

PATHS-UP

Precise Advanced Technologies and
Health Systems for Underserved Populations

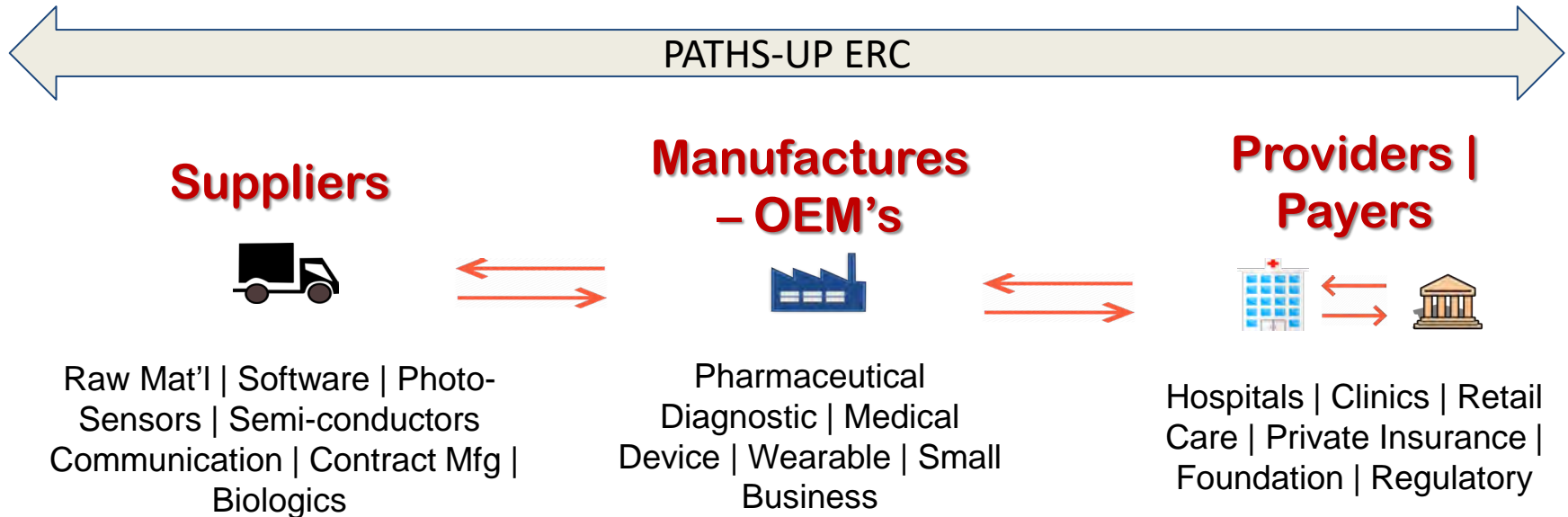


Chris Finberg
IAB Management
Recruit & Retain

Overall Goal & Objectives Innovation Ecosystem



PATHS-UP – Members' Position in Value Chain



Step 1A: Who to contact

Active Prospects in Value Chain

PATHS-UP ERC

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)

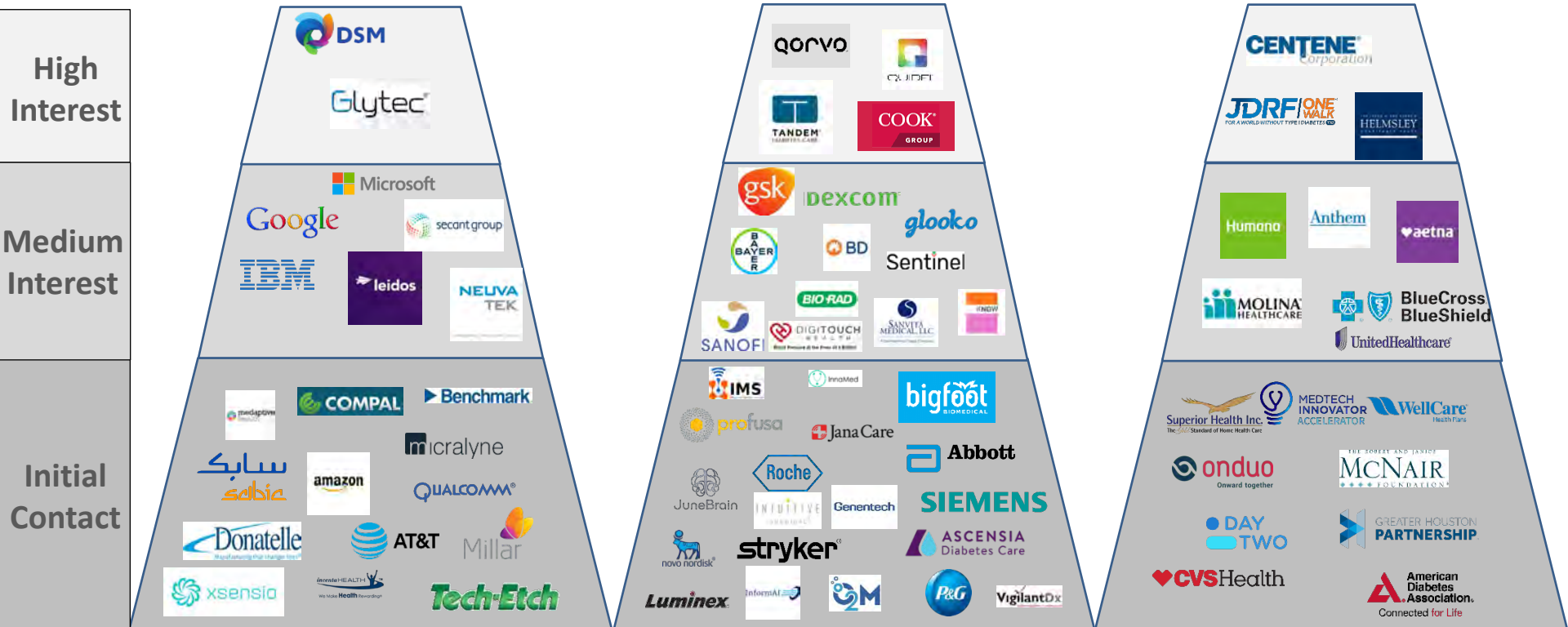


Pharmaceutical
Diagnostic | Medical Device | Wearable | Small

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%

- 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.**”*



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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

Tell A Story!!!

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

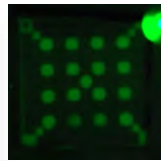
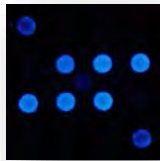
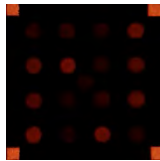
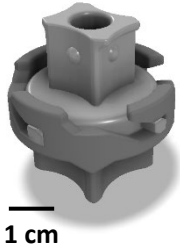
- 1) To engineer transformative, robust, and affordable, technologies and systems to improve healthcare access, enhance the quality of service and life, and reduce the cost of healthcare in underserved populations.
- 2) To recruit and educate a diverse group of scientists and engineers who are ready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

Sub-System Vertical Flow Assay Platform

Vertical Flow Assay (VFA) cartridges



Fluorescence Chemiluminescence Au-ion reduction

Vertical Flow Assay (VFA) readers

Fluorescent reader



Chemiluminescent reader



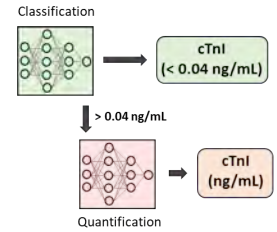
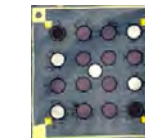
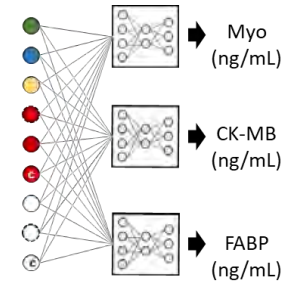
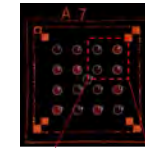
Au-ion reduction reader



Multiplex detection of cardiac markers
(Myoglobin, CK-MB, FABP)

Highly sensitive cTnI
measurement (<10 pg/mL)

Computational analysis (AI-based signal readout)



- Pos control ($N_{pos}=2$)
- Neg control ($N_{neg}=5$)
- Test spots ($N_{test}=10$)

Unique Core Technology

Paper-Based Multiplexed VFA
(cost-effective, rapid, and easy to use)

Integration of highly sensitive
analytical methods:
Fluorescence, chemiluminescence,
gold-ion amplification

AI Imaging/Deep Learning-based
readout

Key Accomplishments

Limits of Detection (LoD) are below
clinical cut-offs for Myo, CK-MB and
FABP. Completed clinical studies for
multiplex detection. Multiplex
detection in 15 min.

Sub-pg/mL LoD using Au-ion
reduction assay for hs-cTnI.
Completed clinical study with 56
samples. cTnI quantification in 20
min.

Technology Readiness Level (TRL)

TRL 3.5

- (4) Patents: CRP & Lyme Assays
- (1) Start-up (Hana Diagnostics)
- (34) Publications
- (1-3) Future Potential IP's

Next Steps

Initial usability and human factor-related
design studies and feedback to research
teams (started in collaboration with T4)

Developing multiplexed panels with
cTnI. Clinical blind testing with fresh
blood samples from a cohort of patients
to establish LOD, CV, accuracy, etc

Establish pre-prototype for POC testing

PATHS-UP Technology Readiness Level (TRL) for Transition to Industry

PATHS-UP Deliverable to TRL 3 - 4.5

TRL 1
Idea & Initial Research

TRL 2
Applied Research
Basic Prototyping

TRL 3
Initial Proof of
Concept in Lab
Models

TRL 4
Validating Concepts
Early Pre-Clinical
Animal Studies

TRL 5
Capital Investments
Validating Mfg Lines
Late Pre-Clinical

TRL 6
Start of
Clinical Trials

Pre-Competitive Research & Development

Critical Transition Gap to Industry

TRL 1

TRL 2

TRL 3

TRL 4

Hand off to Industry

TRL 5

TRL 6

Joint Projects, Sponsored Projects,
Licensing, Start-up Formation

TRL 1.9
First Prototypes

TRL 2.9
IP Generated
Publications

TRL 3.9
Proof of Concept
Demonstrated
In Lab

TRL 4.5
Demonstrated
In Real World
Conditions



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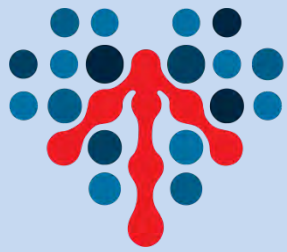
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Recruitment, Retention, and Relationship Building

- **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



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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

Overall Goal for Innovation Ecosystem

