



# Human AugmentationN via Dexterity

NSF Engineering Research Center

*Revolutionizing Robot Dexterity and Empowering Human Work*



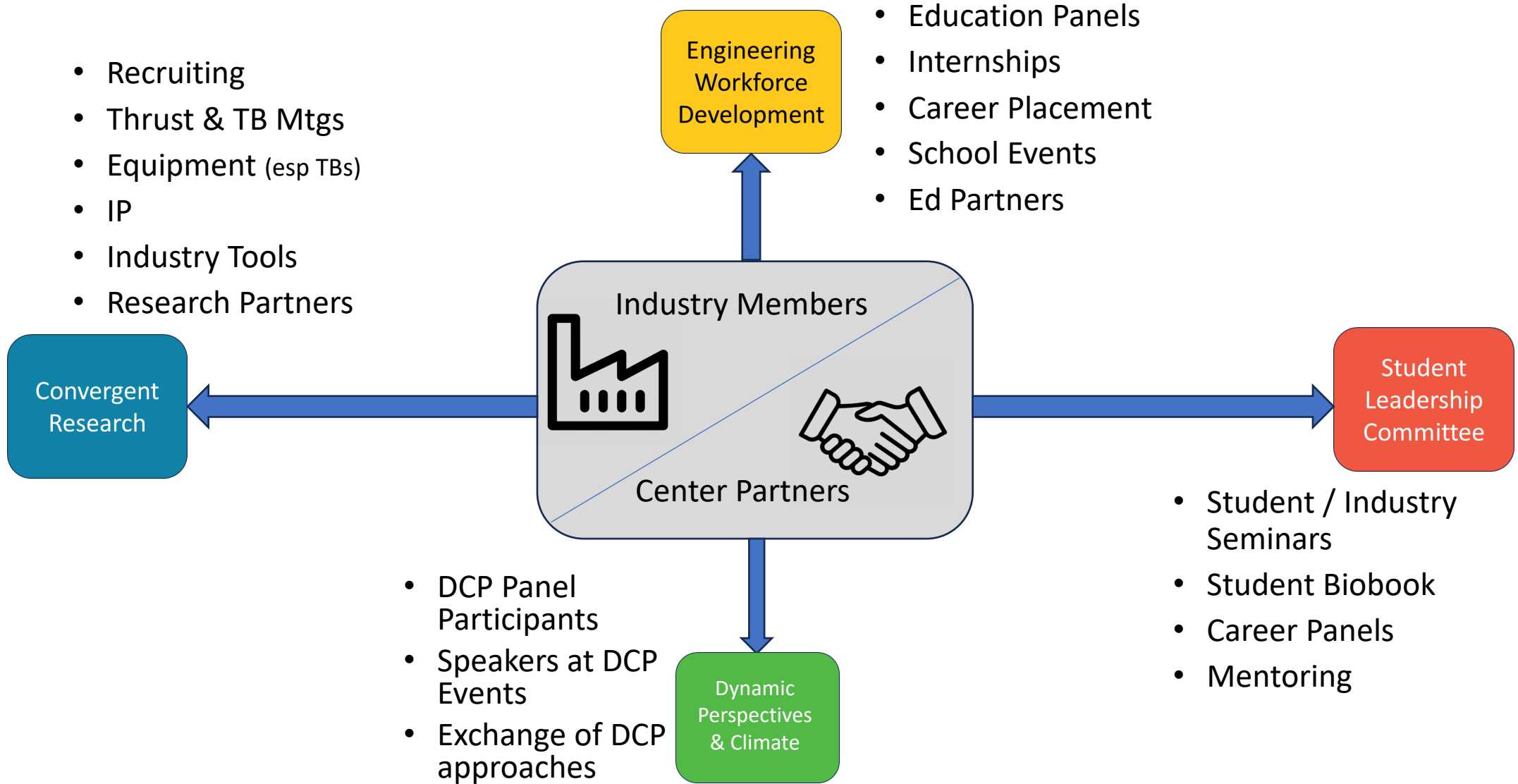
## ILO Module: IAB Management

Scott Ransom (plus a few Chris Finberg slides)

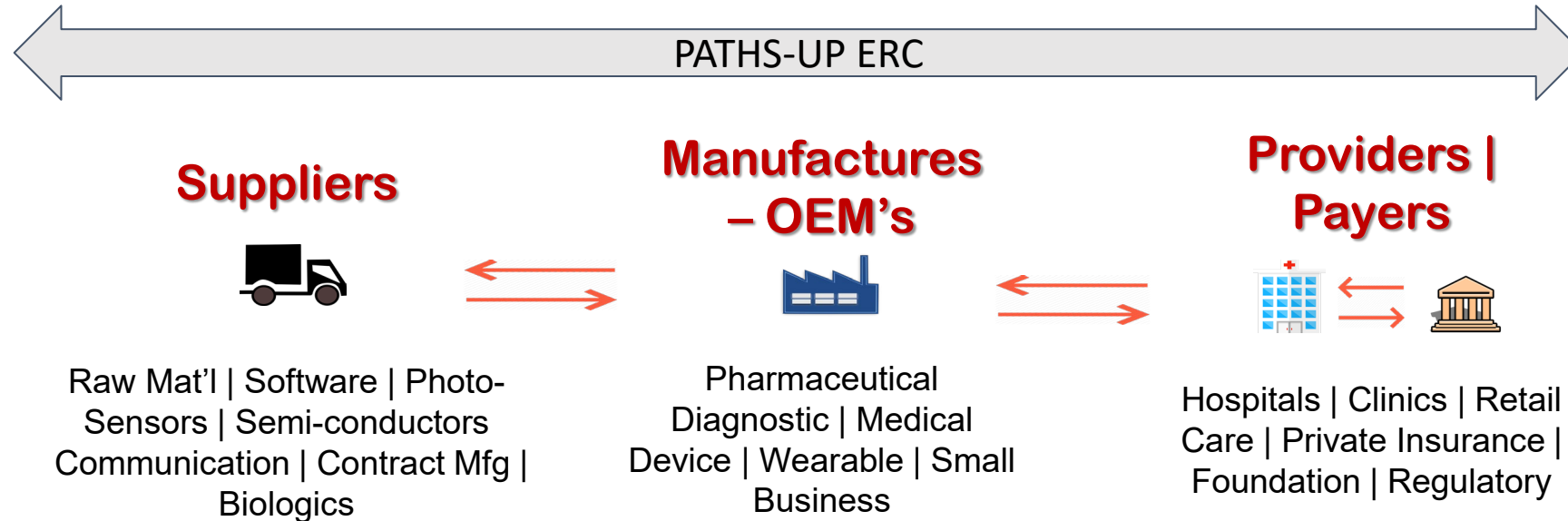
# Overall Goal & Objectives Innovation Ecosystem



# IE Connection to Pillars



# PATHS-UP – Members' Position in Value Chain



## Step 1A: Who to contact

# Recruiting Strategy

- Identify Companies who are
  - Leaders in the dexterity space
  - Able to provide equipment or in-kind needed by HAND
  - Have an interest in collaboration
  - Positioned to benefit HAND students through internships and employment
  
- Identify Partners who are
  - Positioned to support innovation efforts
  - Able to provide expertise and guidance to thrusts and test beds
  - Active in our test bed space
  - Interested in collaboration
  - Positioned to benefit HAND students through internships and employment

# Recruiting Plan: Industry Members

- Infrastructure

- ✓ • Finalize and Ratify Membership Agreement
- ✓ • Create Center Partner Welcome Letter
- ✓ • Create MoA to document In-Kind, Ratify by NU
- ✓ • Gain buy-in from Export Control and OGC
- ✓ • Create HAND SOPs around Membership

# Recruiting Plan: Industry Members

- Execution

- Conferences and Trade Shows
  - ICRA, CES, Automate, IRAS
  - Target Leaders in Field, SMEs
- Supporting Companies
  - Wrote LoS for HAND proposal
- Faculty Connections
  - Collaborated previously, former companies, was a customer
- Test Bed Providers
  - Polling TBs for equipment needs
- Value Chain Links
  - Ensure entire chain represented

- Value Propositioning

- Contribute to revolutionary dexterity product
- Access to IP
- Access to student talent
- Keep abreast of developments
- Access to faculty / expertise across multiple universities
- Facilitated sponsored projects
- Advertising (website, PR, etc.)
- Connection to other companies
- Tailor pitch to company

# Recruiting Plan: Center Partners

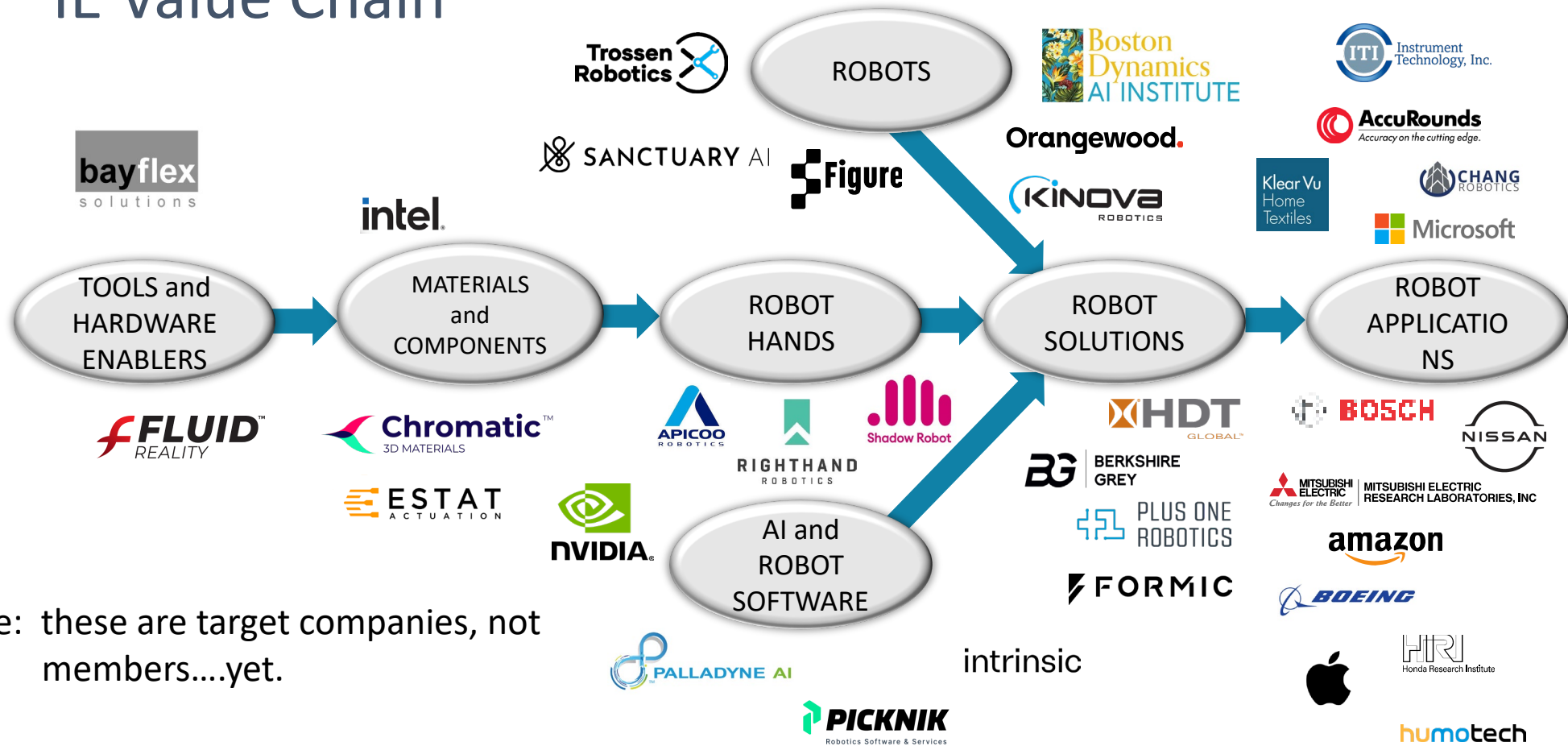
- Execution
  - Conferences and Trade Shows
  - Public Interest Groups
  - Standards Setting Bodies
  - Manufacturing Consortia
  - Robotics Consortia
  - Government Agencies
  - Test Bed Partners
- Value Propositioning
  - Keep abreast of developments
  - Connections to other orgs
  - Access to student talent
  - Access to faculty / expertise across multiple universities
  - Facilitated sponsored projects
  - Advertising (website, PR, etc.)
  - Potential Collaborations
  - Tailor pitch to organization



# Recruiting Plan: Center Partners

- **HAND Stakeholder (Center Partner) Categories**
  - Innovation Partners (involved in entrepreneurship support)
  - Government & Public Policy Stakeholders (includes regulatory bodies, standards setting bodies, high-consequence materials interests, etc.)
  - Public Advocacy Partners (including patient advocacy)
  - Education Partners (organizations promoting robotics education in the US)
  - Research Partners (involved in research efforts in this field)
  - Allied (Individual) Partners (a category for high-net worth individuals we want to engage)

# IE Value Chain



Note: these are target companies, not members....yet.

# Active Prospects in Value Chain



**Suppliers**  
(Goal 10 members – 7 existing)



Raw Mat'l | Software | Photo-Sensors | Semi-conductors  
Communication | Contract Mfg | Biologics

**Manufactures – OEM's**  
(Goal 10 members – 9 existing)

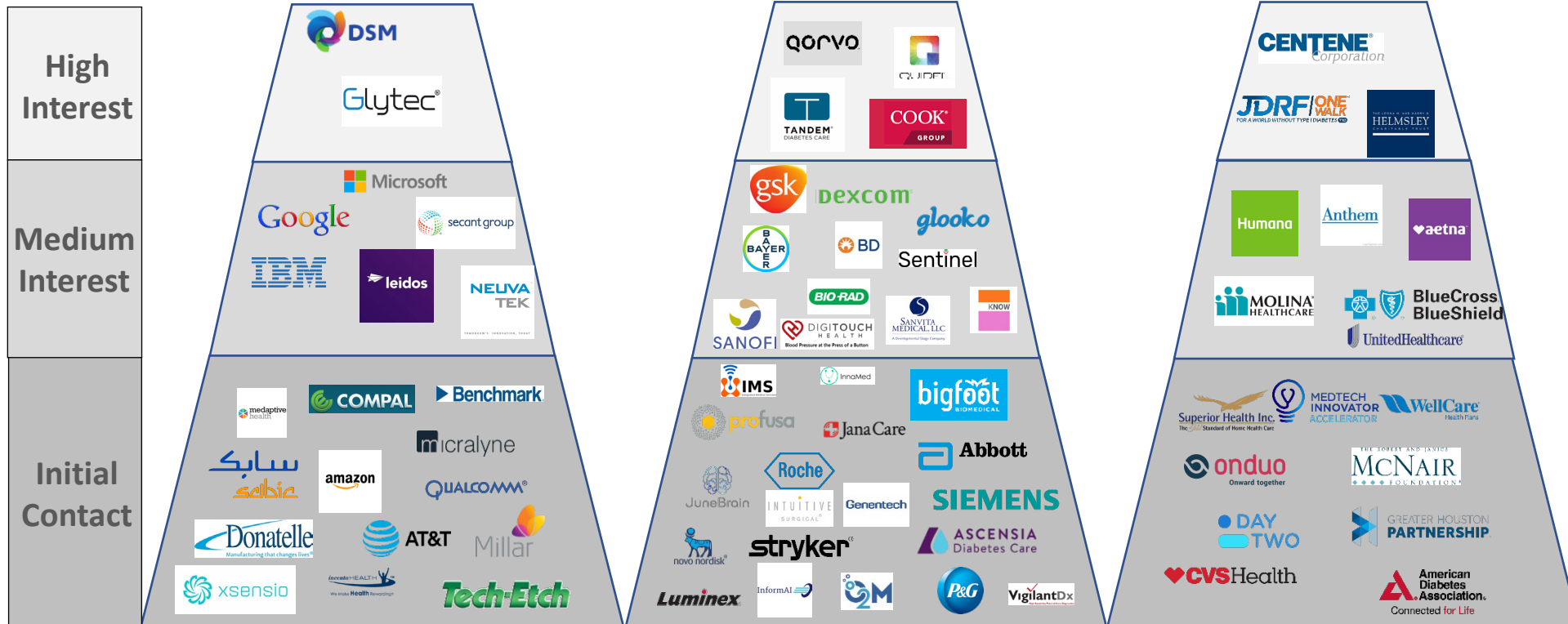


Pharmaceutical  
Diagnostic | Medical Device | Wearable | Small

**Providers | Payers**  
(Goal 5 members – 1 existing)



Hospitals | Clinics | Retail Care  
Private Insurance | Foundation



# Recruiting Ideas – Keep Pipeline Full

## **Basic Blocking and Tackling – Hit rate will be in single digits**

- Personal experience: 400 companies since Jan 2019 - Jan 2022 – 4.5% joined Center
  - Want 30 companies to join @ 5% close rate = 600 companies
  - Will LOSE companies – 5-10% a year
- Target list of companies – Big's are known
- Medium companies are most likely at conferences - maybe
  - Conferences are in flux - \$2.5-\$5K to register – Choose wisely
  - Speakers at conferences/tradeshows
- Small companies – look at SBIR/STTR, NIH, SECO – awardees past 3 years
- Social Media:
  - LinkedIn Value proposition – Match Tech to need
  - Send to 20 prospects – effective if 20%-40% responds

# Recruiting Ideas – Target Lists

## Need “human” contact. Zoom is OK – F2F is best.

- Faculty help
- Tech alumni at target companies
- Use LinkedIn network to see who is the best person in your network
  - Who can give personal introduction to the CEO or the CFO - They are the decision makers.
  - Need a good introduction to their executive team
    - Need to coach the person who gives the intro.

Example of a proposed simple message for an introduction:

*“This team at Texas A&M is on to something. They received a \$40M National Science Foundation grant to build next generation monitoring platform to lower chronic care cost and improve patient outcomes. **They could help Livongo move beyond diabetes and give Livongo a unique protectable IP position long term. Livongo should check out what they are doing.**”*



## Value Proposition, Research, & Impact

- **Value Proposition... a “Fat” statement...**
  - Different meaning to NSF/Grant, Industry, Stakeholders
    - ILO role – What is VP to Industry
      - How to show research IS creating value...and impact
  
- **VP evolves over time at a ERC**
  - Global/Core VP not likely to change
    - Influences on internal/external research findings
    - Influences on new industry technologies
    - Influence from the Boards
      - How does that feedback to research projects

## Step 1B: What are you selling

# The Grand Challenge

***Every 30 seconds*** one American will be diagnosed with diabetes, and another will suffer a coronary event.



*These chronic diseases represent a disproportionately larger burden in underserved communities across the US and the world due to higher prevalence and reduced access to care*

# A Response to the Grand Challenge: PATHS-UP Engineering Research Center



Lab in your Palm



Lab on a Wrist

## Vision

To change the paradigm for the health of underserved populations by developing revolutionary and cost-effective technologies and systems at the point-of-care (POC).

## Mission

- 1) To engineer transformative, robust, and affordable, technologies and systems to improve healthcare access, enhance the quality of service and life, and reduce the cost of healthcare in underserved populations.
- 2) To recruit and educate a diverse group of scientists and engineers who are ready to lead the future in developing enabling technologies to improve health in underserved communities

## Impact

Bringing affordable point-of-care healthcare technologies to urban and rural communities that lack access to care.



# Three Subsystems for Lab in your Palm

## SUB-SYSTEM VERTICAL FLOW ASSAY/READER



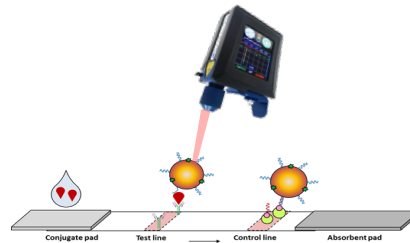
### CORE TECHNOLOGIES

MULTIPLEX ASSAY: HS-CTNL, FABP, MYO, CK-MB

READER: Fluorescence, chemiluminescence, gold-ion amplification

STATUS: TECHNOLOGY READINESS LEVEL (TRL) OF 3.5

## SUB-SYSTEM LATERAL FLOW ASSAY/READER



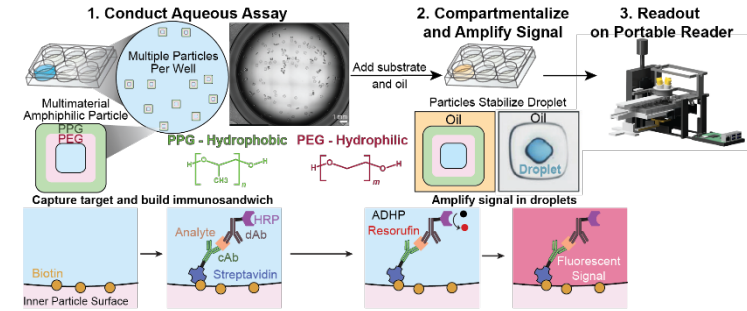
### CORE TECHNOLOGIES

MULTIPLEX ASSAY: BNP, SST2, CRP

READER: DUAL Fluorescence & Surface Enhanced Raman, nano particle amplification

STATUS: TRL OF 2.5

## SUB-SYSTEM LAB ON A PARTICLE



### CORE TECHNOLOGIES

MULTIPLEX ASSAY: NT-PRO BNP, CRP, cTnI

READER: Fluorescence, raspberry-PI multimodality for droplet size

STATUS: TRL OF 2.0



**Lab in your Palm**



# Recruitment, Retention, and Relationship Building

- **Pre-Covid...travel, travel, travel**
  - In-Person meetings, conferences, tradeshow
  - Phone conversations, e-mail
  - “Old” Best Practices
  
- **Pandemic Times...no travel**
  - Zoom meetings, virtual conferences/tradeshow, digital communications
  - Not the greatest...missing key elements...Just trying to hang on
  - Positives & Negatives
  
- **Post Covid...Hybrid Model...**
  - In-Person...when to use it
  - Zoom Meetings...when to use it
  - Travel Costs...when to go to conferences, tradeshow...can justify?!?
  - Priorities – dependent on ERC life cycle? Sponsored Projects?
  - “New” Best Practices



**PATHS-UP**  
Precise Advanced Technologies and  
Health Systems for Underserved Populations

## Recruitment, Retention, and Relationship Building

- **Recruitment items**
  - Target lists – Who contact with correct VP message
  - Pitch deck or overview of Center
    - Website, 1-pagers, publications, intro e-mail
  - Balance between Zoom (Intro meetings) & F2F (deep dive)
  
- **Retention items**
  - Communications with “Champion” at company
    - F2F at least 1/year – get to know them
    - Need other contacts within organization (Boomer Retirement)
    - What is their roadmap/needs (Tech, workforce, other)
    - Help refine VP of Center to Company
    - More Engagement = High Retention
  
- **Early years 80% time at recruit – Then 80% retain in later years**
  - Prospecting never ends – will loose companies

# Engagement & Renewal

- Review Benefits
- Faculty / Student connections made
- WWRC Attendance (showcased on call)
- Thrust & TB Meeting Invites
- IE Tools promoted
  - Website, Newsletter, Biobooks, etc.
- Project Collaborations & Engagements

# Work with your IAB Chairperson

- They're your partner
- SWOT
- Remember they're volunteering!
- Prep the IAB for the Site Visit
- Know issues before they become problems
- Avoid co-chairs
- Don't burn them out
  - Chair + grooming + emeritus



**HAND**

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**HUMAN AUGMENTATION**  
VIA **DEXTERITY**

[hand-erc.org](http://hand-erc.org)