

STARTUP INNOVATION ECOSYSTEMS AS NEW SOURCES OF GROWTH AND JOBS

VICTOR MULAS

VMULAS@WORLDBANK.ORG

[!\[\]\(666e09182d4cd268646ea700ea60dcdf_img.jpg\) @MULASVICTOR](https://twitter.com/MULASVICTOR)

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AGENDA

1. **Background:** Economic Transformation and Role of Start-Up Ecosystems
2. **Understanding Start-Up Ecosystems:** Key Success Factors
3. **Continuing to Understand Start-Up Ecosystems:** Maturity, Knowledge Spillovers and Impact

SOURCES AND ACKNOWLEDGEMENT:

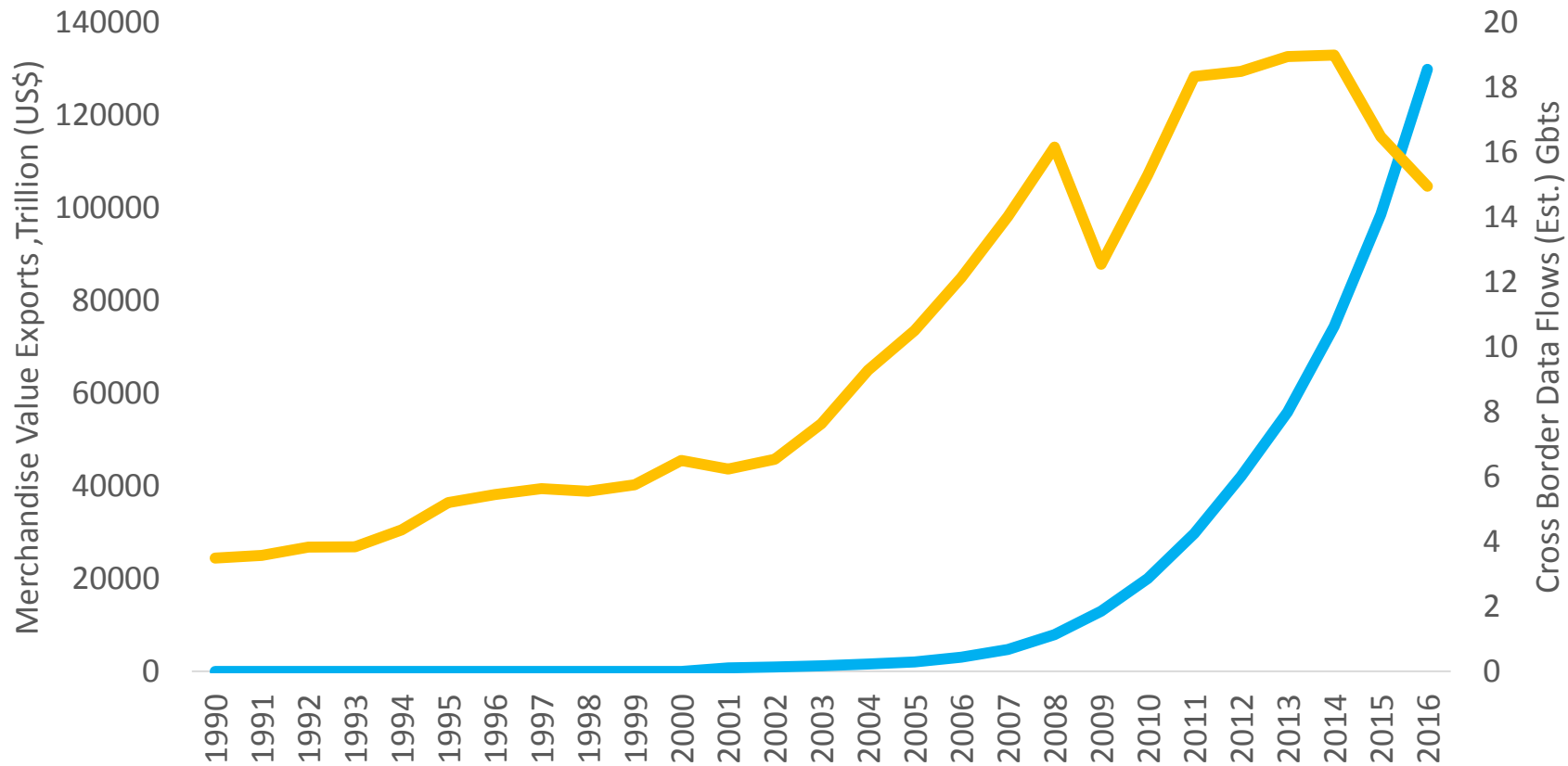
This presentation based on the results from: i) ongoing research, ii) technical World Bank activities, and iii) knowledge sharing from practitioners. The ongoing research is being conducted under the Global Entrepreneurship Research Network (GERN) and led by the World Bank and Endeavor Insights. World Bank activities include technical assistance programs to support local entrepreneurship in Chile, Colombia, Egypt, Lebanon and other countries. Knowledge sharing has been collected from the World Bank-led Community of Practice of Open Innovation in Cities, a community of city practitioners from over 20 cities, including Amsterdam, Barcelona, Nairobi, New York, Mexico City and Seoul.

1.

ECONOMIC TRANSFORMATION:

GLOBAL TRENDS ON ECONOMIC GROWTH AND JOB
CREATION

VALUE IN GLOBAL ECONOMY IS MOVING TO DIGITAL BUSINESSES



Source: World Bank data for Merchandise Value Exports and Telegeography for Cross Border Data Flows.

Notes: 2016 value for Merchandise Value of Exports is estimated based on WTO data reported in September 2017 for volume of trade.

Cross-border data flows for years 2000 to 2006 are estimated based on data trends. Cross-border data flows are estimated using yearly average utilization rate of internet international bandwidth

PACE OF DISRUPTION IS ACCELERATING

Innovation is De-Centralizing and Fragmenting

Small and Flexible

Open Innovation

95-99%
Cost
Reduction

Disruptions of Sectors is Pervasive

TRADITIONAL INDUSTRY	START UP MODEL
Hotel Chains	Airbnb
Taxis	Uber/Lyft
Radio	Pandora/Spotify
Pictures	Instagram
Office Space	WeWorks
Vocational Education	General Assembly
Access to finance	Kickstarter
Phone calls	Skype/Vonage

NEW SOURCES OF COMPETITIVENESS

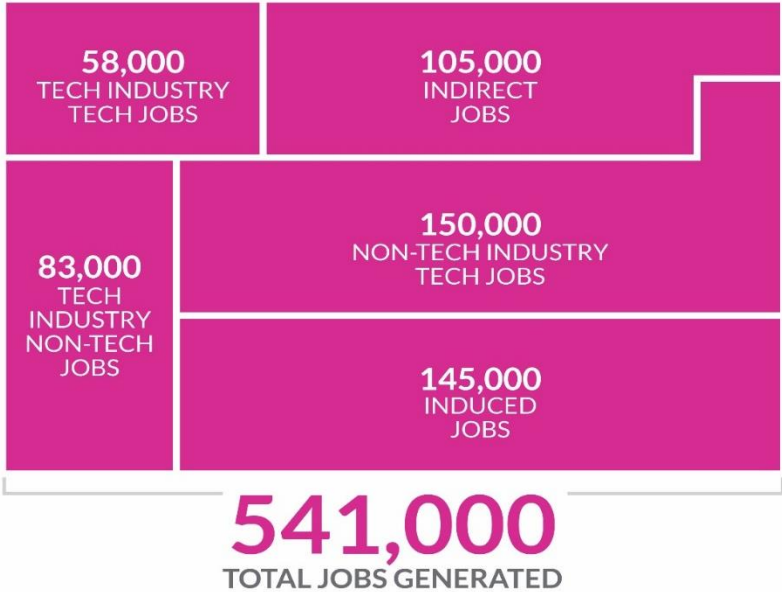
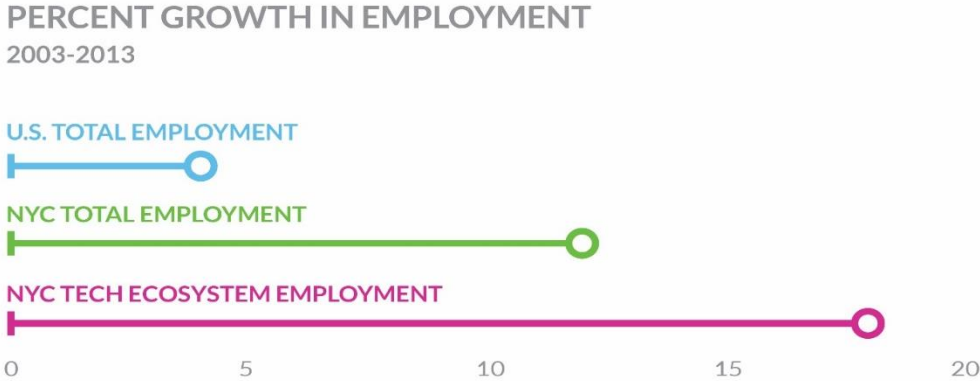
TOP UNICORNS BY VALUATION

Company	Valuation (in billions of dollars)	Country	Industry
Uber	68	U.S.	Ride-hailing/Delivery
Xiaomi	46	CHINA	Hardware
Major smartphone maker; founded in 2010			
Didi Chuxing	33.8	CHINA	Ride-hailing/Delivery
World's largest mobile transportation platform; founded in 2012			
Airbnb	29.3	U.S.	E-commerce/Marketplace
Palantir Technologies	20	U.S.	Big data
Lufax (operates Lu.com)	18.5	CHINA	Financial technology
Major peer-to-peer lender; founded in 2011			
China Internet Plus Holding	18	CHINA	E-commerce/Marketplace
Beijing-based online group-buying services; founded in 2002			
WeWork	16.9	U.S.	Facilities
SpaceX	12	U.S.	Aerospace
Pinterest	11	U.S.	Social media
Toutiao	11	CHINA	Digital media
Mobile news and information application; officially known as Jinri Toutiao			
Flipkart	10	INDIA	E-commerce/Marketplace
Recently raised \$1.4 billion from Microsoft, eBay, Tencent; founded in 2007			

Company	Valuation (in billions of dollars)	Country	Industry
Dropbox	10	U.S.	Internet software, services
Infor	10	U.S.	Internet software, services
DJI Innovations	10	CHINA	Hardware
Leading drone maker; founded in 2006			
Stripe	9.2	U.S.	Financial technology
Spotify	8.53	Sweden	Internet software, services
Zhong An Insurance	8	CHINA	Financial technology
Snapdeal	7	INDIA	E-commerce/Marketplace
Raised \$627 million from SoftBank in 2014; founded in 2010			
Lyft	6.9	U.S.	Ride-hailing/Delivery
Lianjia	6.2	CHINA	E-commerce/Marketplace
Operates popular real estate portal in China; founded in 2001			
Global Switch	6.02	U.K.	Computer hardware, services
Intarcia Therapeutics	5.5	U.S.	Health care
Coupang	5	SOUTH KOREA	E-commerce/Marketplace
Meizu Technology	4.58	CHINA	Hardware
Ele.me	4.5	CHINA	Ride-hailing/Delivery
Magic Leap	4.5	U.S.	Virtual reality/Augmented reality

Source: Financial Times, April 23, 2017

NEW SOURCES OF JOBS



Ratio of
Employment
Creation
10 X

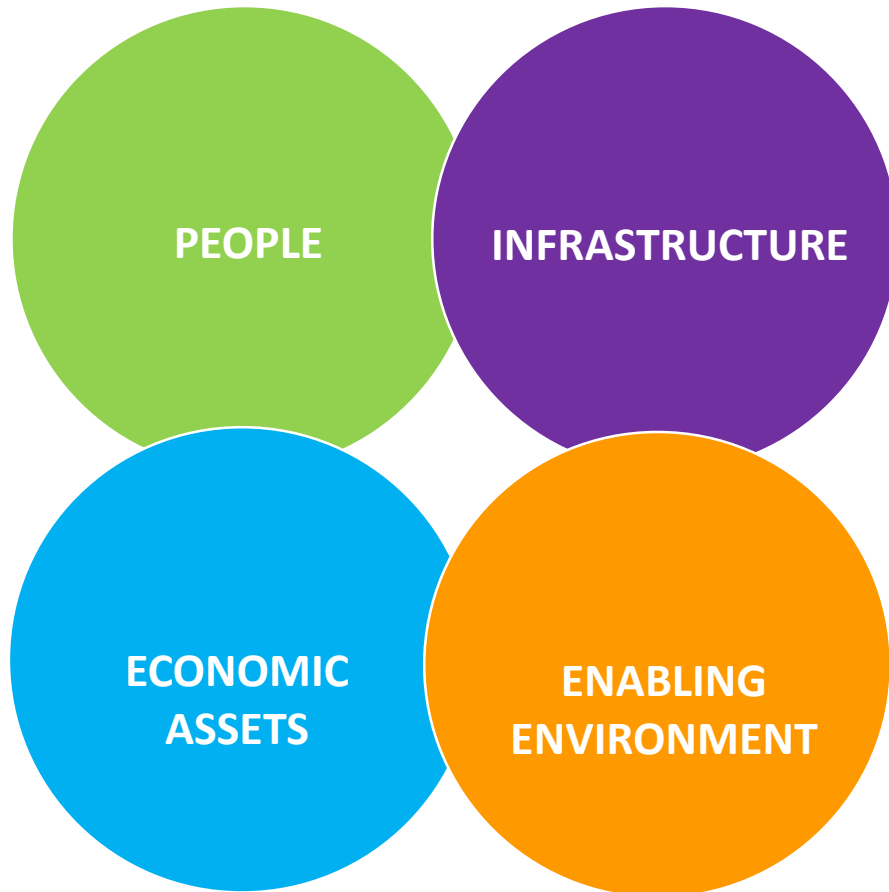
Jobs below
Bachelors Degree
44%

2.

START-UP ECOSYSTEMS:

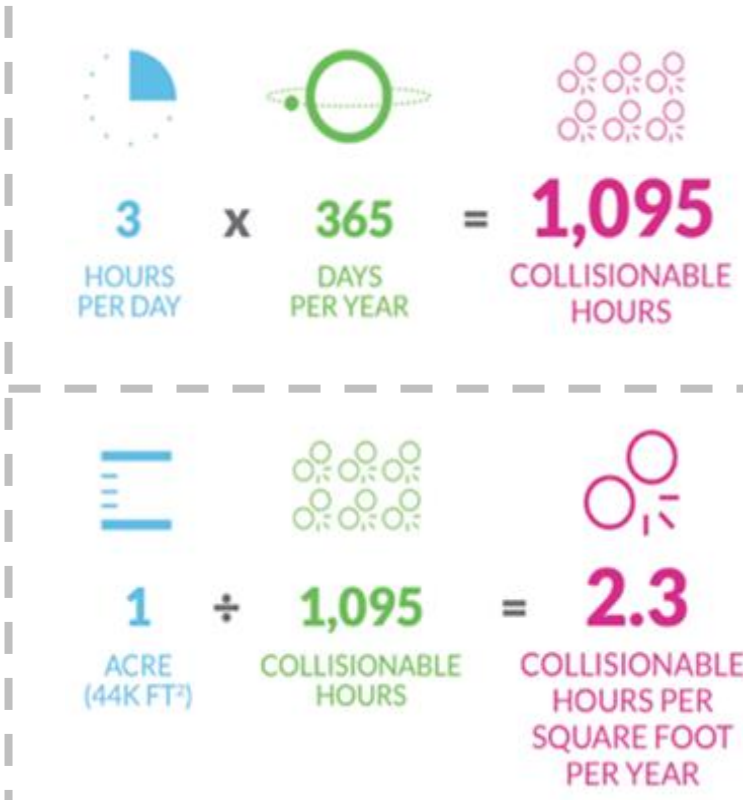
UNDERSTANDING KEY SUCCESS FACTORS

WHAT ARE THE KEY ELEMENTS OF THE ECOSYSTEM?



- **People:** Talent, diversity, creativity...
- **Infrastructure:** Transportation, broadband, city amenities...
- **Economic Assets:** Industries, business and financing...
- **Enabling Environment:** Policies to promote innovation...

HOW INNOVATION HAPPENS?: ADDING THE SOCIAL DIMENSION



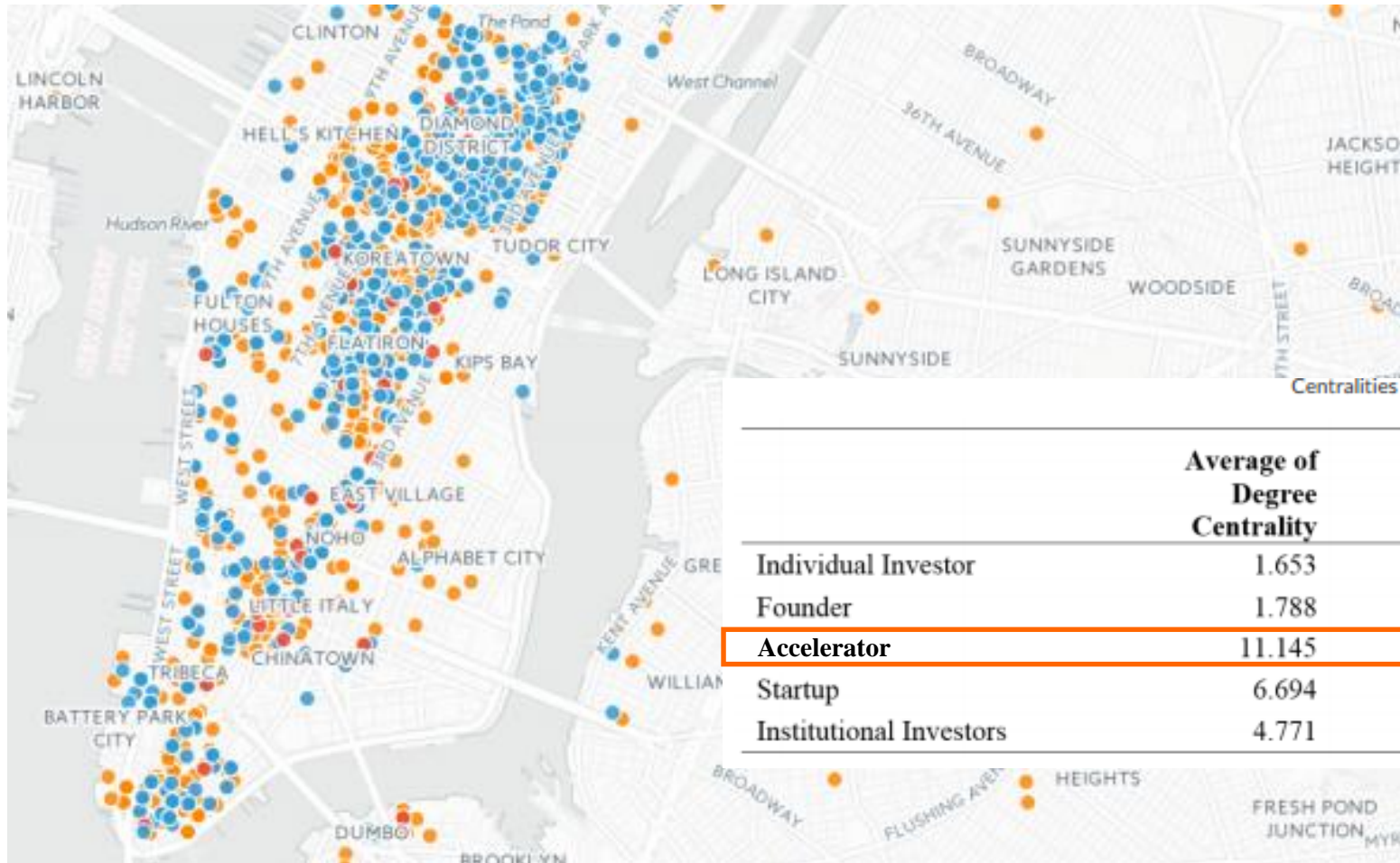
NETWORKING ASSETS AS MULTIPLIERS OF THE SOCIAL DIMENSION

COMMUNITY BUILDING EVENTS	SKILLS TRAINING	COLLABORATION SPACES	NETWORK OF MENTORS
<ul style="list-style-type: none">• Meetups• Conferences, events• Challenges and competitions	<ul style="list-style-type: none">• Bootcamps• Entrepreneurial and technical Rapid skills training• Workshops	<ul style="list-style-type: none">• Community building spaces (e.g., Co-working Spaces, Maker Spaces, Accelerators, Incubators, etc.)	<ul style="list-style-type: none">• Accelerators, Incubators• Angel Investors, VCs• Other network of mentors, alumni, etc.

Source: World Bank (2015) Boosting Tech Innovation Ecosystems in Cities, available at:

<https://openknowledge.worldbank.org/handle/10986/23029>

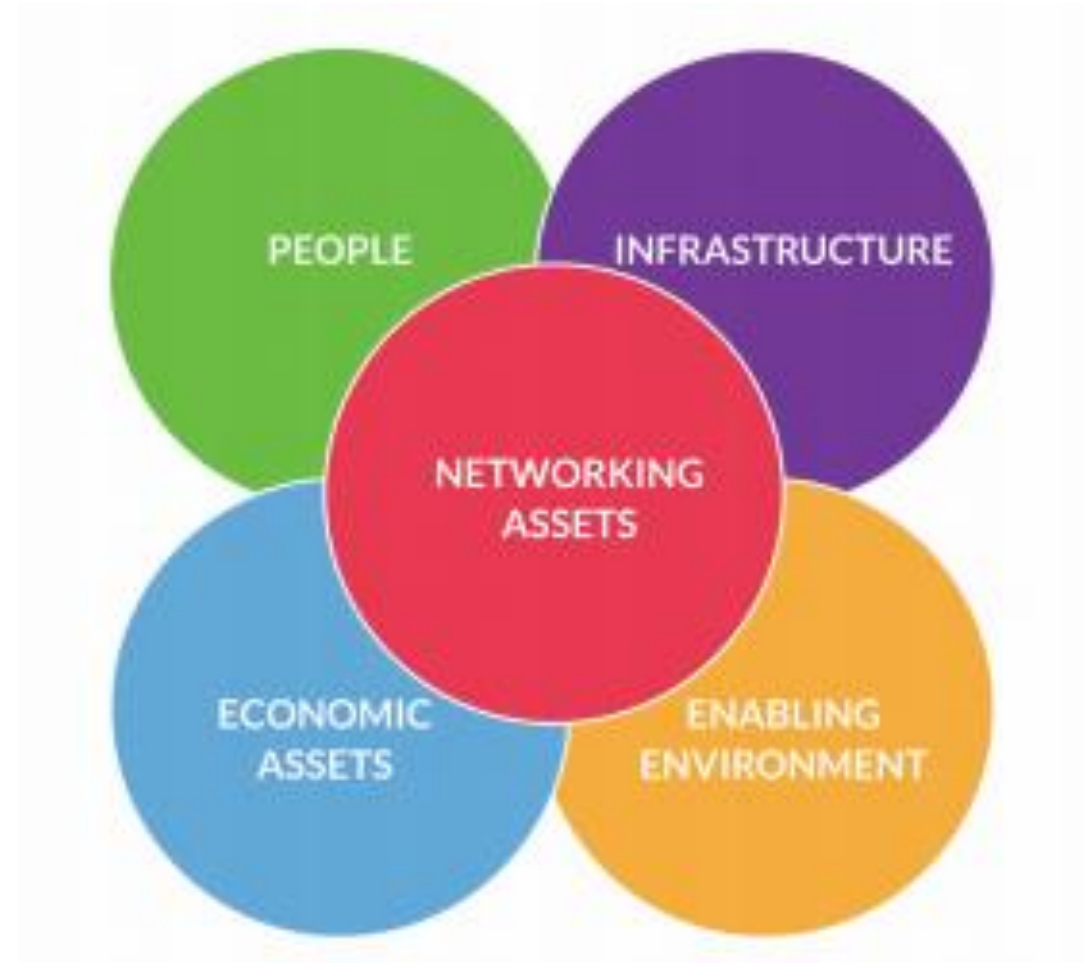
ARE NETWORKING ASSETS THE CONNECTORS OF THE STARTUP ECOSYSTEM?



Centralities by role (2014)

	Average of Degree Centrality	Average of Closeness Centrality	Average of Eigenvector Centrality	Average of Betweenness Centrality
Individual Investor	1.653	0.216	0.000	0.012
Founder	1.788	0.270	0.000	0.008
Accelerator	11.145	0.196	0.003	0.056
Startup	6.694	0.363	0.001	0.029
Institutional Investors	4.771	0.253	0.001	0.023

PROPOSED FRAMEWORK WITH NETWORKING ASSETS



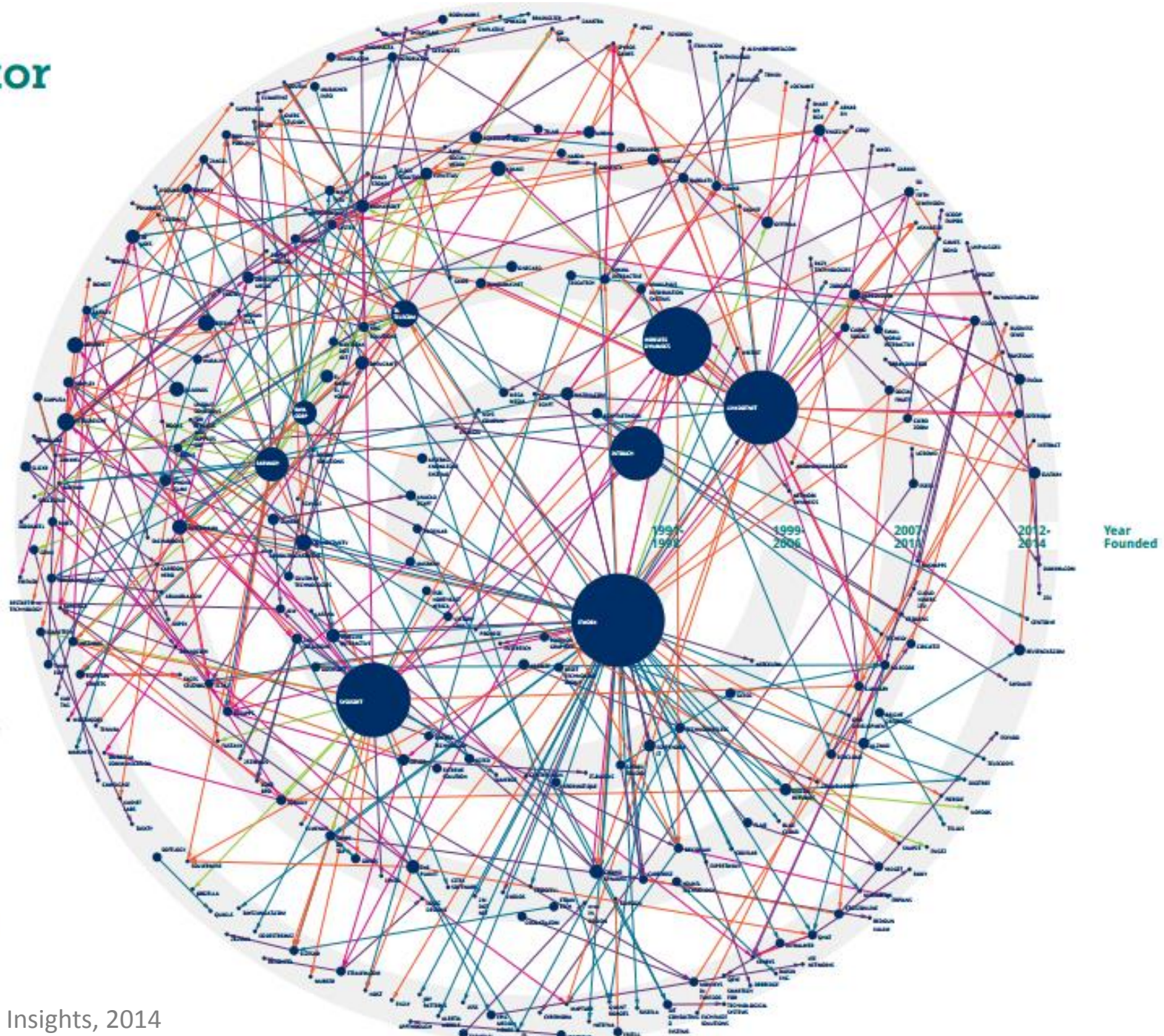
HOW DO GEOGRAPHIC AND SOCIAL CONNECTIVITY IMPACT STARTUP SUCCESS?

Impact of Connectivity on Probability of Funding Next Year

	Odds Ratio ^{xxv}	Standard Error	z	P > z	95% Confidence Interval	
Average Distance to All NYC Startups, Institutional Investors , and Incubators (Degrees)	1097.05	112920.80	0.07	0.94	2.66E-85	4.52E+90
Number of 2 nd -Order Connections to Investors through Founders, Current Employees, and Past Employees	1.00	0.00	-0.29	0.77	0.99	1.00
Change from Previous Year in Number of 2 nd -Order Connections to Investors through Founders, Current Employees, and Past Employees	1.02	0.00	4.54	0.00	1.01	1.02
Had New Investors This Year (Dummy)	1.52	0.29	2.21	0.03	1.05	2.22
Age of Startup (Years)	2.38	0.21	9.67	0.00	1.99	2.83
Number of Founders, Current Employees, and Past Employees	3.12	0.98	3.61	0.00	1.68	5.79
Number of Years with Funding Rounds to Date	0.09	0.02	-11.27	0.00	0.06	0.13
Number of Current Investors	0.85	0.05	-2.58	0.01	0.75	0.96
Number of Years Since Previous Funding Round	0.88	0.06	-1.89	0.06	0.77	1.01

Cairo Tech Sector Network Map

(c. 2014)



Legend:

Size of circle reflects the influence of the entrepreneurs at each company based on their number of outgoing connections.

- MENTORSHIP
- INVESTMENT
- FOUNDER
- FORMER EMPLOYEES
- INSPIRATION

Source: Endeavor Insights, 2014

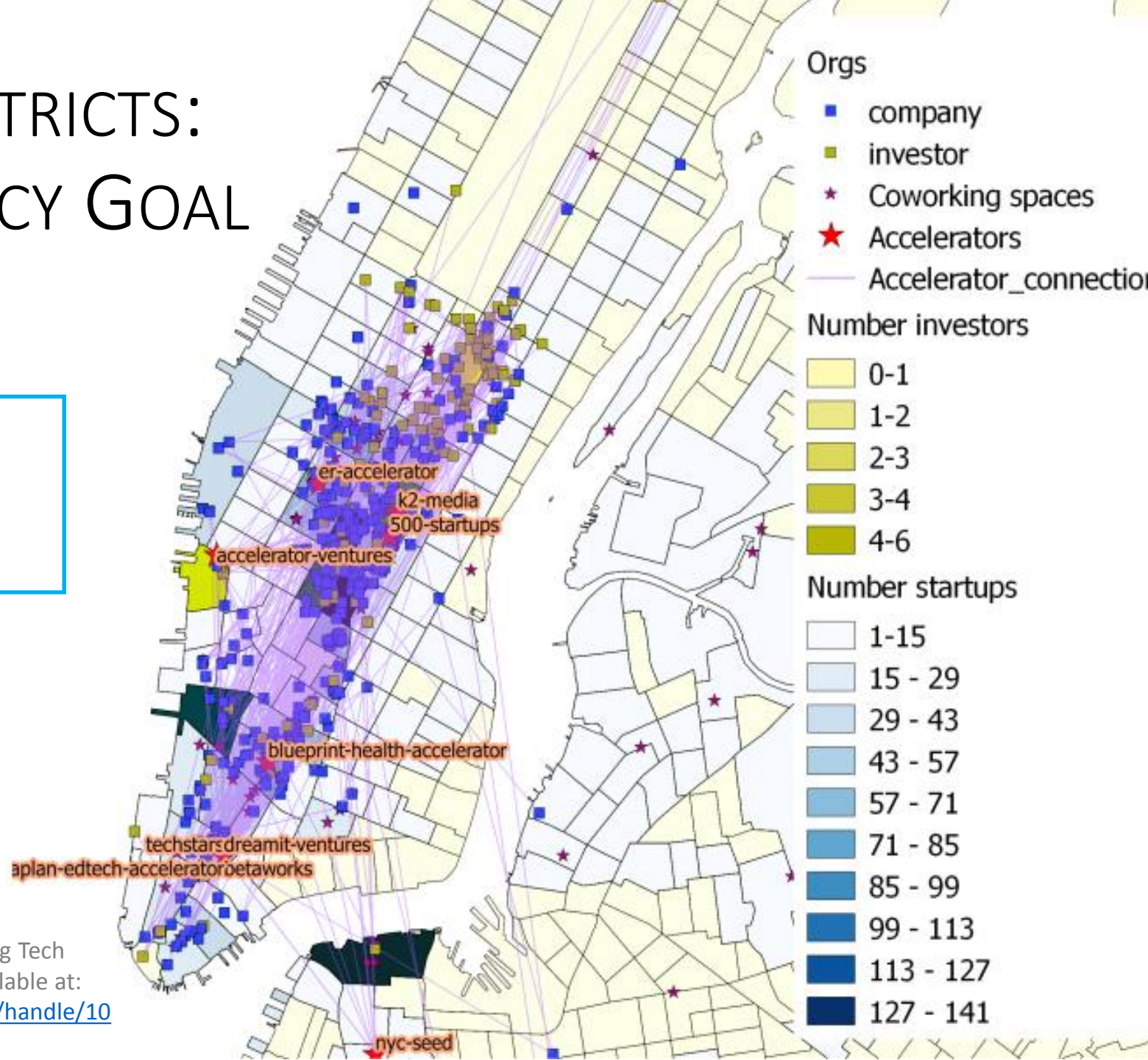
GOING BEYOND DISTRICTS: ECOSYSTEM AS POLICY GOAL

Social Dimension

No Geography
Limitations

Fluidity

Community










Source: World Bank (2015) Boosting Tech
Innovation Ecosystems in Cities, available at:
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3.

ECOSYSTEM AS COMMUNITIES

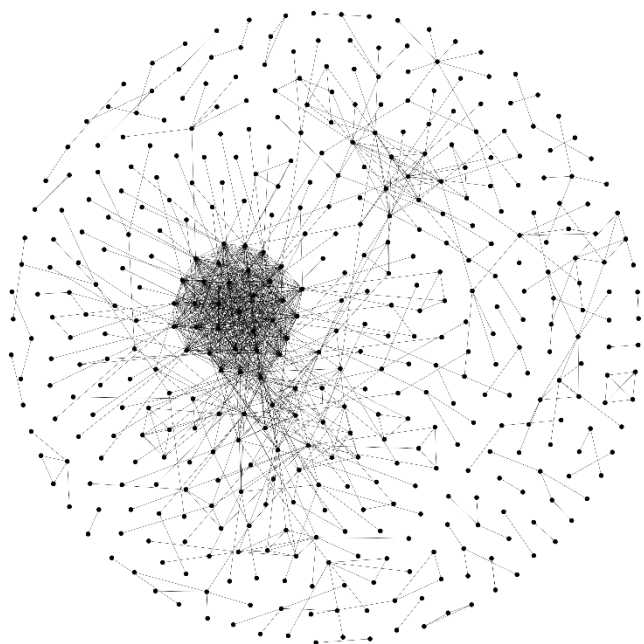
MATURITY, KNOWLEDGE SPILLOVERS AND IMPACT

CURRENT RESEARCH: AREAS OF ANALYSIS

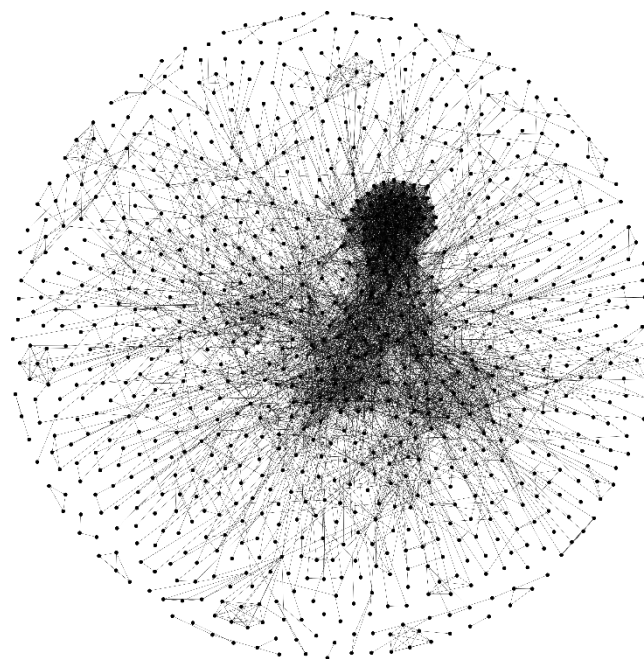
Ecosystem Diagnosis - Gaps Identification	 Skills Pipeline	<u>Talent shortages/planning:</u> technical, university-level, mid-high schools
	 Finance Pipeline	<u>Access/availability of finance:</u> home-grown seed investment; ladder funding
	 Supporting Infrastructure	<u>Maturity entrepreneurship Infrastructure:</u> co-working, acceleration/incubation, etc.
	 Community	<u>Sustainability of local community:</u> home-grown mentors, meetups, social cohesion.
Local Economic Impact	 Innovation Absorption	<u>Absorption of Startup Innovation:</u> local traditional industries, universities, government
	 New Employment	<u>Creation of New Employment:</u> ecosystem employment generation
Urban Dimension	 Urban Transformation	<u>Urban Development/Regeneration:</u> community development, economic and urban growth

COMMUNITY

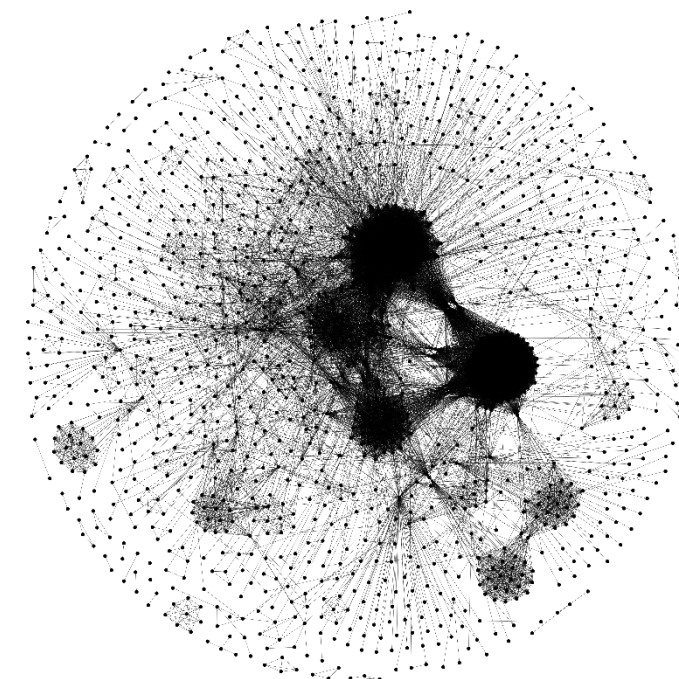
Community analysis. We are looking at the community of entrepreneurs within the ecosystem and how it evolves. As ecosystems mature, community evolves more number of clusters that become denser. We are still exploring the centrality and cluster formation (who are the actors that help in this process and how to affect them through policies?)



Dar Es Salaam



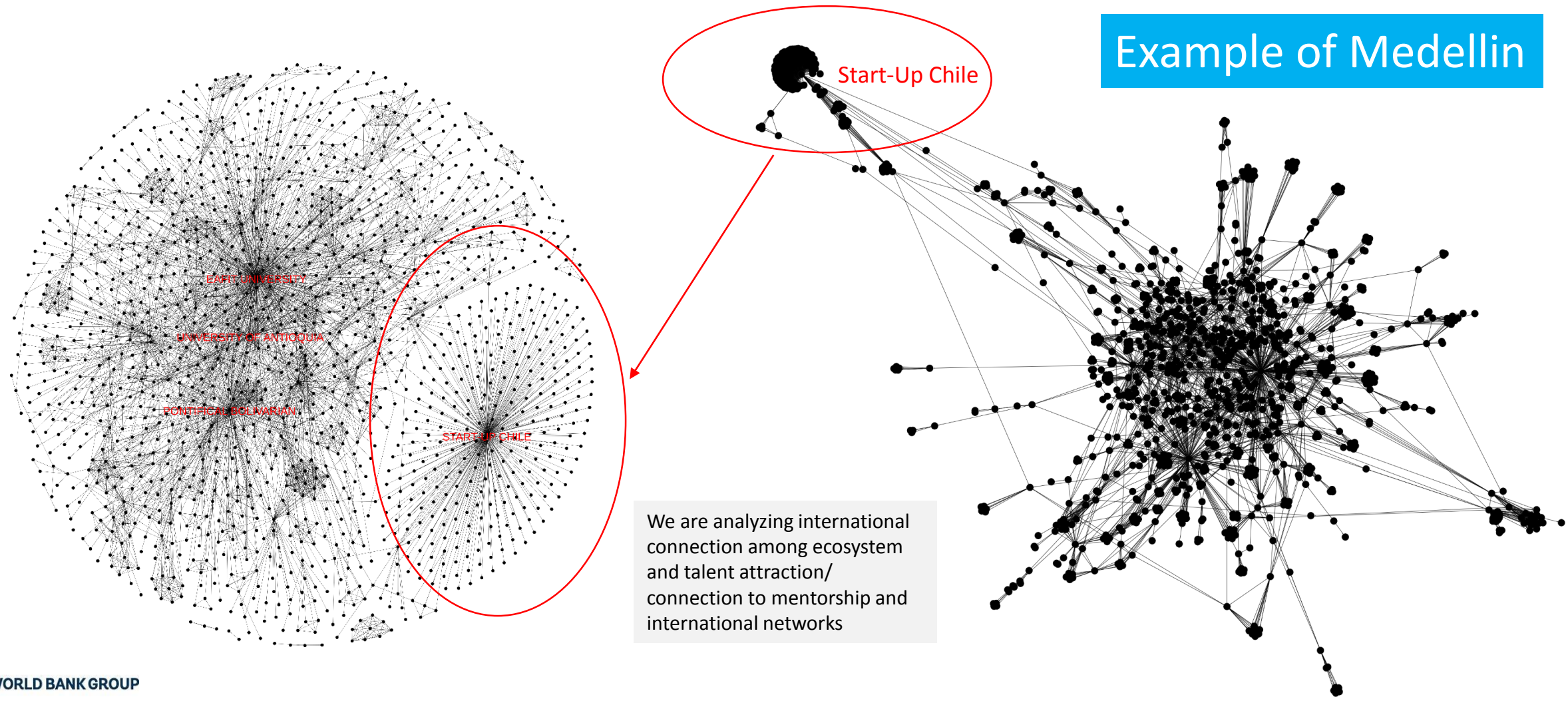
Cairo



Medellin

CONNECTION TO INT'L KNOWLEDGE

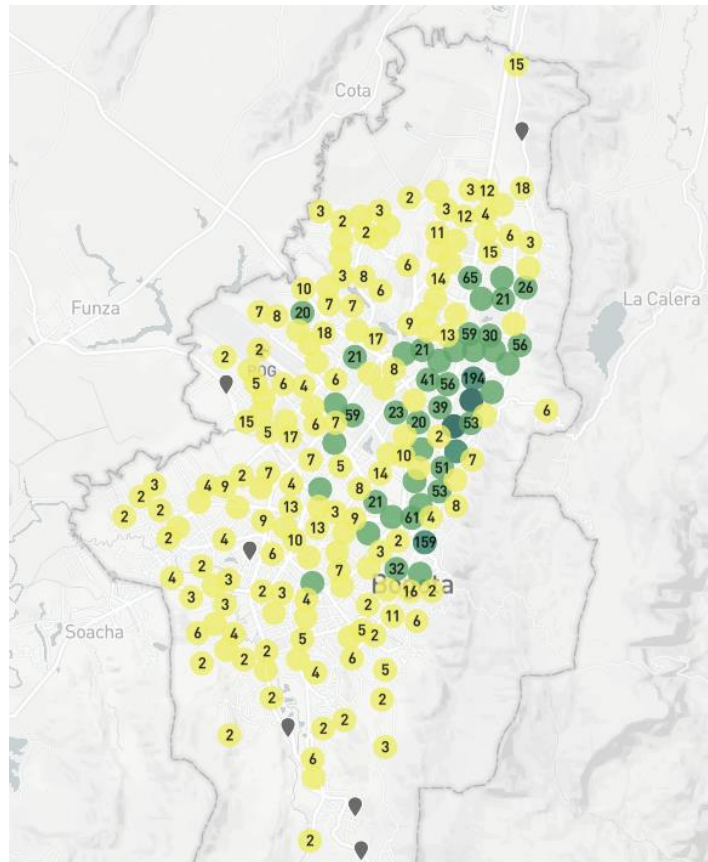
Example of Medellin



We are analyzing international connection among ecosystem and talent attraction/ connection to mentorship and international networks

SPATIAL ANALYSIS: URBAN IMPACT

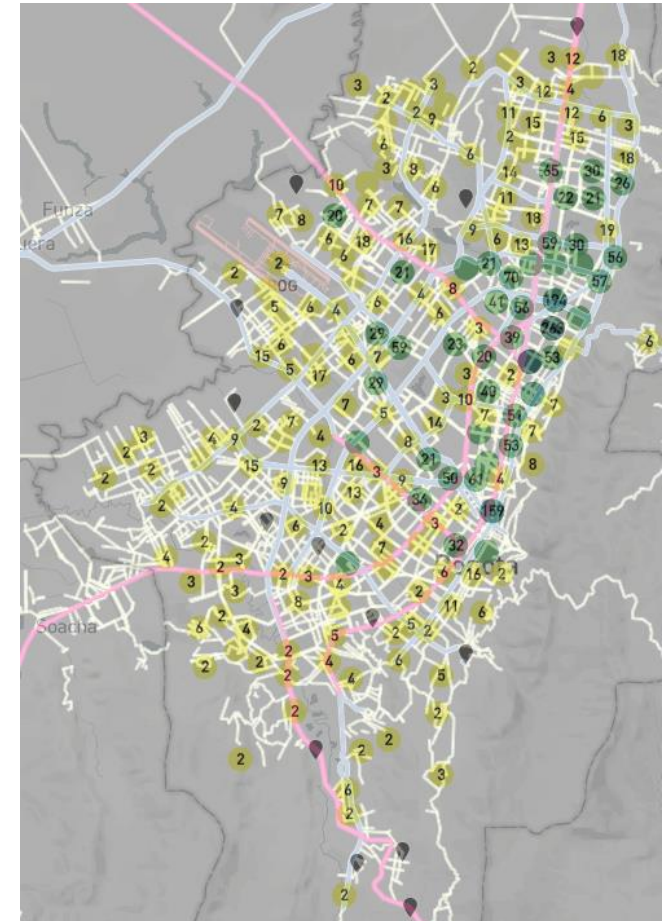
Geographic distribution of start-ups and ecosystem intermediaries



Example of Bogota

Spatial analysis: urban revitalization. We are analyzing the geographic distribution of start-ups and their impact in urban socio-economic dimensions. We are also analyzing impact of infrastructure and other factors in ecosystem geographic location and evolution.

Start-ups and ecosystem intermediaries and road network distribution



STARTUP INNOVATION ECOSYSTEMS: AS NEW SOURCES OF NEW GROWTH AND JOBS



The World Bank team working on the research and technical activities used in this presentations are Victor Mulas (Lead), Kathy Qian, Scott Henry, Anastasia Nedayvoda, Kwame Robinson, Matt Lerner, Mireille Raad, Ainsley Lloyd and Nga Nguyen.

The research is part of the GERN initiative on Innovation Ecosystem Research. Endeavor Insights has been a critical partner in collecting the data for this findings.

AVAILABLE RESOURCES:

BOOSTING TECH INNOVATION ECOSYSTEMS IN CITIES

Working Paper: <https://openknowledge.worldbank.org/handle/10986/23029>

ADAPTING TO THE TRANSFORMATION OF THE ECONOMY:

Working Paper: <https://openknowledge.worldbank.org/handle/10986/25871>

NEW YORK: TRANSFORMING A CITY INTO A TECH INNOVATION LEADER:

Working Paper: <https://openknowledge.worldbank.org/handle/10986/25753>

METHODOLOGY FOR MUNICIPAL GOVERNMENTS TO KICK-START TECH STARTUP ECOSYSTEMS:

Introducing Sustainable Open Innovation in Municipal Governments: <http://bit.ly/OpenInnovationCities>