RESEARCH OUTCOMES & ECOSYSTEM BREAKOUT - RAW DATA

Challenges

→ NICHE MISSION DOESN'T TRANSLATE TO COMMERCIALIZATION

→ NAVIGATING ACQUISITION PROCESS, INCLUDING POTENTIAL CONFLICTS OF INTEREST

→ WORKING WITH INTERNATIONAL PARTNERS

→ IDENTIFYING THE UTILITY AND APPLICATION IN THE COMMERCIAL MARKETPLACE

→ PRIORITIZING ECONOMIC DEVELOPMENT AS PART OF MISSION

→ GETTING RESEARCHER/INVESTIGATOR TO FOCUS ON TECH TRANSFER FROM THE START

ARMY Edgewood Chemical Biological Center

RESEARCH OUTCOMES & ECOSYSTEM BREAKOUT - RAW DATA

DHA (WRNMMC)

- Inventors affiliation
- Short term interships → great ideas → Lack of prototypes
- Rather narrow applications
- Educate PIs / Inventors on CRADAs, IPs, etc.
- Recovering costs of Research at our Hospital
- Finding Licensing partners / Marketing

NAVY

- Question arises about Lab having too much capacity if facilities, equipment & personel are available for Non-Federal use

RESEARCH OUTCOMES & ECOSYSTEM BREAKOUT - RAW DATA

1. DHA - connect wit Local ecosystem through:
   FOUNDATIONS
   USDA - Economic Development Groups (VC,
   NCI - Newsletter via LinkedIN
   Private sector - connecting with local Champions
   Local incubators / SBIR programs
2. Strategic Initiatives
   - Sure. — Seed capital to try, fail, pivot,..
3. Buy-In
   - Everyone has a POC for connections
   - Exec support varies
   - Metrics + Case Studies to support requests
     - Must prove impact
     - Data-driven

RESEARCH OUTCOMES & ECOSYSTEM BREAKOUT - RAW DATA

HENRY JACKSON FOUNDATION / FHWA - TFHRC

- Identifying what is patentable
- Identifying the commercial partner
- Small market / not enough interest
  application of the product is limited
- Difficult in getting the user to try something new.
- ROI is low until it is widely adopted
- → Lack of confidence by the user because it is new - not tested in its operational environment
- A lot of competition amongst the drug companies

RESEARCH OUTCOMES & ECOSYSTEM BREAKOUT - RAW DATA

- Ecosystem Presentations
- Market Analysis
- Newsletter to Lab Directors
- Lab visits
- Intranet update
- Social Media
- Awards + Recognition
- Economic Impact Studies

RESEARCH OUTCOMES & ECOSYSTEM BREAKOUT - RAW DATA

- conferences
- trade groups
- local business relationship dev
  - economic development
  - incubators
  - press
- training videos on website

=> "Hello"

worry about conflict of interest

pitch training before speaking with external entities

RESEARCH OUTCOMES & ECOSYSTEM BREAKOUT - RAW DATA

1. Scientist / Stakeholders
   Tech. Transfer Coordinators
   ARP Network
   USDA/SBIR

2. Agency Mission Directed this Activity
   ONP connects Stakeholders & Scientist
   OTT
   Scientist

3. Out reach education
   In reach
   ARP Network
   FFAR
   FLC

4. Pulls everything together
   One Stop Shop

RESEARCH OUTCOMES & ECOSYSTEM BREAKOUT - RAW DATA

A)
1. Meet with local groups
2. Local Facilitees

B) 3. CRADA – FLC Business
3A. 219 Funding – R&D
3B. Disruptive tech lab

C) 1. Upper Man Support
2. Training of Scientists for opportunities

LAB Connect w/ local/Reg innovation ecosystem

How scientists making connections & pushing inovation & the boundaries

Newsletters, website, tech transfer / CRADA'S

Collaborative Platform to aid Connections

Speaking engagements Face to Face

Having time & energy & support to follow up to move ideas forward.

Sector Coordinating Councils
Conferences / Workshops
Alliances
State & Locals, Embassies, Law Firms

Strategic Initiatives
- T2 program Scientist Economic Dev. Grp County
- Marketing ↑

↑ Lab communications ↓ Silos
- Champion T2 activities follow up w/ Stakeholders that use results.

Buy-In / Managing up: Getting the Right People Involved.

RESEARCH OUTCOMES & ECOSYSTEM BREAKOUT - RAW DATA

NIST / MITRE / TEDCO

Culture challenges
- People don't go to FL to be enterpreneurs
- Need proper incentives for commercializing
- Perception that Open source option is better
- Timing / Urgency / Process

Need for enterpreneurial leave? / Spin offs?

Technology Readiness
- Ability of invest in maturation

Partnerships
- They are great! But staff need to understand IP and the right boundaries

Who wants this?
- VCs reluctant bcause they dont get the Tech team, TRLs are low

ITAR / EAR restrictions

COI / Perception of COI / Optics

How to get more tech disclosures

Valuation?

INCENTIVES FOR RESEARCHERS TO REMAIN INVOLVED
- LICENSE REVENUE DISTRIBUTION CAN SAY "THANKS FOR DOING A GREAT JOB" BUT DOESN'T INCENTIVIZE FUTURE PARTICIPATION

NASA-GSFC, NIST

- Getting technologies reported
- Educating inventors on tech transfer, IP protection, negotiation process
  - ↳ ie. prevent them from disclosing info to companies/public prematurely
- Tech Transfer Office - Inventor Communication
- Articulating case for tech adoption (to public, industry)
- Communicating the value of technologies, why it is worth the upfront/licensing fees
  - ↳ (ie our taxes aren't sufficient!)
- Getting innovators involved in early discussions w/ potential licensees
  - ↳ having access to inventors to help determine application feasability/ explain features, capabilities, etc.
  - ↳ need researchers to champion commercialization efforts
- Fighting/overcoming the "open source" mindset
- Creating detailed marketing materials
  - ↳ what performance/specs are important/vital to certain industries/ applications
  - (more substance, less fluff)
- Streamlining administrative procedures
  - ↳ don't qualify the gov't stereotype
- Tech Transfer Office uncertainty regarding true TRL of technologies
  - ↳ marketing tech as high TRL only to find out prototype isn't functional creates many issues

RESEARCH OUTCOMES & ECOSYSTEM BREAKOUT - RAW DATA

NASA, NIST & HCCTC

- Bench Scientists - connected to academia & industry
  In person, outreach, conf., trade shows
  industry days, publications, TEDCO, Incubators
- Informal. Biz Dev efforts. Frequency. Reduce cost of connecting.
  Maintains Awareness/Needs/Capabilities

ST - EIR, ICOR, NASA RED, Tech Broker Service
NIST Tech Partners Prog

POC - NASA SPO. NIST - E.T.R Prog.

Directors. Mission Stmt. Fields.

Increase: leverage resources for further tech dev.
broaden research opps.
find solutions for existing tech.

Units - STEMists, Tech Champions,

NCI - DHA - USDA

· build an inter-connected ecosystem to help TT, agencies, the community and the Nation
"break down barriers"

NCI - Fred NH Lab - NIH - FNIH

Logistics

You need the right stakeholders at the table from the beginning
- funders & subject matter experts
  - or potential

tech marketing/promotions/positioning/framing

Finding a champion to be an early adopter

choosing the right tech to push forward

too early of a stage

RESEARCH OUTCOMES & ECOSYSTEM BREAKOUT - RAW DATA

Connection Mechanism:
- Relationship w/ Incubators
- Regional Econ. Dev. Orgs (State/County)
- Industry-specific Partnering Conferences
- Showcases hosted by Agencies

NCI
FNLCR
NIST
ARL

Origination:

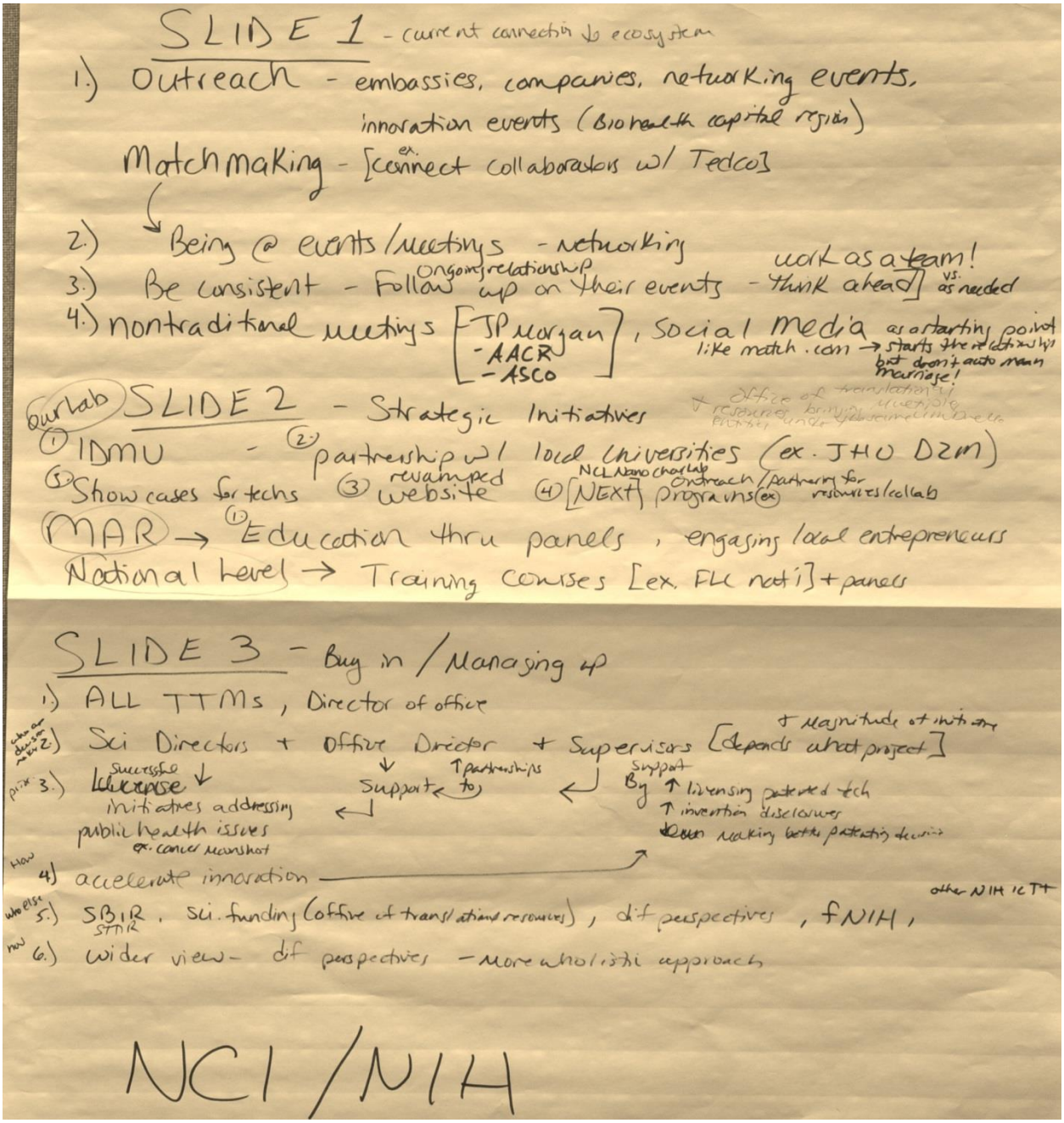
Strengthen:
- Already strong/mission of Econ. Dev. forums
- Question: does leadership produce appropriate culture?

Benefit:
- Culture @ Scientist level + creating physical interaction that initiates relationship

Strategic Initiatives
- Consortiums - Companies combine resources to Develop a tech.
- Internal Education
- Spin-out Seed Fund - Complements SBIR

Recruitment/Vision Communication
- Business Development, Tech Transfer Staff, Researchers, Laboratory Director
  - Collab. vs. Licensing
- Decision Maker, Independent Research Units
- Priority: Don't let licenses block future research

RESEARCH OUTCOMES & ECOSYSTEM BREAKOUT - RAW DATA



SLIDE 1 - current connection to ecosystem

1.) Outreach - embassies, companies, networking events, innovation events (Biohealth capital region)

Matchmaking - [ex. connect collaborators w/ Tedco]

2.) Being @ events/meetings - networking

3.) Be consistent - Follow up on their events (ongoing relationship) - Think ahead] vs. as needed — work as a team!

4.) nontraditional meetings [JP Morgan - AACR - ASCO], Social media as a starting point like match.com → starts the relationship but doesn't auto mean marriage!

Our lab SLIDE 2 - Strategic Initiatives

① IDMU - ② partnership w/ local universities (ex. JHU DZM)

③ Show cases for techs ③ revamped website ④ [NEXT] NCI Nano char lab Outreach/partnering for resources/collab programs (ex)

MAR → ① Education thru panels, engaging local entrepreneurs

National Level → Training courses [ex. FLC nat'l] + panels

SLIDE 3 - Buy in / Managing up

1.) ALL TTMs, Director of office

who are decision maker 2.) Sci Directors + Office Director + Supervisors [depends what project] + magnitude of initiative

prior 3.) Successful ~~License~~ initiatives addressing public health issues ex. cancer moonshot — Support ↑ partnerships to — Support By ↑ licensing patented tech ↑ invention disclosures ↓ Own making better patenting decision

How 4) accelerate innovation

who else 5.) SBIR STTR, sci. funding (office of translational resources), dif perspectives, fNIH, other NIH ICTT

now 6.) wider view - dif perspectives - more wholistic approach

NCI / NIH

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- small Companies – not know able to lisc tech from Fed gov't – awareness a problem
  - only think of funding not lisc tech
  - NIH Intramural programs
    - not know tech exists
    - lisc programs
    - pat protection process
    - monitoring
    - gov't monitoring them/"big brother"
  - Biomedical world – heavy cash investment and heavy regulation
  - lack of translational funding – mainly basic research
    - risky
    - biomed industry risk level goes down
  - Fed concerned with not being a company – stick to mainly low TRL levels – basic research
  - need more money/funding for translational research/applied
  - rare "eunte spirit" of the scientist – chasing an outlier
- lisc + CRADA process is labor intensive
- mission alignment – friction between doing good vs. making money
  - message disconnect
  - knowledge gap
  - mission/cultural gap – science driven not commercialization
  - performance metric of tw agency?
  - need of a champion of transition/commercialization – not individual/org of culture

Simple system for connecting the 2 cultures together – match. com for tech transfer
e.g. Social media

"nPart" – match making algorithm – subscription program NCI doing pilot

restricting gov't policies/ethics guidelines

NIH
DOE
NIST

HHS/[redacted]/NIH
NIST
DOE

NIH, MRMC, Genome, NIST

Challenges

~~smart~~

1) small market
   - rare diseases
   - military application

2) early stage research
   - high risk; not proven/validated

3) exclusive licensing issues

4) difficulties establishing research partnerships
   - firewall issues/sensitive info
   - federal agency limitations

5) limited resources
   - funding

6) limited flexibility
   - university vs federal agency rigor

7) websites should be "living" documents
   - continual refresh

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NIST / Navy / NIH / Energetics Technology Center

1. Federal entrepreneurship vs. internal ethics rules & regulations
2. Reward system and culture needed to promote and reward commercialization (as compared to publications)
3. RESOURCES... but especially for marketing and outreach
4. It is difficult to promote/licence early-stage or basic research (low TRL)
5. Identifying and bundling complementary technologies
   ↳ ex: cell phones!
6. Patenting and commercialization should be included in promotion reviews/processes

RESEARCH OUTCOMES & ECOSYSTEM BREAKOUT - RAW DATA

- Formal Agreements, EDA, Events
  Networking Groups,

- Personal connections, Conferences,

- Collaborative efforts, Comms, Status updates
- Advocate, Identify Partners, Sharing Resources

2
- Outreach efforts internal/External
- Training, Marketing
- Mission Alignment, - leverge connections from other labs
- Develop Regional Network initiatives / Tech focus MTG
- Natl: Synchronized Regional Pilot Projects

3
- ORTA, SBIR, Attorneys, PI, PAO, STEM,
- Directors (SES) + Staff
- Mission , Army Alliance
- Community advocacy in supt of mission
- leverage Resources, & attract addl Resources
- Researchs connections to private sector

RESEARCH OUTCOMES & ECOSYSTEM BREAKOUT - RAW DATA

- Cost / Where will funding come from
- Facilities
- Too Early
- Too Basic Reserch
- Negotiations
- Outreach
- Collaboration (lack of)
- Existing Products (Competition)
- Agency Structure + Size
- Scientist Mentality
- Fear of working w/ Gov't
- Finding other uses for new Products
- ✓ Education / Awareness
- ✓ Marketing

NOAA
USGA
ARL
DHA
Law Firm

RESEARCH OUTCOMES & ECOSYSTEM BREAKOUT - RAW DATA

AGENCIES: Naval Research, Dept. of Transportation
FDA ! Army Medical Research

1. Prototyping / Material Synthesis — US-based manufacturer requirement
2. Derisking the investment to ~~tech~~ encourage commerialization
3. Moving technology to next stage (e.g. animal model)
4. Patenting (e.g. Foreign) — patent vs publish
5. Clearing a path for Basic research to more development that attracts commercial partners
6. limits on entities we can market tech too (e.g. regulatory entities) — limited market
7. Funding for next stage Development

USDA
Breakout: Part 1

1. Freedom to Operate; Negation of warranties and representation

2. Overlapping research plans in CRADAs

3. Agency Culture
   a. free research licenses
   b. visceral reaction to IP protection in certain Agreements

4. University co-location

5. Finding the right partner

6. Marketing

RESEARCH OUTCOMES & ECOSYSTEM BREAKOUT - RAW DATA

SLIDE 2

1. Grand Challenge
   - Specialty Labs and how they interact within Agency - Cross disciplinary
   - Between Agency LABS Link togeth
   - National levels pull in Commercial partners per ARP

SLIDE 3

1. OTT: AA, DAA, ARP
2. ONP, OTT, Line management, Scientist
3. Adoption of Research Outcomes to benefit public (farmers)
4. Combination of Complementary Assests
5. Stakeholders, Universities, Small & Underrepresentative business, Office of Communications, OCIO - web pages.
6. Opens lines of Communication, Shared data, Synergistic outcomes.