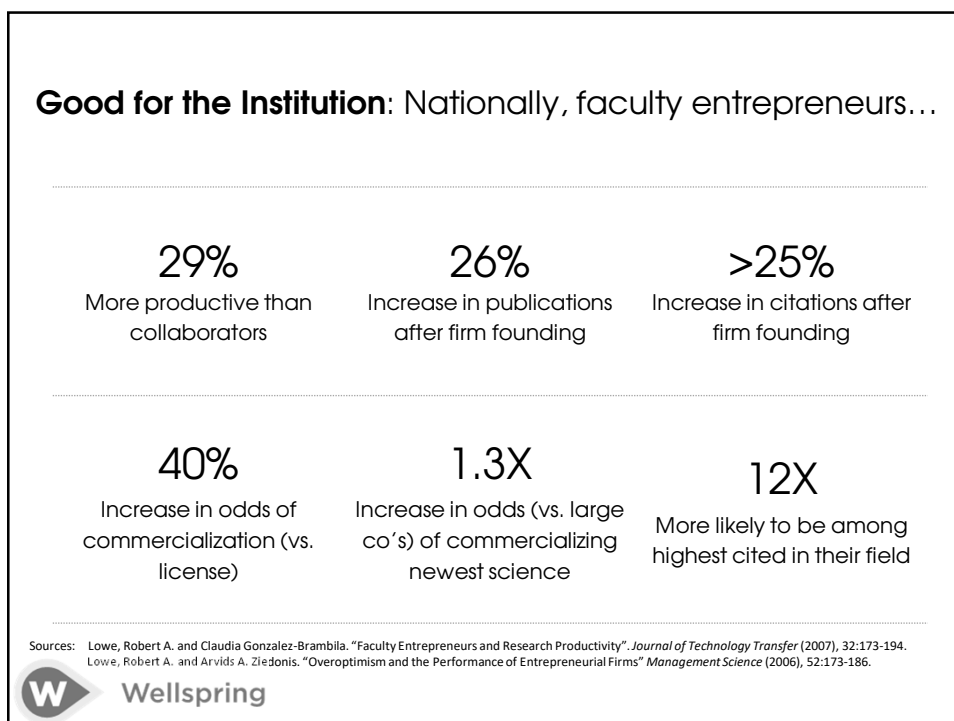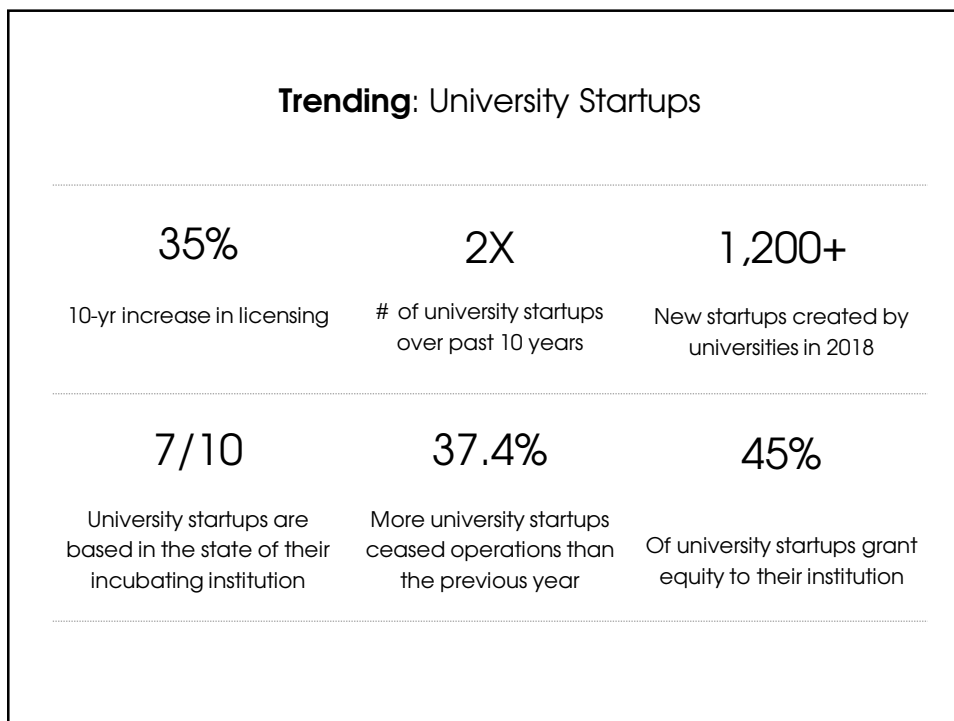# Office of Technology Commercialization

Talent to Technology: Is Entrepreneur Talent the New Patent for Tech Transfer?

April 2019

Today's Agenda

1. Taking Inventory of University Startups

2. The Startup Recipe: Larger Dose of Talent

3. Executive Talent Matching Platform: XOR
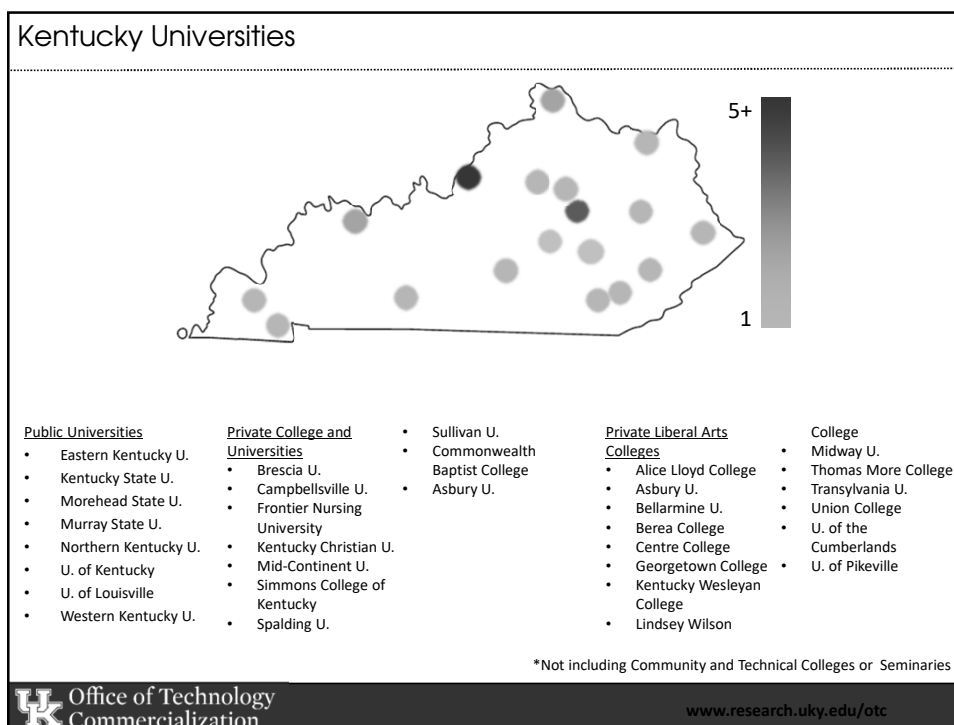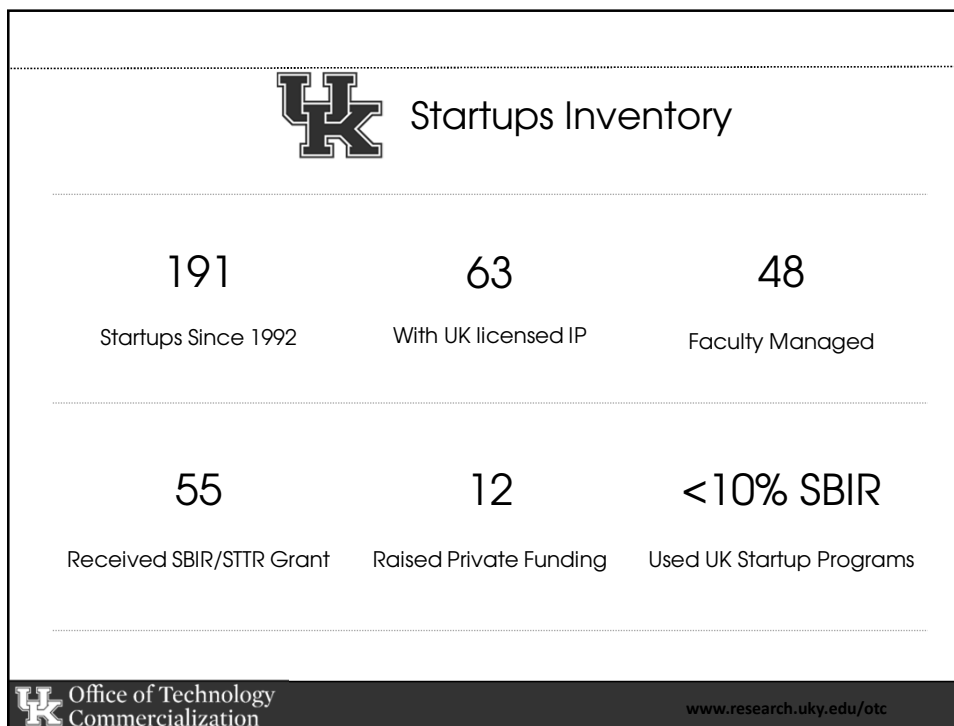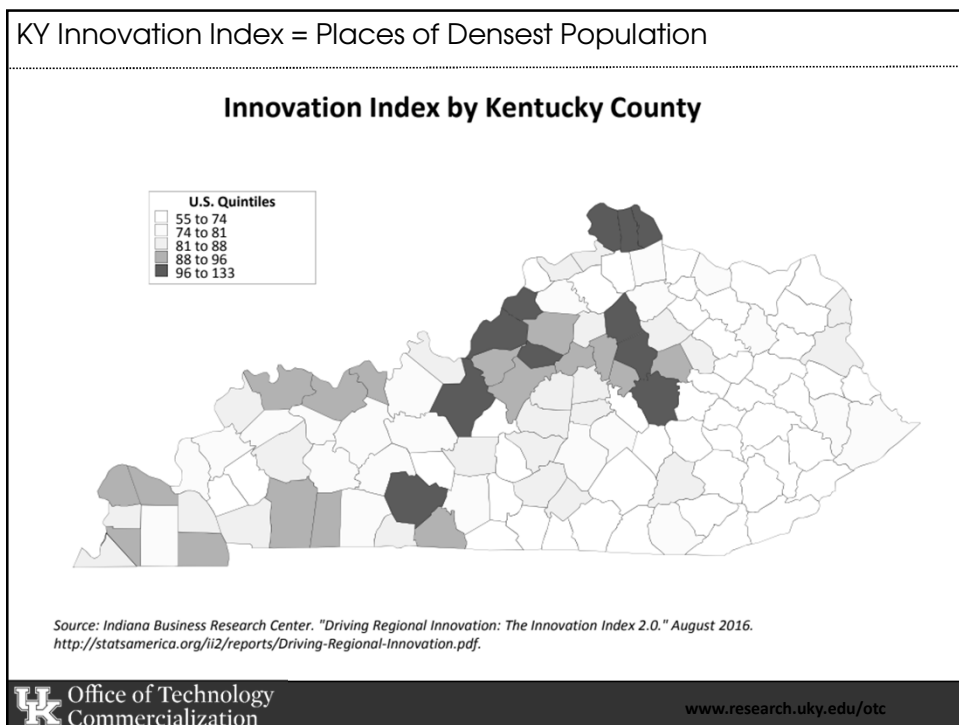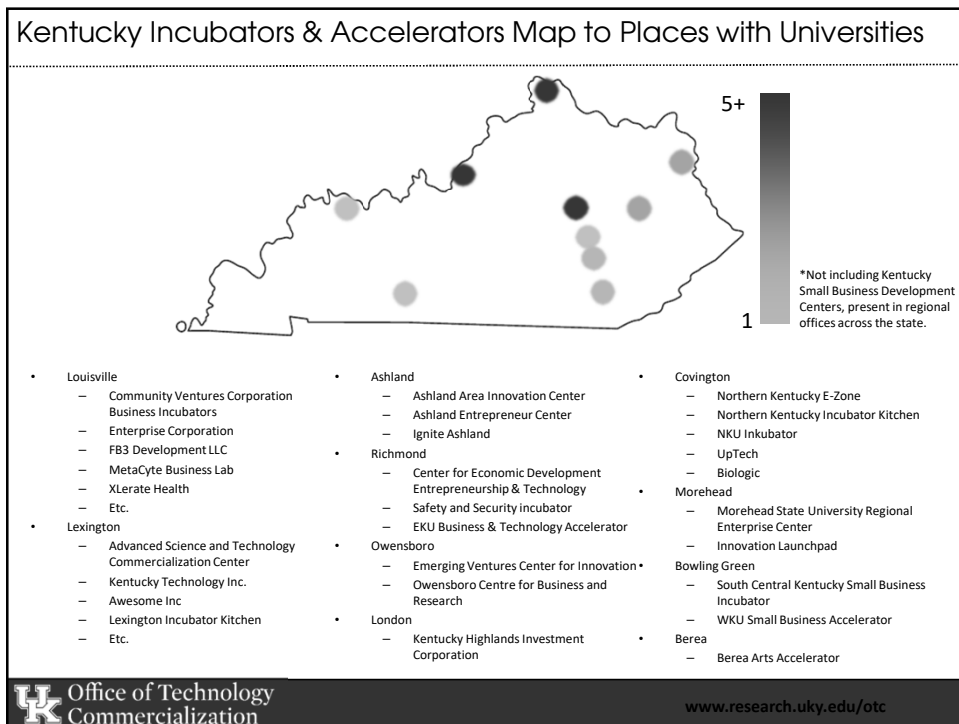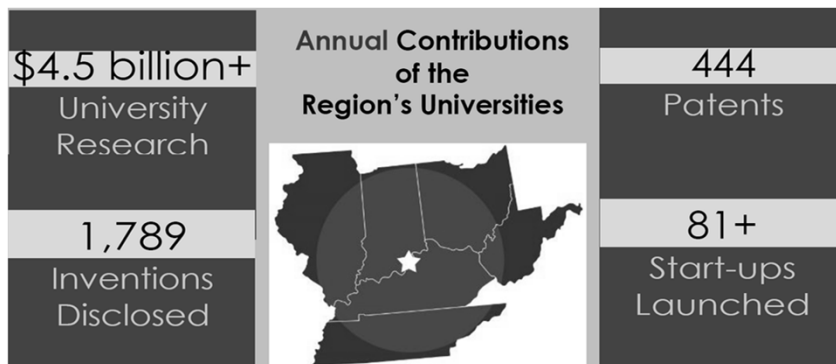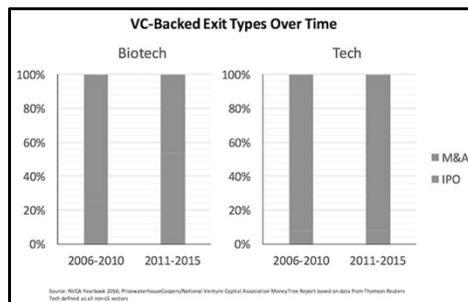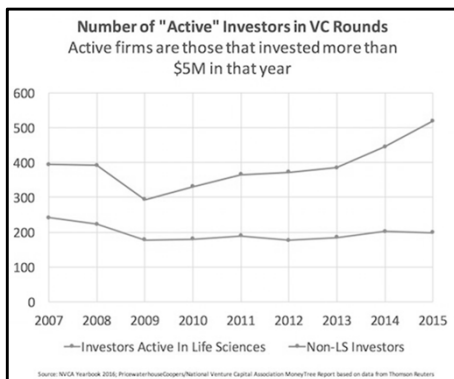
4. Executive Recruitment Best Practices

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Trending: University Startups

35%	**2X**	**1,200+**
10-yr increase in licensing	# of university startups over past 10 years	New startups created by universities in 2018
7/10	**37.4%**	**45%**
University startups are based in the state of their incubating institution	More university startups ceased operations than the previous year	Of university startups grant equity to their institution

Good for the Institution: Nationally, faculty entrepreneurs…

29%	**26%**	**>25%**
More productive than collaborators	Increase in publications after firm founding	Increase in citations after firm founding
40%	**1.3X**	**12X**
Increase in odds of commercialization (vs. license)	Increase in odds (vs. large co's) of commercializing newest science	More likely to be among highest cited in their field

Sources: Lowe, Robert A. and Claudia Gonzalez-Brambila. "Faculty Entrepreneurs and Research Productivity". *Journal of Technology Transfer* (2007), 32:173-194.
Lowe, Robert A. and Arvids A. Ziedonis. "Overoptimism and the Performance of Entrepreneurial Firms" *Management Science* (2006), 52:173-186.

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Startups Inventory

191	63	48
Startups Since 1992	With UK licensed IP	Faculty Managed

55	12	<10% SBIR
Received SBIR/STTR Grant	Raised Private Funding	Used UK Startup Programs

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Kentucky Universities

Public Universities
- Eastern Kentucky U.
- Kentucky State U.
- Morehead State U.
- Murray State U.
- Northern Kentucky U.
- U. of Kentucky
- U. of Louisville
- Western Kentucky U.

Private College and Universities
- Brescia U.
- Campbellsville U.
- Frontier Nursing University
- Kentucky Christian U.
- Mid-Continent U.
- Simmons College of Kentucky
- Spalding U.

- Sullivan U.
- Commonwealth Baptist College
- Asbury U.

Private Liberal Arts Colleges
- Alice Lloyd College
- Asbury U.
- Bellarmine U.
- Berea College
- Centre College
- Georgetown College
- Kentucky Wesleyan College
- Lindsey Wilson

College
- Midway U.
- Thomas More College
- Transylvania U.
- Union College
- U. of the Cumberlands
- U. of Pikeville

*Not including Community and Technical Colleges or Seminaries

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Kentucky Incubators & Accelerators Map to Places with Universities

5+

1

*Not including Kentucky Small Business Development Centers, present in regional offices across the state.

- Louisville
  - Community Ventures Corporation Business Incubators
  - Enterprise Corporation
  - FB3 Development LLC
  - MetaCyte Business Lab
  - XLerate Health
  - Etc.
- Lexington
  - Advanced Science and Technology Commercialization Center
  - Kentucky Technology Inc.
  - Awesome Inc
  - Lexington Incubator Kitchen
  - Etc.

- Ashland
  - Ashland Area Innovation Center
  - Ashland Entrepreneur Center
  - Ignite Ashland
- Richmond
  - Center for Economic Development Entrepreneurship & Technology
  - Safety and Security incubator
  - EKU Business & Technology Accelerator
- Owensboro
  - Emerging Ventures Center for Innovation
  - Owensboro Centre for Business and Research
- London
  - Kentucky Highlands Investment Corporation

- Covington
  - Northern Kentucky E-Zone
  - Northern Kentucky Incubator Kitchen
  - NKU Inkubator
  - UpTech
  - Biologic
- Morehead
  - Morehead State University Regional Enterprise Center
  - Innovation Launchpad
- Bowling Green
  - South Central Kentucky Small Business Incubator
  - WKU Small Business Accelerator
- Berea
  - Berea Arts Accelerator

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KY Innovation Index = Places of Densest Population

Source: Indiana Business Research Center. "Driving Regional Innovation: The Innovation Index 2.0." August 2016. http://statsamerica.org/ii2/reports/Driving-Regional-Innovation.pdf.

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We are in a Top-5 U.S. Innovation Region

Louisville and Lexington are the central cities in a **250-mile radius innovation region** connecting 5 major cities and nine major research universities – all within a 3-hour drive. There is no other city outside New York, Boston, Philadelphia and San Francisco that can match the following annual numbers from the same sized region.

Annual Contributions of the Region's Universities

$4.5 billion+ University Research

1,789 Inventions Disclosed

444 Patents

81+ Start-ups Launched

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An Entrepreneur ≠ **An Entrepreneur**

- New university startups increased by **~1%***
- University startups failures increased by **37%***

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The "Gap": Capital

Start-up survival is lower in small university markets. Why?

Start-up Death Rate by Location Type

Large MSA

Small MSA

- 95% confidence intervals

Founding Date   2,000   4,000   6,000

Days since firm founding

Wellspring

Survival is relatively similar regardless of funding source

Start-up Death Rate by Funding Received

Founding Date · 2,000 · 4,000 · 6,000

TBED & VC
VC Only
TBED Only
Bootstrapped

Days since firm founding

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There is plenty of investment capital

US Venture Investments

2008 · 2009 · 2010 · 2011 · 2012 · 2013 · 2014 · 2015 · 2016 · 2017 · 2018

Source: PitchBook and National Venture Capital Association. *Venture Monitor Q4 2018*, January 9, 2019: p. 4.
Note: Does not include $12.8B investment in Juul in 2018

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VC and Angels Distribution
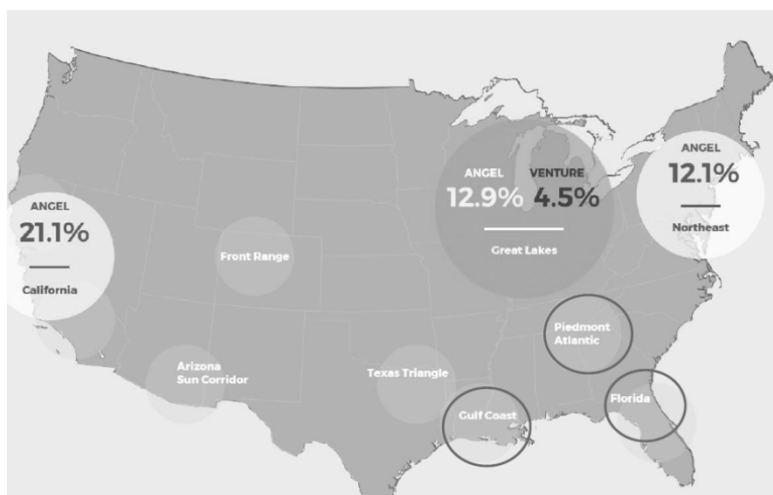
Fig. 1. U.S. Concentration of Angel and Venture Capital Investment
Source: Refinery Ventures; The Angel Resource Institute & Pitchbook Q3 2015 Halo Report

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In Kentucky, you can find capital . . . If you're fundable

- No VC-level firms in the state

- Increasing VC activity in neighboring states (Cincinnati/Columbus + Chattanooga/Nashville)

- Cohesive angel investment communities in Louisville and Lexington, and they are starting to combine wealth and syndicate more (see increasing participation from Louisville investors in Bluegrass Angels' successive funds (4)

- SBIR-Match draws tech development stage companies (26/50 states for SBIR funded companies)

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Fill It: Talent

University Startup Ecosystem Equation

Tech

Talent

Capital

Key Reminder:

Startups in chemical, life sciences,
energy, or manufacturing sectors
have significantly different funding
dynamics and capital requirements
than typical "tech" startups

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Case Study That Kicked Us Into Gear

University of Kentucky

Faculty + Students

Stillage Solutions

License

CARBON SCIENCE SOLUTIONS

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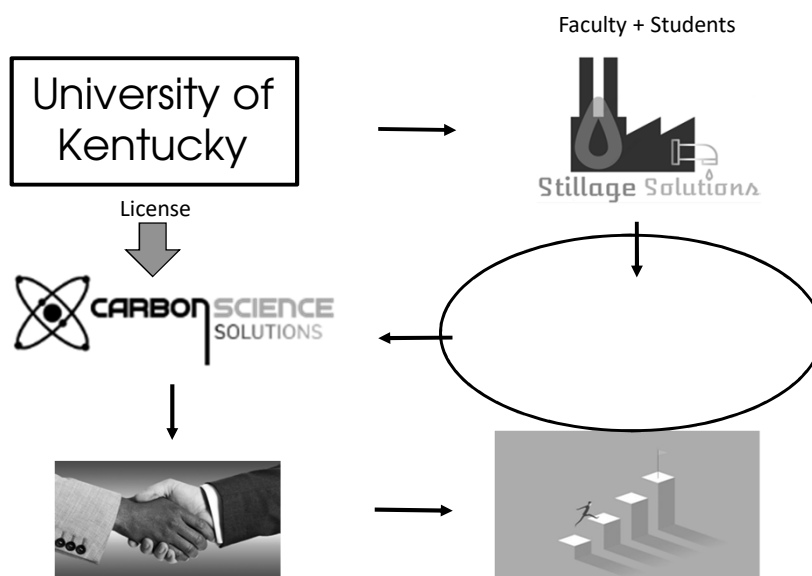
Our Project: XOR

Executives-on-Roster (XOR)

Matches university start-ups in need of business executive(s) with experienced entrepreneurs in a particular industry

Benefits:
- Startups needing a business executive can find someone with ties or other nexus to the region
- Entrepreneurs can review broad pipeline of startup opportunities
- Matched entrepreneurs can become startup executives
- Universities can engage alumni network of successful entrepreneurs

Features:
- Central online platform created by Wellspring (developers of Sophia)
- Regional federated approach – schools have access to all execs in region
- Standardized approach with Procedures Guidebook
- Selective entrepreneur application process & access to only qualified applicants

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XOR by the Numbers

- Launched Fall 2018
- 2 regionally affiliated networks
- 29 universities
- 71 entrepreneurs
- 56 startups

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Take a Look: XOR Platform

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Take a Look: XOR Platform

Take a Look: XOR Platform

Take a Look: XOR Platform

Alternative Recruitment Mechanisms

Industry Secondment:	▪ Executive seconded by employer ▪ Salary paid by employer ▪ Amount of salary paid = investment in startup ▪ Investment = equity (at set valuation) ▪ Executive may return or stay	
University or State Stipend:	▪ Economic Development unit or similar provides stipend for commitment	
Venture Search Fund:	**Collaboration between VC and State/University and Company**	

Venture Search Fund Model

"accelerate the car rather than build the car."

Objective: Back an executive, then find a company

Process:

Feedback loop

| Investors determine strategy and form fund | Identify and back an Executive-in-Residence or Team | Executive/team spends time dating companies to find the right one | A match results in executive running the company | Investors or fund invests in company |

Midwest XOR   Southeast XOR
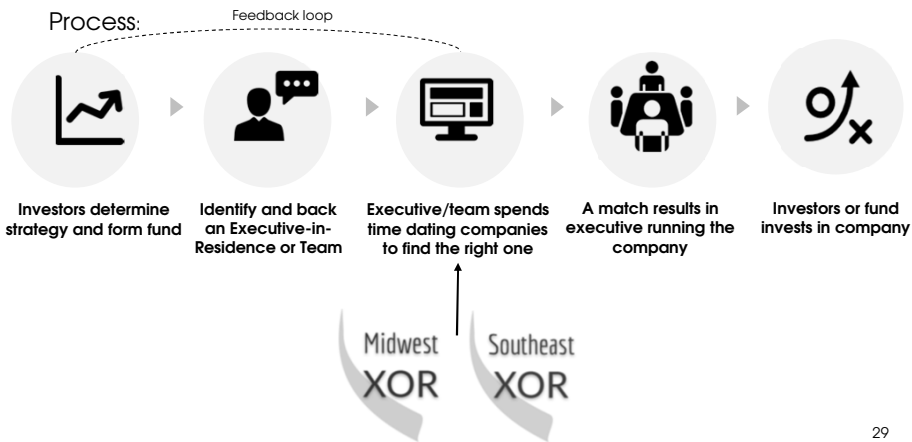
29

Engage Your Alumni

15

Engage Your Alumni

Other Networks Developing

Grow Current Platforms
- Midwest
- Southeast

Starting New Platforms
- Northeast/Atlantic
- West

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What We've Learned:
Executive Matching Best
Practices

What We've Learned

- Success requires proactivity (being on the platform alone won't create matches)
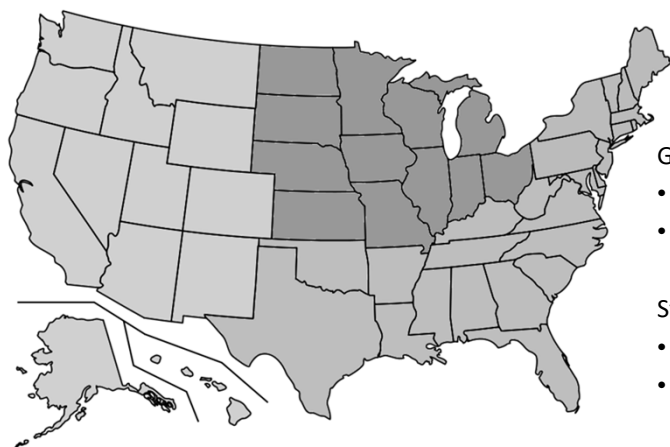
- Matching process takes a lot of dates

- Rigorous process forces companies to look in the mirror

- We need to work with our alumni associations and development offices

- Find alums with data tools (Navigator, Crunchbase, Wellspring Research, etc)

- License = leverage (and we lose it once we license)

Wellspring

Dedicated New Ventures Staff: "Co.Create" Team

co.create

Verb: to bring different parties together in order
to jointly produce a mutually valued outcome

- Three FTEs + 3 "Co.Create Ambassadors"

- Support startup company creation and entrepreneurship initiatives for UK *and Lexington Startups*

- Housed within UK OTC

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Talent Matching Do's

Your StartUp is on the XOR Platform
----- What are some best practices? -----

✓ Complete an initial "Interview" with your StartUp's inventors / founders.

✓ This will open the discussion to know the status of your StartUp such as:

   ✓ Licensing agreements
   ✓ Funding
      ✓ Non-dilutive federal funds supported?
      ✓ Raised private funds?
      ✓ Identified Target markets?
      ✓ Completed any accelerator programs?

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Your StartUp is on the XOR Platform
----- What should be avoided? -----

✓ TTO's should be the initial contact – not the entrepreneur or startup independent of your office

✓ **Due diligence** – don't start matching before you know what your startup is really looking for.

  ✓ Be knowledgeable of your startup's goals well before calling any entrepreneurs.
  ✓ This will avoid confusion of what is expected of the Entrepreneur (CEO) you're matching

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How to make an Executive-Level match
----- Clues for a good fit -----

✓ After having initial conversations with your startup and entrepreneur….What did you discover?

✓ Does the background of the entrepreneur make sense for the company's goals at this time?

✓ Character - do you have a sense of personalities?
  ✓ Knowing what you know about the startup
  ✓ Initial impression of the entrepreneur

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Maintaining Good Relationships is Key

✓ Always follow-up with your startups – at least once a month do an email blast

✓ Periodically check in with entrepreneurs even if a match wasn't made. There might be other opportunities they're willing to help with:

   ✓ Mentoring other companies (1-hour pro bono)
   ✓ Guest speaking at events

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Maintaining Good Relationships is Key

✓ Maintain an email list with only your startup contacts

✓ At least once a month do an email blast and make phone calls to see if your startups need any help

✓ Periodically check in with entrepreneurs even if a match wasn't made. There might be other opportunities they're willing to help with:

   ✓ Mentoring other companies (1-hour pro bono)
   ✓ Guest speaking at events

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