impact asphalt/paving today, it might in the future. They became involved and that was important because they are connected to the DOT's of the US as well as other paving associations. Essentially, bringing them into the "network" created a node that connected to multiple other nodes.

Breakout session where each of us considered networks for our own centers. Conversation and considerations included gov't agencies (from local to federal), end users, customers, patients etc. As ILO/SPI's we tend to think of gov't, academia, and industry as our primary network nodes, which they are, but evaluating our center ecosystem through the lens of a "relationship network" can help us consider new and exciting opportunities.

Session finished with a new ILO (did not catch his name) showing a computer model they had built that showed a 3D network.

Mentor Matching

Led by Dr. Scott Ransom

Mentor Matching

ERC	Name	Notes
CMaT	Scott R	<p>Mentor Program:</p> <ul style="list-style-type: none"> - New Center ILOs are being identified and onboarded - Membership Agreement 101 for new ILOs is planned - There could be an opportunity for creating a basic tool for creating Membership Agreements for new centers to create efficiency. For example a minimum term sheet with optional builds. John H offered to take a shot at this. <p>Biobook</p> <ul style="list-style-type: none"> - ILO Biobook is being updated and will be routed around soon (Scott)

		- Consultancy service for new ILOs is available (ask Scott)
Various	Several ILOs	- Consensus is that mentorship/consultancy program is incredibly valuable and all offered to provide testimonials to NSF if that were to help the renewal of the program.

Open Forum

Led by Dr. Owen Doyle

Due to the confidential nature of discussion topics, notes were not taken during this session. Questions related to Sustainability, use of IP, interfacing with NSF, and working best with program managers.

Notetaking Assignments

Session	Moderator	Note Taker
Sustainability Panel	Chris F	Anu T.
Stakeholder Mgmt Mini Topics	John H, Don L, Owen D	John H
Center Messaging	Don L	Dmytro P.
Open Forum	All	N/A
Mentor Matching & Biobook	Scott R	Eric W.
<i>Compile minutes / notes into report</i>	Scott R	