The Missing Link: Clusters, Small Business Growth and Vibrant Urban Economies

An Analysis of Small Business Development Strategies in the Nation's Ten Largest Cities

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An Introduction to Clusters as an Economic Development Strategy

The importance of clusters for regional competitiveness and economic performance was first recognized in the 1990s (Porter, 1998). The co-location of businesses into clusters increases the productivity of companies in the area, drives innovation, and stimulates the formation of new businesses. Traded clusters – groups of industries that export goods and services out of the region – are particularly important for economic development because they are associated with greater growth in employment, business establishments, wages and innovation (Delgado, Porter, & Stern, 2012; Porter, 2003). Anecdotal evidence suggests that cluster-based economic development strategies are being adopted by cities across the U.S. and internationally.[1] As Christian Ketels, an internationally recognized cluster scholar, recently stated: "While cluster-based economic development is not 'the' answer... it is part of a policy agenda that aims directly to strengthen our ability to generate sustainable and meaningful growth."[2]

Recent studies find that clusters can have a significant impact on the survival and growth of small businesses (Delgado, Porter, & Stern, 2010; Kuah, 2002) and well-designed cluster development strategies can further stimulate start-ups and job growth (Chatterji, Glaeser, & Kerr, 2013; Muro & Fikri, 2011). The primary purpose of this report is to begin to explore the premise that the impact of clusters on small business growth could be strengthened by aligning a city's small business development initiatives with their cluster development strategies. Most cities currently lack a unifying strategy for supporting small businesses. A city's small business support is often comprised of an uncoordinated set of programs developed by a disparate group of private and public organizations. Focusing small business initiatives around cluster strategies should increase the initiatives' effectiveness because it would provide a strategic direction that connects small business growth to a city's competitive advantages. In turn, this effort theoretically should strengthen the effectiveness of a city's cluster development strategies because clusters include many small businesses.

We present insights into the relationship between clusters, small business growth and urban economic growth based on our three-part analysis of the nation's ten largest cities: New York, Los Angeles, Chicago, Houston, Philadelphia, Phoenix, San Antonio, San Diego, Dallas and San Jose. First, we identified the clusters that represent competitive advantages for each metro area and found a subset of clusters that outperform metro growth rates during 2003-2011. Then, to better understand what cities might be doing to support these "dominant" clusters, or how the presence of these clusters may shape cluster policy, we analyzed city and regional economic development plans for each of the ten metro areas. This provided the necessary context for our evaluation of the potential impact of cluster-based small business development strategies on small business growth, which included interviews with 54 experts representing the foundational organizations of a small business ecosystem. While our limited analysis prevents us from drawing any definitive conclusions, it does offer important guideposts for additional research into the complex role clusters play in small business and economic growth. We also highlight promising small business initiatives beyond clusters that could be replicated in other cities to build vibrant, inclusive economies and strong small business ecosystems.

The Importance of Clusters to Economic Growth

Cluster Definitions

The term cluster is often used informally to refer to an economic sector, an industry or an interconnected set of businesses operating within a defined area. Used in this way, clusters may exist at the neighborhood, city or regional levels. However, the term cluster is formally defined in the literature as a set of closely related and interconnected industries operating within a particular region (Delgado, Porter & Stern, 2012). Industries are considered to be part of a certain cluster if they are linked by externalities of various types (e.g., demand, supply, employment, institutions, technology, etc.). Every cluster includes core industries as well as other industries that form a mutually beneficial business ecosystem.

This formal definition of clusters is useful because it is the foundation of a standardized set of Benchmark Cluster Definitions that mark the industry boundaries of each cluster.[3] The standardized cluster definitions were first developed by Porter in 2003 and were updated in 2014 as part of the U.S. Cluster Mapping Project at the Institute for Strategy and Competiveness at Harvard Business School.[4] This unique dataset allows for the comparison of clusters across regions, which is crucial for understanding and improving the competiveness of a regional economy.

Economic Growth Trends, 2003-2011

From 2003-2011, a period that included the Great Recession (2007-2009), the economies of all ten metro areas (as measured by GMP, Gross Metropolitan Product) grew, although the rates varied from five percent in Chicago to 49 percent in San Jose (Table 1).[5] At the same time, most of the ten metro areas showed a decline in employment and small businesses.[6] The exceptions are Houston, Phoenix, San Antonio and Dallas. From 2005-2011, the poverty rate increased in all ten metro areas.

Every metro area has assets and core competencies that create unique competitive advantages for certain industries. For example, Houston is known for its significant oil and gas industry, which grew out of the area's natural oil reserves. As a result of these competitive advantages, every metro area has a set of "dominant" clusters that represent a greater share of employment than exists in other cities.[7] We identified a total of 28 unique dominant clusters across the ten metro areas.[8] Given our sample of the ten largest American cities, we were not surprised to find that many of the clusters were dominant in more than one metro area and Business Services and Financial Services were dominant in all ten metro areas.

The dominant clusters seem to be important drivers of urban economic growth. In 2011, the dominant clusters represented between 18 percent of the total metro area economy (as measured by GMP) in San Antonio and 39 percent in Houston. In each of the ten metro areas, a subset of dominant clusters grew at a faster rate than the metro area economy from 2003-2011 (Table 2). This subset of high-performing clusters represents 48 percent of all of the dominant clusters across the ten metro areas. In aggregate, they grew roughly three times faster (307 percent) than the ten metro areas in aggregate. A market-by-market comparison reveals even faster growth rates in four metro areas. In Philadelphia and San Diego, this subset of clusters grew more than six times faster than their respective metro area economies. In Chicago, they grew more than five times faster and in Los Angeles, nearly five times faster.

In addition, several clusters in each metro area outperformed metro area employment and small business growth from 2003-2011 (Tables 3 and 4). Small businesses within

Table 1. Key Economic Growth Trends by Metro Area

		Percent Change in Business Establishments, 2003 – 2011			
Metro Area	Percent Change in Employment, 2003-2011	5 to 99 Employees	100 to 249 Employees	Percent Change in Poverty, 2005-2011	Percent Change in GMP, 2003-2011
New York	-2%	-1%	-2%	14%	13%
Los Angeles	-6%	-2%	-10%	17%	7%
Chicago	-5%	-5%	-2%	25%	5%
Houston	9%	10%	14%	8%	26%
Philadelphia	-4%	-2%	-7%	15%	8%
Phoenix	4%	6%	0%	37%	14%
San Antonio	12%	12%	13%	2%	24%
San Diego	< -1%	-2%	-10%	37%	9%
Dallas	5%	6%	8%	21%	23%
San Jose	-1%	-2%	-14%	26%	49%
U.S. Total	**-1%**	**< -1%**	**-1%**	**20%**	**13%**

Notes: Metro Areas for the 10 largest cities are defined as the Metropolitan Statistical Areas used by the U.S. Census Bureau. GMP represents Gross Metropolitan Product.

Sources: ICIC's SICE database; U.S. Census Bureau's County Business Pattern data; 2005 and 2011 American Community Survey 1-year estimates; U.S. Bureau of Economic Analysis; ICIC analysis.

Table 2. Cluster and Metro Growth Rate Comparison, 2003-2011

Metro Area	Percent Change in GMP for Dominant, *High-Performing* Clusters	Percent Change in GMP	Difference in Growth Rates
New York	25%	13%	192%
Los Angeles	34%	7%	486%
Chicago	28%	5%	560%
Houston	42%	26%	162%
Philadelphia	54%	8%	675%
Phoenix	31%	14%	221%
San Antonio	71%	24%	296%
San Diego	57%	9%	633%
Dallas	67%	23%	291%
San Jose	123%	49%	251%
10 Metro Areas	**43%**	**14%**	**307%**

Notes: Metro Areas for the 10 largest cities are defined as the Metropolitan Statistical Areas used by the U.S. Census Bureau. GMP represents Gross Metropolitan Product. Dominant, high-performing clusters are defined as the subset of dominant clusters in each metro area with GMP growth rates that exceeded the metro area GMP growth rate between 2003 and 2011.

Sources: ICIC's SICE database; U.S. Census Bureau's County Business Pattern data; U.S. Bureau of Economic Analysis; Cluster definitions from Delgado, Porter and Stern (2014); ICIC analysis.

four clusters – Education and Knowledge Creation, Oil and Gas Production, Transportation and Logistics, and Water Transportation – grew in all or nearly all of the metro areas in which they are dominant clusters. Nearly half of each of these clusters is also comprised of small businesses, suggesting that they seem to have a particularly strong impact on small business growth. The variation in cluster performance during our period of study can be explained in part by the fact that the recession hit some sectors, such as finance, particularly hard. In addition, more mature clusters may be generating diminishing returns to specialization (Delgado, Porter, & Stern, 2012).

Intentional Cluster Growth Strategies

To better understand what cities might be doing to support dominant cluster growth, or how the presence of these clusters may shape cluster and economic development policies, we reviewed the most recently adopted city and regional economic development plans for each of the ten metro areas. The plans were all published between 2005 and 2014 and covered anywhere from four- to ten-year periods. In the ten metro areas we analyzed, we found that each one had adopted some type of intentional cluster strategy. Each of the ten cities had identified targeted clusters as part of their economic development plans, but the strategies to support cluster growth varied greatly across the cities. Some plans had clearly defined strategies, including metrics to track progress, while others were broad and generic, only mentioning the industries that should be targeted, with no well-defined objectives to support cluster growth. While it is too early for most cities, and beyond the scope of this report, to determine the effectiveness of the various strategies adopted, the following sections highlight promising practices that move beyond the conventional business attraction and retention tactics.

Targeted Cluster Strategies

Conventional cluster theory argues that all clusters benefit economic growth (Porter, 2007). Therefore, cluster policies should support all clusters with the critical mass and capacity to grow. We found that each city highlighted specific clusters within their economic development plans. Most of the targeted clusters are not included in the standardized clusters defined within the U.S. Cluster Mapping Project.

Given the recent emphasis by economists and policymakers on the growth of the "knowledge economy," it is perhaps not surprising that nearly every city has targeted innovation- and knowledge-based clusters. While not formally defined, these clusters include research and development businesses and include the "cleantech," "biotech" and "life sciences" clusters. The roots of these often arbitrarily-defined clusters begin in the Education and Knowledge Creation cluster, which is a dominant and growing cluster in five of the ten cities (New York, Los Angeles, Chicago, Philadelphia and San Diego). Each of these cities has developed sophisticated cluster growth strategies that promote research and development and innovation and work to foster a pipeline between research and commercialization by creating networks, providing access to capital and training, or providing incubator space for start-ups (discussed below).

In Los Angeles, for example, a major objective of Los Angeles County's 2010 economic development plan is to leverage the County's research and development facilities for the commercialization of research and technology by creating strong networks of entrepreneurs, capital providers and research institutions. This includes supporting the growth of their cleantech cluster, life sciences, and biotech industries. The LA Cleantech Incubator provides networking and educational events, supports collaborative research and technology commercialization, and provides incubator space to accelerate the development of startups.

In Philadelphia, the 2009 regional plan includes cluster-based economic development strategies focused on small business growth in life sciences and biopharmaceuticals. To support life sciences and biopharmaceuticals cluster growth, the plan leverages Philadelphia's regional assets in bioscience educa-

Table 3. Dominant Clusters that Outperformed Metro Employment Growth, 2003-2011

	Cluster Employment Growth
New York	***-2%***
Education and Knowledge Creation	16%
Marketing, Design, and Publishing	11%
Performing Arts	4%
Los Angeles	***-6%***
Distribution and Electronic Commerce	-4%
Education and Knowledge Creation	31%
Leather and Related Products	28%
Marketing, Design, and Publishing	11%
Medical Devices	35%
Performing Arts	3%
Chicago	***-5%***
Education and Knowledge Creation	33%
Information Technology and Analytical Instruments	5%
Marketing, Design, and Publishing	<1%
Performing Arts	13%
Transportation and Logistics	<1%
Video Production and Distribution	-4%
Houston	***9%***
Construction Products and Services	21%
Distribution and Electronic Commerce	9%
Oil and Gas Production and Transportation	47%
Performing Arts	129%
Philadelphia	***-4%***
Biopharmaceuticals	-1%
Business Services	-1%
Education and Knowledge Creation	13%
Information Technology and Analytical Instruments	5%
Video Production and Distribution	4%
Phoenix	***4%***
Communications Equipment and Services	45%
Financial Services	8%
Hospitality and Tourism	11%
Marketing, Design, and Publishing	14%
Transportation and Logistics	5%
San Antonio	***12%***
Aerospace Vehicles and Defense	206%
Communications Equipment and Services	147%
Financial Services	20%
Hospitality and Tourism	40%
San Diego	***< -1%***
Aerospace Vehicles and Defense	4%
Biopharmaceuticals	99%
Education and Knowledge Creation	1%
Hospitality and Tourism	7%
Information Technology and Analytical Instruments	4%
Marketing, Design, and Publishing	12%
Music and Sound Recording	41%
Water Transportation	136%
Dallas	***5%***
Financial Services	30%
Oil and Gas Production and Transportation	98%
Video Production and Distribution	34%
San Jose	***-1%***
Business Services	2%
Education and Knowledge Creation	18%
Environmental Services	12%
Marketing, Design, and Publishing	290%
Performing Arts	15%

Notes: Metro Areas for the 10 largest cities are defined as the Metropolitan Statistical Areas used by the U.S. Census Bureau. Metro area growth rates are noted in italics.

Sources: ICIC's SICE database; U.S. Census Bureau's County Business Pattern data; Cluster definitions from Delgado, Porter and Stern (2014); ICIC analysis.

tion and innovation, such as the University City Science Center. This Center is the first and largest urban research park in the U.S. and provides technology commercialization resources to entrepreneurs, including incubator space with fully equipped laboratories and programs that nurture and sustain businesses in the life sciences and technology clusters.

In New York City, the New York City Economic Development Corporation launched Green NYC 2025 in 2011 to identify opportunities to support innovation in the green and clean technology sectors. The Urban Future Lab is a clean technology entrepreneur center created in partnership with New York University's School of Engineering. It provides business incubation, product demonstration and exhibition opportunities and education.

Cluster-Based Economic Growth Strategies

Our analysis found that only Chicago's 2012 Plan for Economic Growth and Jobs completely aligned economic growth plans with cluster growth strategies.[9] Chicago identified

Table 4. Dominant Clusters that Outperformed Metro Small Business Growth, 2003-2011

	Cluster Small Business Growth
New York	***-1%***
Communications Equipment and Services	17%
Education and Knowledge Creation	25%
Music and Sound Recording	4%
Performing Arts	6%
Video Production and Distribution	5%
Los Angeles	***-3%***
Aerospace Vehicles and Defense	-1%
Communications Equipment and Services	14%
Education and Knowledge Creation	15%
Chicago	***-5%***
Business Services	-4%
Communications Equipment and Services	13%
Education and Knowledge Creation	31%
Performing Arts	-3%
Transportation and Logistics	12%
Houston	***10%***
Communications Equipment and Services	20%
Environmental Services	84%
Oil and Gas Production and Transportation	27%
Transportation and Logistics	18%
Upstream Chemical Products	23%
Philadelphia	***-2%***
Biopharmaceuticals	16%
Business Services	< -1%
Education and Knowledge Creation	29%
Phoenix	***6%***
Communications Equipment and Services	63%
Transportation and Logistics	13%
San Antonio	***12%***
Business Services	19%
Communications Equipment and Services	50%
Education and Knowledge Creation	24%
Hospitality and Tourism	16%
Insurance Services	14%
San Diego	***-2%***
Aerospace Vehicles and Defense	28%
Biopharmaceuticals	7%
Business Services	2%
Communications Equipment and Services	5%
Education and Knowledge Creation	10%
Medical Devices	-2%
Music and Sound Recording	133%
Water Transportation	11%
Dallas	***6%***
Oil and Gas Production and Transportation	51%
Transportation and Logistics	22%
San Jose	***-3%***
Education and Knowledge Creation	10%
Marketing, Design, and Publishing	18%
Performing Arts	-2%

Notes: Metro Areas for the 10 largest cities are defined as the Metropolitan Statistical Areas used by the U.S. Census Bureau. Metro area growth rates are noted in italics. Small businesses are defined as businesses with 5 to 249 employees.

Sources: ICIC's SICE database; U.S. Census Bureau's County Business Pattern data; Cluster definitions from Delgado, Porter and Stern (2014); ICIC analysis.

advanced manufacturing, business services, transportation and logistics, exports, and tourism and entertainment as their dominant clusters and created an economic growth strategy around these clusters. This strategy involved infrastructure improvements, attraction or retention of businesses through incentives, creating demand-driven and targeted workforce development, and aligning capital access, training, and networks to accelerate business growth within clusters.

Transportation and Logistics is a dominant cluster in Chicago, due to its location in the United States' geographic center and its expansive infrastructure. The cluster experienced employment and small business growth from 2003 to 2011. To capitalize on this competitive advantage and foster cluster growth, the City plans to reduce congestion and improve aging infrastructure as well as develop logistics parks in areas where rail activity is projected to increase and near communities whose populations need employment.

Although it lacks a plan that wholly aligns its economic development and cluster growth strategies, New York City recognizes the importance of a broad cluster strategy. In an attempt to decrease its economic dependence on the performance of any one cluster or sector, and to provide opportunities for workers with varied skill sets, New York City developed Diverse City, an economic diversification program. The program includes policies that foster innovation and entrepreneurship,

attract and retain top talent, and support existing businesses.[10] Due to programs like Diverse City, New York City has strategically moved away from its dependence on a small number of cyclical industries, such as financial services, and has well-defined cluster initiatives for its bioscience, fashion, financial services, green, manufacturing/distribution, media/technology, nonprofit, and tourism clusters.

Cluster-Based Small Business Growth Strategies

To determine if cluster and small business strategies are being integrated, we conducted a thorough review of publicly available information and interviewed 54 experts across the ten cities during June and July 2014. In each city, we identified a representative from each of the following organizations: the City, a small business development center (SBDC), an economic development authority, a prominent community development organization (CDC), a financial institution and a community college. These organizations were chosen because they form the foundation of urban small business ecosystems. As with all primary research, our findings are subject to the usual caveats about interviewee bias.

In each of the ten cities, incubators and networking were the most common industry or cluster-oriented small business growth strategies. In six cities – New York, Los Angeles, San Jose, Phoenix, Houston and San Diego – we also identified small business initiatives and programs beyond incubators that are aligned with cluster development strategies. This seems to reflect an acknowledgement by these cities of the importance of small businesses to cluster growth. As one expert we interviewed in Los Angeles aptly stated, they recognize that the most effective method for growing their aerospace and defense cluster is by helping small business grow because "the aerospace industry is a highly concentrated industry, dominated by a small number of large firms that are supported by a large number of smaller firms."

New York, Houston and San Jose seem to offer the most integrated small business and cluster development strategies based on our assessment of the number of cluster-based small business programs across the ten metro areas. All three cities have cluster-based small business growth strategies focused on their dominant clusters. Some insights and examples from each city are highlighted below. This discussion is followed by a brief summary of incubator programs in the ten metro areas and SBA's Regional Innovation Clusters Initiative, which is a pilot program aimed at integrating clusters and small business support strategies.

New York City's Apparel and Food Cluster Initiatives

In New York City, the Economic Development Corporation (NYCEDC) offers several small business initiatives that focus on barriers to business growth within clusters. For example, it has programs that support the growth of the apparel cluster, which is a dominant cluster in the metro area, but experienced significant declines in employment and number of small business establishments during 2003-2011. Its Fashion Manufacturing Initiative was created to improve the manufacturing infrastructure for the fashion industry, and they also operate a Fashion Incubator. In addition, it offers Design Entrepreneurs NYC, a free, intensive "mini-MBA" program that equips fashion designers with business skills, the NYC Fashion Production Fund, which provides emerging designers with purchase order financing, and the Fashion Fellows Program, which pairs new business owners with industry mentors.

New York City has also targeted the growth of the food cluster, which is an emerging local cluster. Expos, incubators and loan funds, including Sam Adams' Brewing the American Dream program, which provides $500-$250,000 loans to food and beverage small business owners through Accion, have been effective.

Houston's Diverse Cluster Initiatives

Houston is an interesting case study because it was one of the strongest performing cities in terms of employment and small business from 2003-2011 (Table 1). In Houston, according to the experts we interviewed, most initiatives to grow targeted clusters are focused on small business growth. The Port of Houston, for example, provides contracting opportunities and market information to small businesses to connect them to the transportation and logistics cluster opportunities, which is a dominant cluster in the Houston metro area that experienced a slight decline in employment during 2003-2011 but a substantial increase in small business establishments. In addition, the Houston Technology Center is the largest technology business incubator and accelerator in Texas. It provides mentoring and contracting and capital matchmaking services for entrepreneurs in five industries: energy, information technology, life sciences, aerospace and nano-technology. This incubator supports the metro area's dominant Information Technology and Analytical Instruments cluster among others.

Houston also has several small business initiatives focused on the Construction Products and Services cluster, which is another dominant cluster in the metro area that also showed surprisingly strong performance during 2003-2011, with employment gains and a 55 percent increase in small business establishments with 100-249 employees. Most of the programs in the city are aimed at connecting small businesses

to contracting opportunities and resources to help them expand their operations. The National Association of Minority Contractors, for example, provides education and training to minority contractors and connects them to procurement opportunities. The Port of Houston also provides resources and contracting opportunities for small construction businesses.

In Houston, dominant and growing clusters include Business Services; Distribution and Electronic Services; and Oil and Gas Production. Their transportation and logistics small business initiatives would also likely support the growth of small businesses within the Distribution and Electronic Commerce cluster, which includes warehousing and storage. We also learned that the Greater Houston Partnership identifies small business growth as part of their goal to grow the Oil and Gas cluster and the Houston Minority Supplier Diversity Council supports networking events for businesses within the Business Services cluster.

San Jose's Cleantech and Creative Industry Initiatives

In San Jose, the city launched Prospect Silicon Valley earlier this year to promote new business formation and job creation in the cleantech cluster, which supports the area's dominant Education and Knowledge Creation cluster. This cluster performed well during 2003-2011, with an 18 percent increase in employment and an 11 percent increase in small business establishments with 5-99 employees. The Prospect Silicon Valley program operates the San Jose Demonstration Center located at the San Jose Environmental Innovation Center, which allows entrepreneurs to pitch their business to investors and procurement officers. The city's Redevelopment Agency also operates a Clean Tech Fund that provides capital to cleantech companies.

The City of San Jose also operates the Creative Industries Incentive Fund, which supports commercial businesses involved in the production and distribution of the arts, including manufacturers, service providers, designers and others in creative industries. This effort likely supports small businesses within the Marketing, Design and Publishing cluster, which is San Jose's only dominant and growing cluster. That cluster showed remarkable growth during 2003-2011, with a 133 percent increase in small business establishments with 100-249 employees.

The Impact of Incubators on Small Business and Cluster Growth

Incubators are widely considered an important tool for supporting the growth of small businesses, especially within a targeted industry or cluster, and incubators are now ubiquitous in cities across the U.S. While the impact of incubators on the growth of clusters has not been well documented to date, numerous studies show their positive impact on small business growth and the local economy. Incubators vary greatly and the support they offer to small businesses may include networking opportunities, capital connections, research and development support, management training, workforce connections, access to supplier networks, and physical space. Below, we highlight a few examples of incubators that are deemed especially effective at supporting certain clusters.

There are several incubators in Philadelphia, but according to those we interviewed, the University City Science Center's business incubator stands out due to its robust assistance to small businesses as they grow, including laboratory and office space, proximity to higher education institutions and hospitals that support innovation, and a central gathering space for networking, mentorship, and programming that connects entrepreneurs with investors. As of 2009, Science Center-incubated organizations employed 15,686 people, generated $1.6 billion in direct labor income with average wages of $89,000, and generated $5 billion of direct output. The report, prepared by the Economy League of Greater Philadelphia, concludes that the Center is in a unique position to drive economic growth in the new knowledge economy.[11]

There are numerous incubators in New York City. The NYCEDC alone features 15 incubators that it supports on its website. The experts we interviewed in New York mentioned the particular effectiveness of incubators in the technology, biotech, fashion and food clusters because of significant capital costs associated with these industries. The NYC Urban Future Lab in Brooklyn's Tech Triangle, for example, is a collaboration between NYCEDC and NYU's Polytechnic School of Engineering that is dedicated to the growth of clean tech and energy. The incubator houses startups focused on energy efficiency, climate adaptation, resilience, and other technologies that are helping cities become smarter and more sustainable. The Lab hosts a demonstration center for tenants to showcase their work and has temporary exhibits, educational classes and events, consultations, and topical symposia.

Chicago is also home to many different incubators, but the experts we interviewed specifically noted the effectiveness of 1871, which is located in downtown Chicago. This incubator focuses on digital startups and offers working space, educational programming, and networking. It has multiple university partnerships and venture capital connections. Its 1871 FEMtech program is specifically focused on female entrepreneurs. In its first year, the incubator's 225 startups created 800 jobs, raised and infused nearly $30 million in capital, and generated $13 million in revenue.[12]

SBA's Regional Innovation Clusters

Recognizing the importance of clusters in promoting innovation, increasing the efficiency and productivity of businesses operating within the cluster, spurring entrepreneurial activity, and enhancing regional economic growth, the SBA launched the Regional Innovation Clusters Initiative in 2010. The initiative began with ten pilot cluster initiatives.[13] The initiatives support small businesses, with funding from SBA, by fostering networks of small and large businesses, universities and research institutions, regional economic organizations, government agencies, foundations and nonprofit organizations, and investors for each cluster. In addition to building networks, the initiatives also provide services to small businesses such as business training, counseling, and mentoring.

After two years, small business participation in the ten pilot cluster initiatives grew by 380 percent. The small businesses cited networking as the primary driver behind their engagement with the cluster initiatives. Total employment by the small business participants grew an average of 18 percent across the clusters. The participants also reported increases in average revenue and payroll that exceeded most regional benchmarks for small businesses (Optimal Solutions Group, 2013).

One of the ten pilot cluster initiatives, The San Diego Advanced Defense Technology Cluster, anchored by San Diego State University, helps small businesses in San Diego County succeed in the Defense and Homeland Security marketplace. The cluster initiative helps small businesses develop and sell products and services for command, control, communications, computers, intelligence, surveillance and reconnaissance (C4ISR), as well as cyber security, autonomous systems, and renewable energy needs. Businesses that participate in the San Diego Advanced Defense Technology Initiative are largely included in the Aerospace and Defense cluster, which is a dominant and growing cluster in the San Diego metro area. During 2003-2011, the number of small businesses with 100-249 employees in this cluster jumped from four to ten. The primary focus of the initiative is to meet the procurement needs of the Department of Defense by leveraging San Diego's regional assets that give the cluster competitive advantages; namely the highest concentration of Department of Defense facilities in both research and development and operations in the world, multiple universities, a high concentration of prime defense contractors, and a high concentration of innovative small businesses.

Insights into Developing Strong Business Ecosystems

As part of our research on small business development strategies in the ten cities, we inquired more generally about what cities can do to build strong small business ecosystems. Our research and interviews identified three key insights: that strong public sector leadership and coordination are essential, that location matters, and that comprehensive and long-term programs are the most effective. As we report in Table 1, only four of the ten cities – Houston, Phoenix, San Antonio and Dallas – showed growth in employment and small business establishments (5-249 employees). While our analysis does not allow us to conclude if that growth is related to the implementation of the insights we identified, the following section draws on examples of these insights in practice from each of the four cities.

Strong Public Sector Leadership and Coordination Are Essential

In San Antonio, there are numerous resources for small businesses and the Mayor recently coordinated them through an entrepreneurial center called Café Commerce that just opened in June. This initiative grew out of a task force the Mayor convened to identify how the local government can best support small business development. Café Commerce is both a physical and virtual space that connects entrepreneurs to the resources they need during their entire growth trajectory, helping them find the right resources at the right time.

The Institute for Economic Development (IED) at the University of Texas at San Antonio provides another valuable support system for small businesses in the city. In 2013 alone, IED served over 36,000 businesses, trained 23,000 participants, and generated $350 million in new financing for small businesses.[14] The largest program within IED is the SBDC, and IED also includes a center that helps businesses develop foreign marketing distribution channels, a center that supports manufacturing and service firms, a center focused on supporting minority business enterprises, and a center that helps small business owners access government contracting opportunities. IED also provides essential market research.

The City of Dallas plays a strong role in supporting the growth of small businesses with two dedicated departments and numerous initiatives that were considered effective by the Dallas experts we interviewed. During the past 18 months, there has been an intentional effort to coordinate initiatives across public and private organizations in the city.

In Phoenix, there are also numerous programs that support small businesses. The local experts mentioned the effectiveness of the City of Phoenix's Small Business Management and Technical Assistance Program, which provides consulting and training services, and the City's EXPAND Program, which provides gap financing. But the experts we interviewed also expressed concern about fragmentation and lack of cooperation across the organizations supporting small businesses in Phoenix.

Although the City of Houston offers some effective small business development programs, it could play a stronger leadership role in terms of coordinating the city's small business intermediaries. The City of Houston Office of Business Opportunity (OBO) hosts events and programs throughout the year to grow small businesses and partners with other organizations that also provide services, such as Accion. The City of Houston OBO also operates the Houston Business Solutions Center and the City's "Liftoff Houston!" Business Plan competition that was mentioned by those we interviewed as being one of Houston's most effective programs. However, the local experts we interviewed in Houston cited a lack of coordination among the small business intermediaries in the city as an issue that needs to be addressed.

Location Matters

Entrepreneurs exist in all neighborhoods, including those in distressed urban cores. ICIC has spent over a decade documenting the success of high-growth inner city firms and has found that access to education, a skilled workforce and capital programs are essential to their growth. Many of the cities we studied for this report have initiatives or programs, particularly those managed by the local government, that are accessible to a large number of the city's small business owners.

For example, there are eight City-run Business Assistance Centers located in different neighborhoods throughout the City of Dallas that provide management training and business plan assistance. As a result, most business owners do not have to travel far to find assistance. The City also supports a website called SourceLink that connects small business owners to the resources and networks they need to start or expand their businesses. In San Antonio, Café Commerce is physically housed in the city's central library, which makes it widely accessible to small business owners.

In San Jose, the City's Renaissance Entrepreneurship Center, which supports low-income minority- and women-owned business enterprises (MWBEs) through training programs, support services and networking, requires that their business advisors must be located in the same geographic area as their clients in order to cater to the unique challenges and market demand of that specific area.

Despite the work that many of the cities are doing to make their small business programs accessible, these services still may not be providing equal opportunity for all urban businesses. Several of the CDCs that we interviewed raised concerns that small business services run by their city governments were not reaching the most distressed neighborhoods.

For example, a representative from New York City explained that when the City centralized their small business services, it cut funding for the neighborhood CDCs and therefore diminished their capabilities to serve their neighborhoods. Although the City has offices in a variety of New York City neighborhoods, our contact felt that the centralized, one-size-fits-all approach cannot account for the differences between communities to the same degree as CDCs and other local community groups. Similarly, an expert we interviewed in Chicago articulated that the City focuses on neighborhoods with lower minority populations and crime levels that are "easy" to work in, while minority, higher-crime communities get left behind with little city involvement.

Comprehensive and Long-term Programs Are the Most Effective

In Dallas, the experts we interviewed thought the most effective programs were those that offered intensive training over a longer period of time to help businesses get past their start-up phase. Similarly, in San Antonio, the local experts thought the City's Mentor Protégé Program was particularly effective at nurturing small businesses because of its six-month initial training "boot camp" followed by a two-year mentoring program.

In Phoenix, they cited the effectiveness of incubator programs such as the Center for Entrepreneurial Innovation, sponsored by three community colleges, and SeedSpot, which offers a multi-day workshop and twelve- and sixteen-week programs for businesses at different stages of growth. The experts also recognized the effectiveness of SCORE and the SBDC's one-on-one counseling, classes and workshops.

We also found that some cities seem to be doing a better job at connecting businesses to capital than others. Both Dallas and San Antonio have numerous capital access programs and capital providers. In Phoenix, the experts we interviewed noted some concern about access to capital, especially for small loans. In Houston, access to capital was the most cited issue by those we interviewed when asked what the city needed to improve in terms of supporting small business growth.

Inclusive Economic Growth Strategies

As noted in Table 1, poverty rates increased in each of the ten cities during 2005-2011. Houston and San Antonio experienced the least growth in poverty, with increases in the single digits (eight and two percent, respectively). Six clusters across the ten metro areas exhibit relatively high participation in terms of employment and number of business establishments in inner cities, or economically distressed urban areas. They are: Apparel, Education and Knowledge Creation, Environmental Services, Footwear, Recreational and Small Electronic Goods, and Water Transportation.[15] It may be advantageous for these clusters to be located in inner cities because of the competitive advantages of these geographies (e.g., strategic location, local market demand, and integration opportunities with regional clusters). For example, Apparel; Footwear; and Recreational and Small Electronic Goods require manufacturing or back office support space, which is often located in inner cities. Inner cities are also home to a high concentration of universities, suggesting the high participation rates in Education and Knowledge Creation employment. These clusters are not more predominant in Houston and San Antonio than in the other eight cities.

Eight out of the ten cities have relatively robust organizations and programs focused on supporting MWBEs. In Houston and San Antonio, the experts that we interviewed cited the cities' diverse populations as a key driver for the creation of numerous programs focused on MWBEs. The Houston Minority Supplier Diversity Council is recognized as one of the most effective resources for growing businesses in part because they use research findings on contracting opportunities to develop their capacity building programs. In San Antonio, the Minority Business Development Agency at IED and Accion's Women's Business Centers were cited as particularly effective examples.

Los Angeles also had numerous programs and organizations that supported MWBEs throughout the city, but especially in distressed communities. Philadelphia and San Jose were also notable in the number of programs and organizations that exist to support MWBEs.

In stark contrast, Phoenix and San Diego had few programs and organizations committed to supporting the growth of MWBEs and neither City had specific programs or contracting goals for MWBEs. This lack of emphasis was cited as one issue that needed to be improved in both cities in terms of supporting small business growth. It is interesting to note that both cities had the highest increase in poverty (37 percent for each) among the ten cities during 2005-2011. Perhaps a stronger focus on minority-owned business development could help drive down poverty rates in these cities.

Key Findings and Future Research

Our analysis of the nation's ten largest cities shows that clusters are important drivers of urban economic growth. Nearly half of the dominant clusters grew at a faster rate than their respective metro area economy from 2003-2011 (Table 2). In aggregate, they grew roughly three times faster than the ten metro areas. The Education and Knowledge Creation cluster seems to be a particularly strong cluster in terms of small business growth in the ten metro areas we analyzed. Additional research is needed to fully understand the complex relationship between this particular cluster, clusters in general, and economic and small business growth.

Our research also suggests that city governments may be playing a prominent role in driving cluster growth. All ten cities include a cluster growth strategy as part of their current economic development plans, although the integration of cluster strategies varies greatly. The impact of cluster-based economic development plans on the composition and growth of clusters, and, conversely, the influence of dominant clusters on cluster policies, merits additional research. A more in-depth study of existing economic development plans could help inform a framework to guide effective cluster-based economic development plans.

The reality of how clusters increase the productivity of companies, drive innovation, and stimulate the formation of new businesses is still not well understood and is another area worthy of further study. Cluster-focused incubators, for example, could be a key driver. When cities are able to align their small business development initiatives with their cluster growth strategies, they should be able to spur additional small business growth and make their programs more efficient. The cities identified in this report that are already implementing cluster-based small business strategies can be used to more rigorously test this hypothesis. City leaders should also capitalize on what is already working to promote small business growth—providing public sector leadership and coordination, making programs accessible to all entrepreneurs, and delivering comprehensive and long-term support—to help shape their cluster-based small business strategies.

Endnotes

1 The global network for cluster practitioners, The Competitiveness Institute (TCI), includes more than 60 organizational members and a direct network of 4,000 individuals across 111 countries (TCI Network, http://www.tci-network.org/).

2 TCI Newsletter, Letter from the President, June 2014.

3 Standardized definitions allow for comparisons of clusters across regions. Cluster Definitions segment narrow industry codes into 51 "traded" clusters and 16 "local" clusters based on the distribution of economic activity across geographies. Traded industries primarily sell products and services across regions or nations (e.g., automotive, apparel, transportation and logistics, etc.). Local industries provide goods and services almost exclusively for the area in which they are located (e.g., utilities, local health services).

4 The U.S. Cluster Mapping project is a national economic initiative based at the Institute for Strategy and Competiveness at Harvard Business School and supported by the U.S. Economic Development Administration. The institute also collaborates with faculty members from MIT Sloan School of Management, MIT's Entrepreneurship Center, and Fox School of Business at Temple University (www.clustermapping.us).

5 We estimate detailed output (Gross Metropolitan Product) for each dominant cluster using annual gross metro product data provided by the U.S. Bureau of Economic Analysis (BEA) and employment data from ICIC's SICE database. The BEA provides estimates for total, 2-digit, and most 3-digit NAICS industries at the metropolitan, state, and national level; however, clusters are defined by multiple 6-digit industries. To calculate 6-digit outputs, we utilize BEA output data and calculate each 6-digit industry's share of its parent series using employment data and then apply this ratio to the 3-digit output series. Six-digit outputs are then aggregated to the cluster level. For many industries, output data are suppressed at the metropolitan level to protect confidentiality. To overcome this, we use state-level 3-digit output data instead of regional data. In MSAs that cross state borders (New York, Chicago and Philadelphia), we use the sum of state totals. Overall Gross Metro Products are measured from BEA regional (MSA) output data.

6 For this report, we define small businesses as establishments with 5-249 employees. This employee range likely includes most businesses with revenues between $250,000 and $5 million, although there may be some businesses with fewer than 5 employees that have annual revenues in this range.

7 Dominant clusters are defined at the MSA level and are typically called strong instead of dominant. We chose the latter terminology for the clarity of exposition. For a cluster to be classified as dominant, it must meet the following criteria (following Delgado, Porter and Stern, 2013):

- Primary criterion: Location Quotient of Cluster Employment must be greater than the 75th percentile when measured across all MSAs with non-zero employment in the cluster.
- Secondary criterion to differentiate marginal cases: Share of National Cluster Employment greater than the 25th percentile and Share of National Cluster Establishments greater than the 25th percentile.

The MSA includes the central and inner city. Data to define strong or dominant clusters does not exist, and cannot easily be built, for the central city because industry data is reported by county or zip code and city boundaries do not often align with counties or zip codes. We used data from ICIC's State of the Inner City Economies (SICE) database for employment and business establishment analysis. The foundations of this database are the U.S. Census Bureau's County (CBP) and Zip (ZBP) Business Patterns datasets. Cluster definitions are from (Delgado, Porter, and Stern, 2014).

8 Delgado, Porter and Stern (2014) define a total of 51 traded clusters. We identified a total of 130 (non-unique) dominant clusters across all ten metro areas.

9 World Business Chicago (2012). A Plan for Economic Growth and Jobs. http://www.worldbusinesschicago.com/files/downloads/Plan-for-Economic-Growth-and-Jobs.pdf.

10 The Five Borough Economic Opportunity Plan. http://www.nyc.gov/html/econplan/downloads/pdf/diversification_final.pdf.

11 University City Science Center (2009). The University City Science Center: An Engine of Economic Growth for Greater Philadelphia. https://www.sciencecenter.org/about-us.

[12] 1871. One-Year Anniversary Infographic: 1871 Startup's Economic Impact. http://www.1871.com/infographic-1871-startups-economic-impact.

[13] The U.S. Small Business Administration (SBA). "SBA Supports 56 Federally Funded Cluster Initiatives." http://www.sba.gov/sba-clusters.

[14] USTA Institute for Economic Development (2013). IED 2013 Annual Report. http://IEDtexas.org.

[15] Inner city participation is defined by the rate of regional jobs or establishments located in the inner city. Clusters with high inner city participation had inner city participation rates greater than or equal to the overall inner city participation rate for both employment and establishments. Note: The Education and Knowledge Creation cluster only has a high inner city participation rate in terms of employment.

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