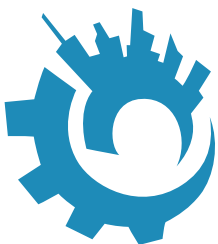


# The State of Urban Manufacturing

**CINCINNATI  
CITY SNAPSHOT**

Mark Foggin, Lisa A. Nelson, and Ann Marie Wiersch  
June 2018

In partnership with:



**Urban  
Manufacturing  
Alliance**



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The views expressed in this report do not necessarily reflect the views of the Federal Reserve Bank of Cleveland or the Federal Reserve System.

**REPORT DESIGN** Maria Klushina

All images courtesy of UMA unless otherwise noted.

June 2018

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# About the *State of Urban Manufacturing*

Manufacturing—particularly specialized, small-batch production—benefits from locating in cities. Firms tap both rich labor markets and dense, sophisticated consumer markets for their finished goods. Firms also benefit from cross-sector collaboration with designers, technologists, and scientists, and these collaborations contribute to urban manufacturing's high value of production. At the same time, cities benefit from manufacturing, and many city and business leaders see this emerging sector as rich with possibility for promoting entrepreneurship, innovation, and economic growth. But many city decision makers have expressed a need to know more about

smaller-scale manufacturers. These innovative businesses, which often combine design, art, and production, frequently do not fall neatly into the data collection categories that government agencies have used for generations to classify manufacturers. Furthermore, the manufacturing data that do exist are often at the metropolitan level, which limits our ability to hone in on the experiences of manufacturers located in the hearts of cities. The result is a lack of understanding by city policymakers of this important sector within their boundaries. Ultimately, urban manufacturers' impact, potential, and needs are poorly understood.

The Urban Manufacturing Alliance (UMA) conceived the *State of Urban Manufacturing* (SUM) study as a way to fill this information gap. Results of the study will begin to give policymakers, economic development practitioners, and workforce training providers information they can use to make strategic decisions to support urban manufacturers. Longer term, this information may serve as a foundation to expand understanding across the economic development field. To inform this national research, UMA collected information directly from hundreds of manufacturers—including more than 100 in Cincinnati—on the nature of their businesses and the challenges they face; the research team also spoke with a variety of organizations that support these firms.

The Federal Reserve Bank of Cleveland and UMA partnered to broaden our understanding of the urban manufacturing sector in Cincinnati (including its entrepreneurs and employees), opportunities to increase interactions between smaller and larger manufacturers, and actions cities can take to help firms thrive and create jobs. We jointly summarize our findings in this snapshot. UMA has developed similar snapshots for five other cities—Baltimore, Maryland; Detroit, Michigan; Milwaukee, Wisconsin; Philadelphia, Pennsylvania; and Portland, Oregon—as well as a national report that will identify promising practices across all six cities that other jurisdictions nationally can employ to help urban manufacturers succeed. Finally, UMA has developed a “manufacturing ecosystem map” for each city to help producers and the organizations that support them match the right resources to businesses' needs.

# Methodology

The *State of Urban Manufacturing* was conducted in two phases beginning in early 2016. UMA launched **Phase 1** to assess urban manufacturing trends by analyzing publicly available data from 16 metropolitan areas that represented a cross-section in terms of size, geographic region, and dominant manufacturing trends or “typologies.” The metropolitan statistical areas (MSAs) included those experiencing a growth in activity driven by one major industry; metros heavily focused on the innovation economy and advanced manufacturing; larger metros with a diversified manufacturing base; smaller metros that are growing the fastest, both in terms of population and jobs; and metros with a strong artisanal or craft production sector.<sup>1</sup>

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<sup>1</sup> These included Atlanta, Georgia; Buffalo, New York; Baltimore, Maryland; Charlotte, North Carolina; Chicago, Illinois; Cincinnati, Ohio; Detroit, Michigan; Houston, Texas; Los Angeles, California; Milwaukee, Wisconsin; New York, New York; Philadelphia, Pennsylvania; Portland, Oregon; Salt Lake City, Utah; San Francisco, California; and San Jose, California.

Focusing on the MSA level allowed for ease of comparison over time using readily available data from the Bureau of Labor Statistics, Bureau of Economic Analysis, and US Census. The indicators we examined include changes in the number of jobs and establishments, wage rates and their change over time, demographics and the educational attainment of the workforce, and the contribution of the manufacturing sector to the MSA's gross domestic product.

However, existing data reveal only so much about urban manufacturers' challenges. In each city, UMA sought to understand with greater precision the manufacturers' day-to-day experiences and to spur new thinking about how service providers and local officials can support these firms. The Federal Reserve Bank of Cleveland partnered with UMA on **Phase 2** to collect data directly from manufacturers in the city of Cincinnati through a survey distributed by community partners. We also conducted a focus group for three stakeholder types—larger, more established manufacturers, smaller manufacturers, and service providers—to gather deeper insights on business conditions and the drivers of the trends that would be identified through the survey. These service providers support manufacturers by facilitating connections to financing, market development, workforce development, business acceleration, affordable real estate, and assistance with navigating regulations. Community partners recruited the focus group participants.<sup>2</sup>

In the study of urban manufacturing – particularly small-scale urban manufacturing – it is important to recognize that not all producers consider themselves manufacturers. For instance, some embrace the term “maker” while others identify as artisans. Other research is beginning to explore ways of capturing these identities in a more structured framework.<sup>3</sup> Rather than impose a structure that is still not fully defined, we enlisted survey respondents to help advance the field's understanding by asking them how they defined themselves at the founding of their

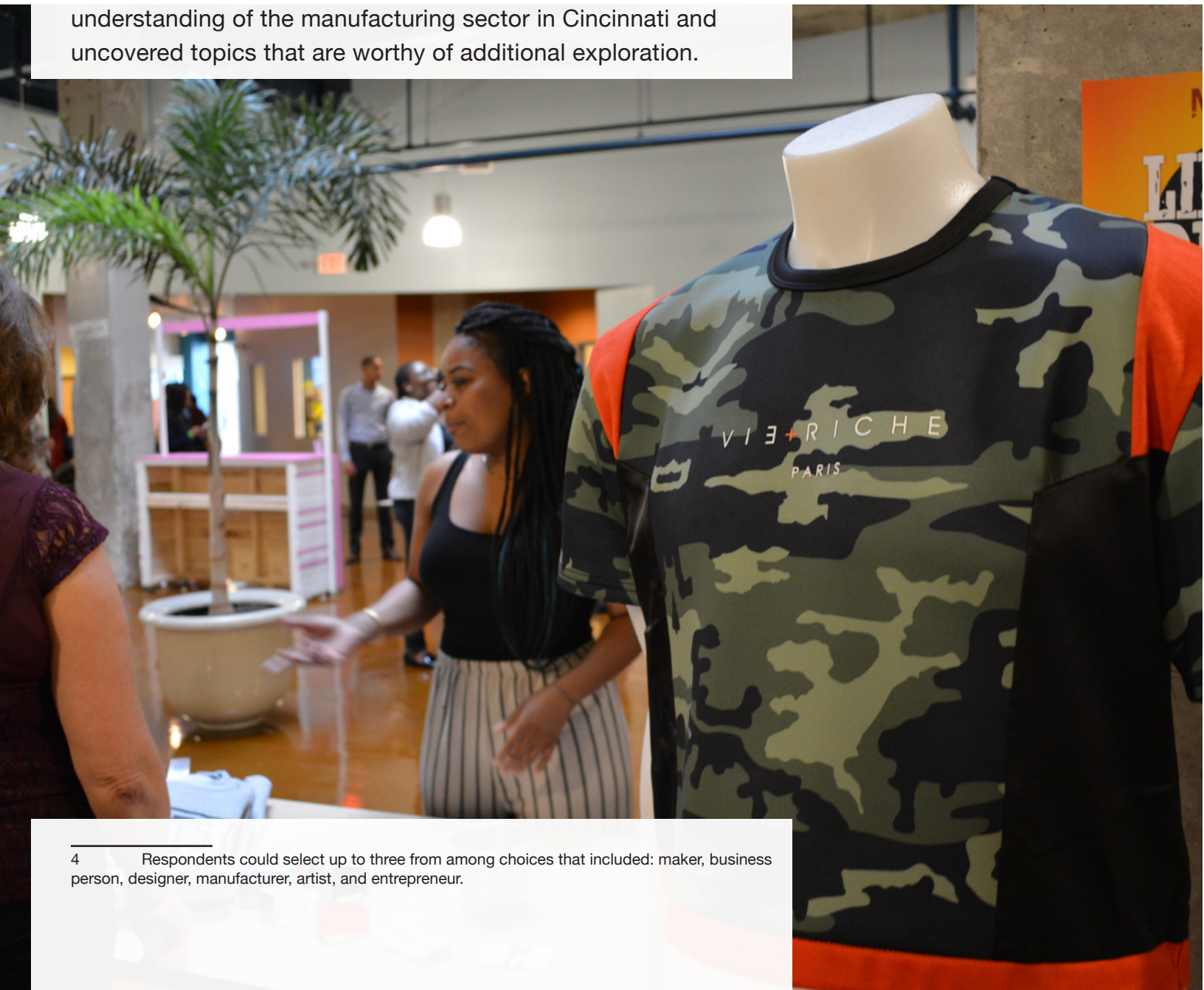
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<sup>2</sup> Our main community partner in Cincinnati was Cincinnati Made; however, dozens of organizations helped us deploy the survey to their networks across the city.

<sup>3</sup> Laura Wolf-Powers, Marc Doussard, Greg Schrock, Charles Heying, Max Eisenberger, Steve Marotta, *The Maker Economy in Action: Entrepreneurship and Supportive Ecosystems in Chicago, New York and Portland*. Portland, OR: Portland State University, 2016. Available at <http://www.urbanmakeconomy.org/>

business versus at the time they completed the survey.<sup>4</sup> These efforts provide insights for researchers and service providers that may help them reach more small manufacturers.

Because the survey was not conducted with a random sample of manufacturers in Cincinnati, it is not representative of manufacturers in the city as a whole. We relied on community partners working with manufacturers to promote the survey and focus groups; as such, the sample reflects the types of businesses these partners interact with most. In addition, the relatively small sample size also limits the strength of the conclusions that we are able to draw from the study. A total of 103 firms participated in the survey, and representatives from 14 companies and other organizations joined us for the three focus groups. Still, this study has significantly increased our understanding of the manufacturing sector in Cincinnati and uncovered topics that are worthy of additional exploration.



<sup>4</sup> Respondents could select up to three from among choices that included: maker, business person, designer, manufacturer, artist, and entrepreneur.



# Overview

While the manufacturing sector in the Cincinnati MSA lost one-fifth of its jobs from 2007 to 2016, manufacturing remained the region's second-largest employment sector, with 114,370 jobs or 11.2 percent of the total. At \$8.10 billion, the manufacturing sector had the highest share of total wages.

Figure 1: Total Employment by Major NAICS Category; MSA Level, 2016<sup>5</sup>

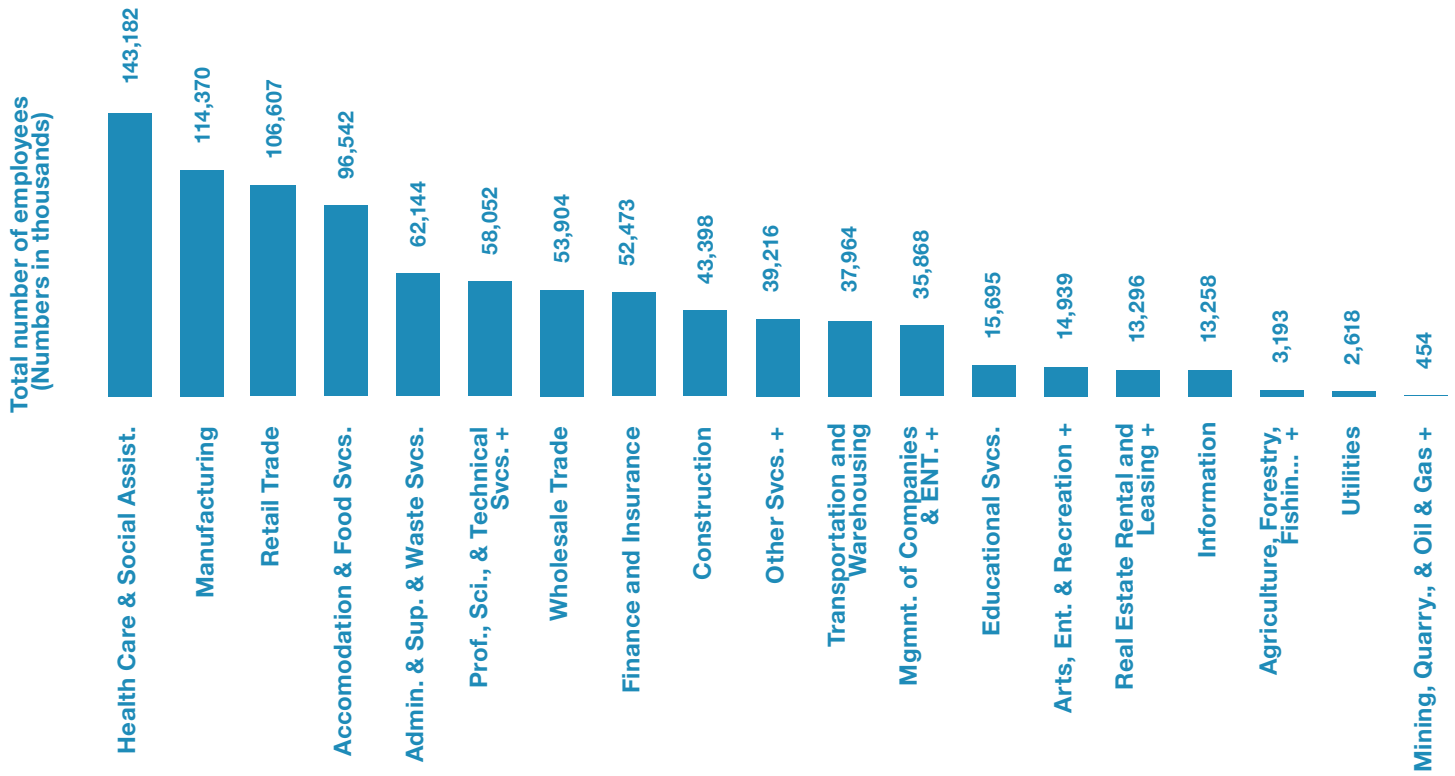
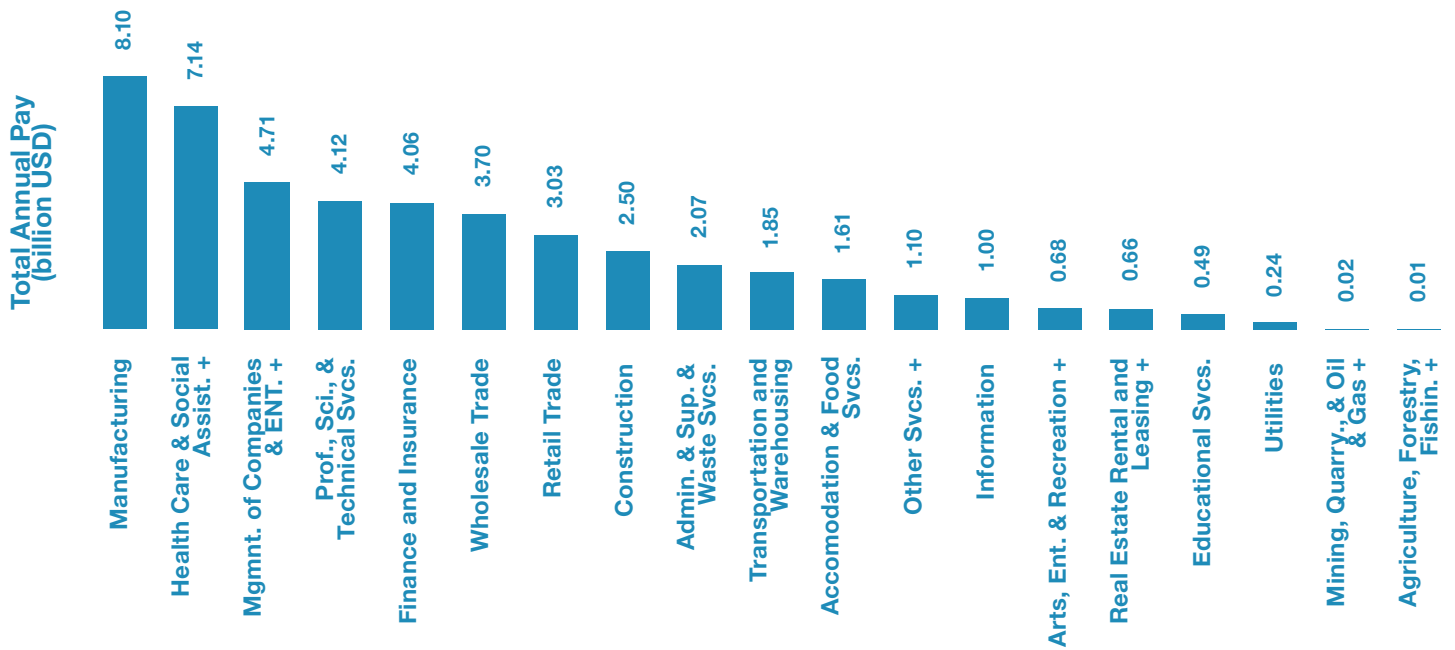


Figure 2: Total Annual Pay by Major NAICS Category; MSA Level, 2016<sup>6</sup>



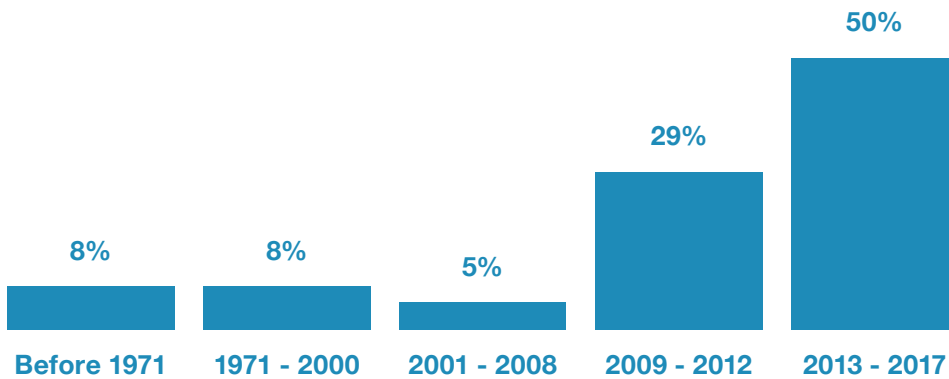
5 Total employment, all industries: 1,022,879  
 Source: Quarterly Census of Employment and Wages, Bureau of Labor Statistics, 2016 + QCEW data unavailable; County Business Pattern (CBP) data shown

6 Total wages, all industries: \$53,022,345k  
 Source: Quarterly Census of Employment and Wages, Bureau of Labor Statistics, 2016 + QCEW data unavailable; County Business Pattern (CBP) data shown

A majority of the survey respondents come from the emerging maker and small-batch production economy. These firms tend to fall through the cracks in data describing traditional manufacturers because many small producers straddle sector categories such as design, service, and production.

Survey respondents represent several manufacturing subsectors and also tend to be young and small. The median year of founding is 2013, making Cincinnati respondent firms younger, on average, than in every other city UMA is studying, except Detroit. Sixty-five percent had revenues of less than \$100,000. Fifty-four percent of responding firms are sole proprietorships, 34 percent hold additional employment aside from their manufacturing business, and 31 percent operate from home. Among firms with staff, 58 percent had fewer than 10 workers. Smaller firms are more likely to use part-time and contract workers; four employ contract staff only. Still, 40 percent of the responding firms founded since 2009 sell to markets beyond the Cincinnati region.

**Figure 3: Survey Respondents by Year of Founding (n = 101)**



**Figure 4: Survey Respondents' 2016 Revenue (n = 100)**

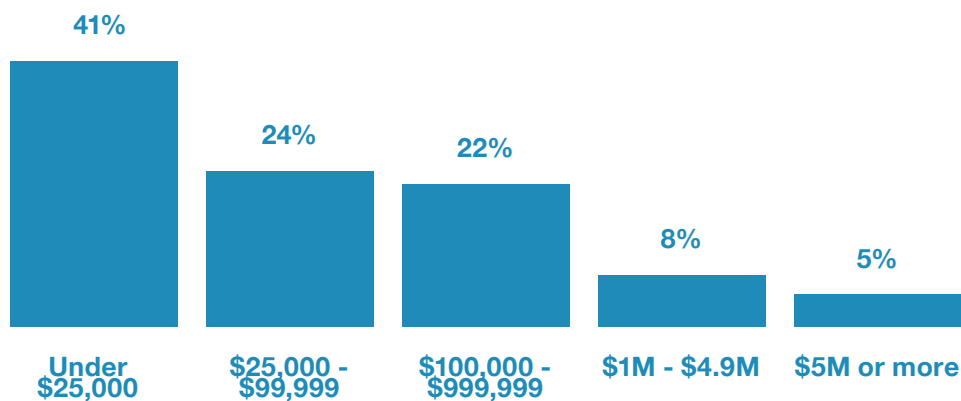
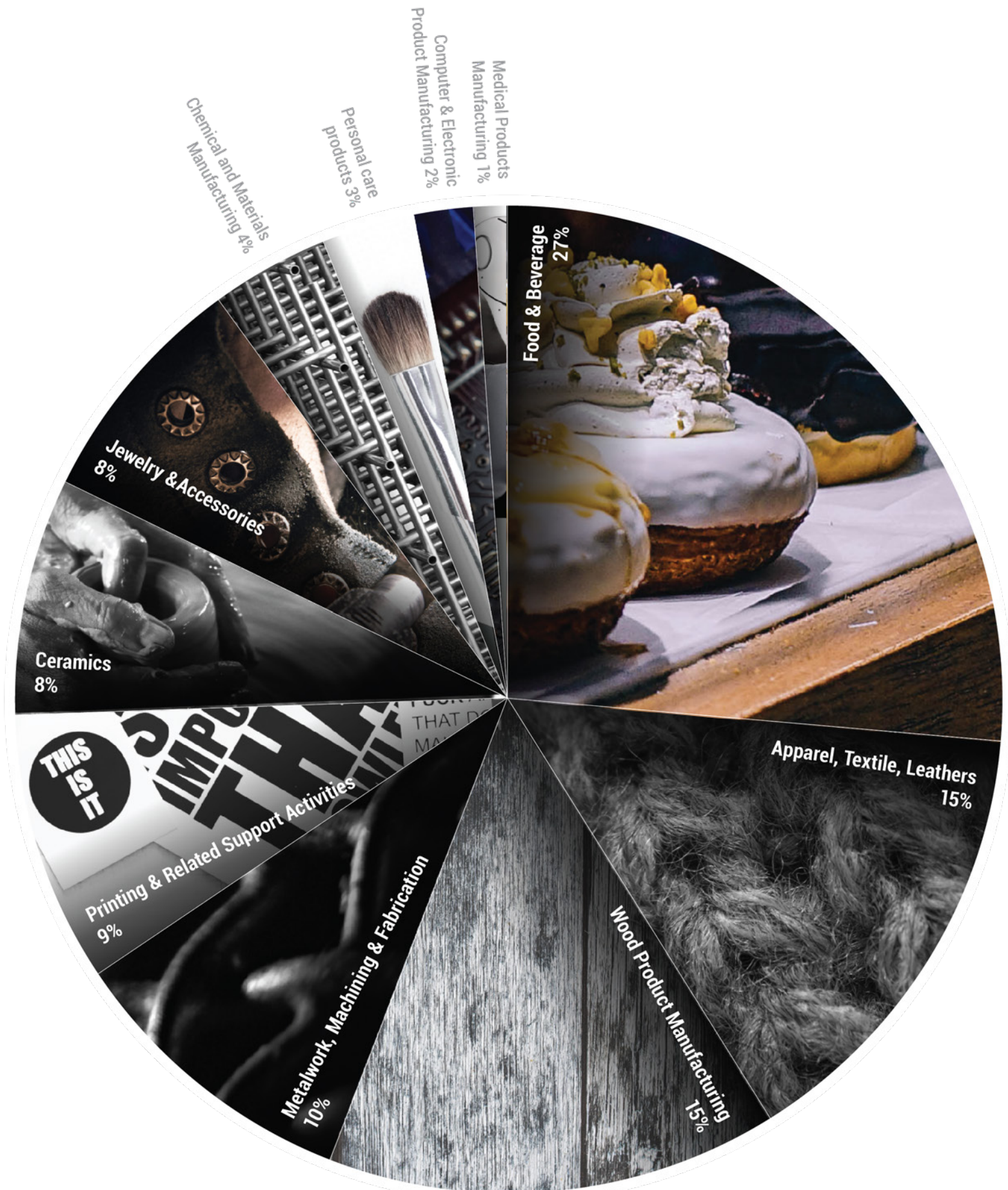
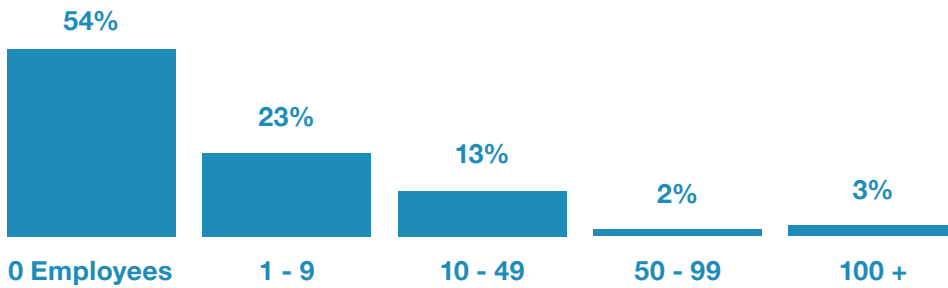


Figure 5: Survey Respondents by Subsector (n = 103)



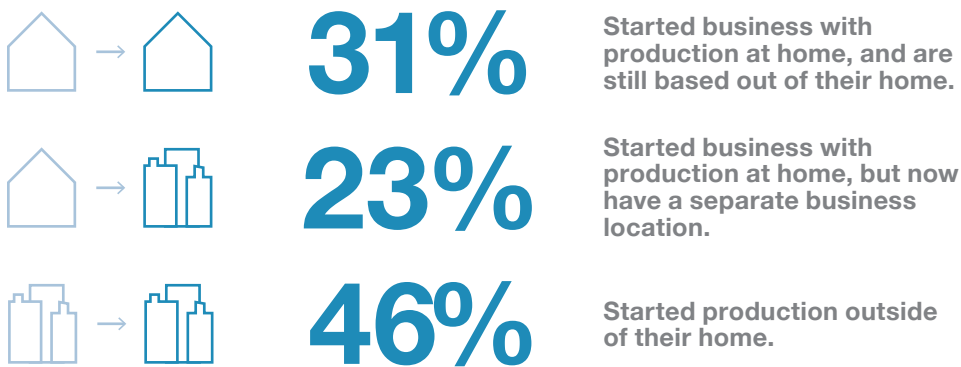
**Figure 6: Survey Respondents' Number of Employees (n = 103)**



The survey results indicate a business-growth mindset among many of these firms, including the sole-proprietorships:

- Seventy-nine percent of those firms providing two years of revenue data grew between 2014 and 2016. Sixty-nine percent of responding firms started their businesses outside of the founders' homes or have graduated from a home-based business to a separate location.
- Sixty-three percent of responding firms expected to be in larger space in the next two years.

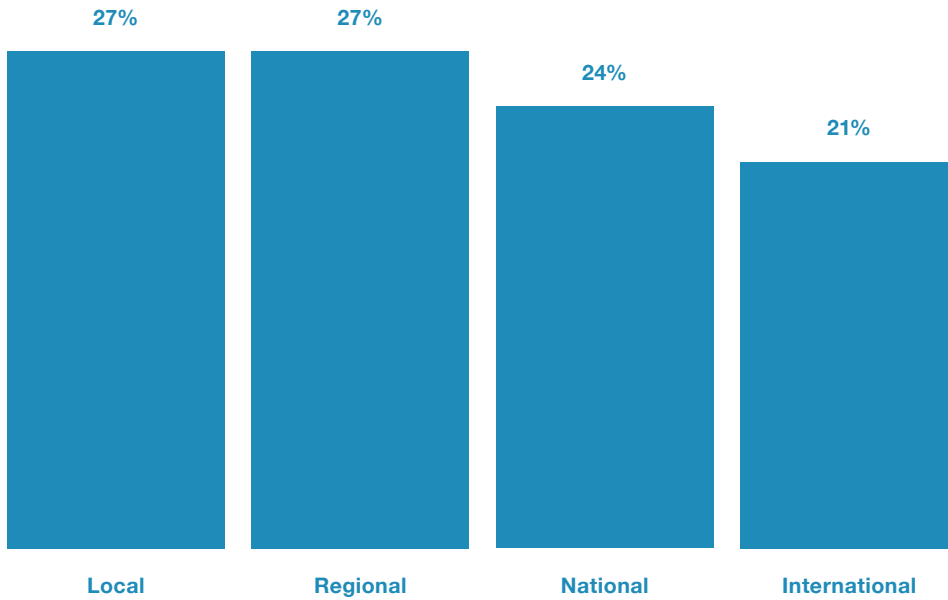
**Figure 7: Survey Respondents' Production Location over Time (n = 103)**



- Ninety-six percent of responding firms expected to be larger businesses in two years, with 69 percent saying they expect to be significantly larger.
- Seventy-two percent of firms with employees expected to add full-time employees, 37 percent planned to add part-time employees, and 21 percent planned to add contract workers.
- Eighty-four percent of sole proprietors expected to add employees in the next two years.

Notably, more than half (56 percent) of survey respondents reported that limited production capacity had forced them to forego sales or business opportunities in the previous 12 months, suggesting firms may be facing unmet demand for their products.

**Figure 8: Survey Respondents' Market Reach (n = 99)**



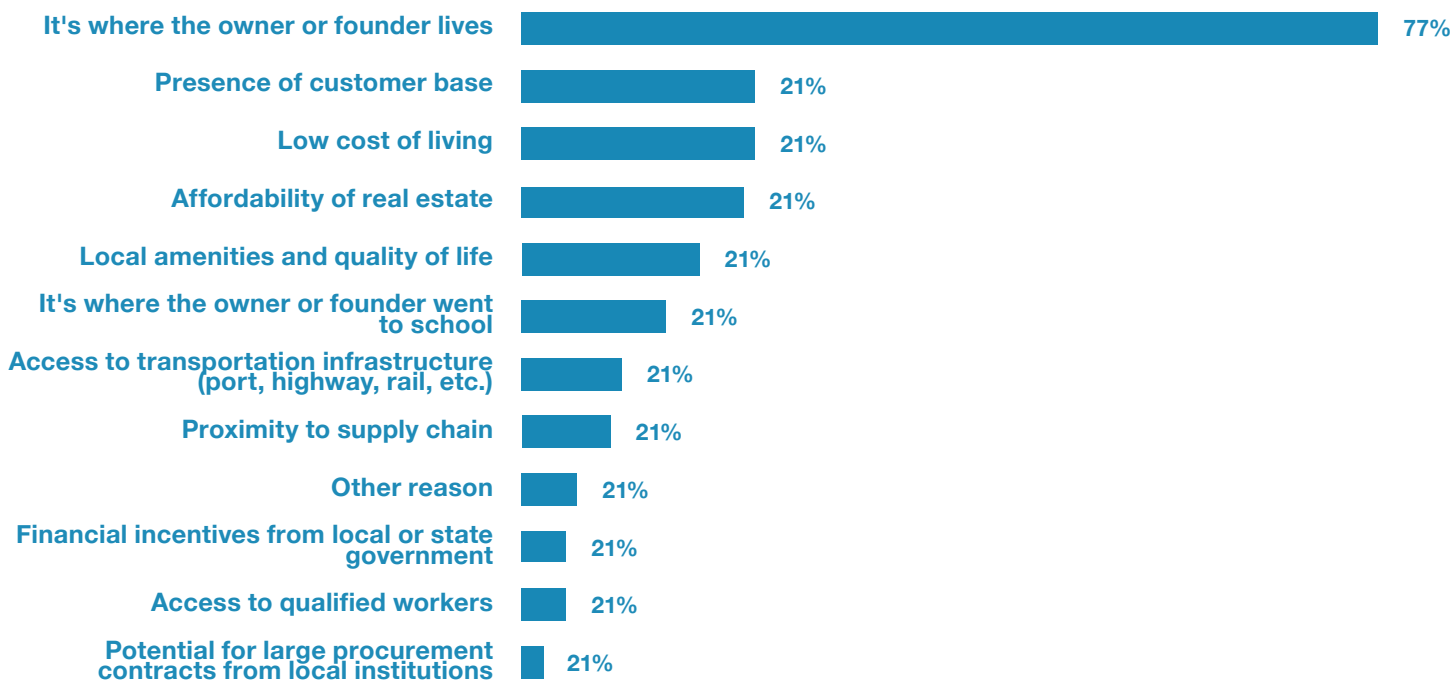
The focus group discussions revealed further insight on growth intentions. Smaller producers expressed an interest in growing beyond the local Cincinnati market. However, many also described challenges in finding support to better market their products. Several small makers expressed that having a contract manufacturer capable of producing in small batches, but with the capacity to grow, was valuable.

At the same time, mid-sized manufacturers expressed an interest in producing for small-scale manufacturers. Doing so can be an effective way to fill gaps in their production schedules and improve their bottom lines.

# The Manufacturing Environment in Cincinnati

A number of survey questions focused on how firms had come to be in Cincinnati and whether they plan to remain there. Most respondents chose Cincinnati because it is the founder's home; this response is consistent with findings from other cities. Among those who envisioned relocating their businesses in the near future, 82 percent planned to remain in the city. When asked why they planned to move, respondents mentioned the need for additional space for production, storage, and storefronts. Several respondents expressed a desire to own, rather than rent, their space.

**Figure 9: Survey Respondents' Reason for Locating in Cincinnati (n = 102)<sup>7</sup>**



In focus groups, participants cited many advantages to being in Cincinnati:

- There is a sense that the community is invested in, and supportive of, local makers; that it has a good start-up culture; and that businesses can leverage local creativity.
- The city has a low cost of living, which allows entrepreneurs to “make some mistakes, and learn” without being financially ruined.
- The city has a strong network of designers, engineers, and project managers from the University of Cincinnati, Xavier University, and several community colleges.
- Being located near other manufacturers and industrial suppliers provides opportunities to partner on large projects.
- The city’s location is central; this is important to larger manufacturers for national distribution.

<sup>7</sup> Respondents could select more than one reason



Challenges specific to being located in Cincinnati included the following:

- Finding affordable, available space inside the city is a particular challenge for manufacturers.
- There is a perceived lack of support among neighborhood stakeholders for zoning that attracts manufacturers.
- There is a perception that city and regional officials do not hold manufacturing in the same regard as other sectors, such as technology, making it a challenge to attract investment.
- The lack of public transportation creates access challenges for manufacturing workers.
- There is an insufficient number of direct flights between Cincinnati and key hubs.
- It is challenging to compete with states that have well-supported campaigns to promote manufacturing (e.g., Go Build Alabama).



# **Barriers to Growth**

Survey respondents who said they would like to expand their companies in the next two years were asked to identify and rank the barriers to growth they faced. The most common, and highest-ranked, answers were access to capital, reaching new customers, and finding qualified employees. However, ranking varied by firm size. Reaching new customers was a concern in every size class and particularly for firms with 10 to 100 employees, while capital access and affordable space were more frequently cited by sole-proprietor firms. Larger companies were more likely to have concerns about finding qualified employees.

**Table 1: Barriers to Growth Cited by Survey Respondents<sup>8</sup>**

Barrier to growth	Total mentions (n = 96)	Employers of 10–100 mentioning (n = 14)	Employers of 1–9 mentioning (n = 25)	Sole proprietors mentioning (n = 54)	Employers of more than 100 mentioning (n = 3)
Reaching new customers	56%	71%	52%	54%	2 of 3
Capital access	56%	50%	48%	65%	0
Finding qualified employees	38%	57%	44%	26%	1 of 3
Affordable space	34%	28%	28%	44%	0
Finding retailers	24%	0%	24%	31%	0
Planning for the future	22%	21%	16%	26%	0
Technological limitations	19%	7%	20%	22%	0

<sup>8</sup> Respondents were asked to choose up to three.

# Finding Qualified Workers

Focus group conversations yielded important insights on the production workforce from different perspectives. Both smaller and larger manufacturers signaled that they were willing to train new hires in technical skills, if only they could find candidates with sufficient job-readiness skills such as communication, customer service, and consistent and timely attendance. “We can train people,” one manufacturer said, “The challenge is getting them to show up.” Another concern shared almost universally was that the nature of production work—often repetitive yet requiring near-perfection with each repetition—makes it difficult to keep workers engaged. Participants noted that retaining young workers can be particularly difficult for this reason.

Smaller-scale manufacturers expressed in different contexts the need for an adaptable production workforce. Even employees who do not interact directly with customers—such as packers who fulfill and ship orders—need a customer service orientation and communications skills, manufacturers said. The stakes are viewed as particularly high for emerging brands. “Hiring someone makes me nervous,” said the founder of a specialty personal care product firm. “There are zero degrees of freedom in [upsetting] a retailer with a wrongly packed order.” Another small producer shared a search for production workers who “buy into my business’s culture, someone I can trust with my company’s reputation.” These are important contrasts from the traditional view that production jobs and entry-level roles with manufacturers are accessible paths for workers with less formal education or English proficiency to begin careers.

Many smaller manufacturers expressed that they are unable to offer employment benefits such as healthcare, making it difficult to compete with larger manufacturers in a tightening labor market. Small manufacturers who don’t provide employment

benefits also noted that some employees move on after they “age out” of their guardians’ health insurance at 26. These retention challenges make it difficult for smaller firms to invest in the training unskilled workers need, particularly for more mature workers who are several years out of high school or college.

Focus group discussions with larger manufacturers centered on strategies for finding and retaining workers. Employers described challenges finding candidates who can pass drug tests. They also reported limited success with programs that engage harder-to-employ populations—those who have had contact with the criminal justice system, are immigrants, or are disabled. One manufacturer expressed that integrating hires from these groups into his business’s culture has been a challenge. Another noted that a single bad experience working with these populations deterred his company’s management from trying again.

Service providers acknowledged the challenges of working with harder-to-employ populations but indicated that they felt prepared to help businesses navigate them. Several organizations expressed the belief that businesses should make—and could benefit from making—strategic accommodations for harder-to-employ populations. Such accommodations include more flexible schedules to facilitate child care, less-rigid work environments within the parameters of safe operations, and training for front-line supervisors to de-escalate workplace confrontation. The rigid work environment was also cited as a challenge to attracting and retaining young workers, who value flexibility and the ability to be creative in their work.



# Access to Capital

Obtaining sufficient financing was one of the top challenges noted by respondents to the survey. The most commonly cited capital need was for working capital. Such financing is typically harder to obtain because it is not backed by business assets but is often needed by firms to fund large orders while awaiting customer payments.

Sixty percent of respondents indicated a need for financing. However, only 53 percent actually applied for it; the balance indicated that they declined to pursue financing because they were not confident they would have obtained it. While 50 percent (four of eight) of those who applied for working capital financing received it, only eight percent of all those respondents who said they needed working capital (4 of 48) actually obtained it. R&D financing was similarly difficult to obtain, while efforts to obtain capital for new or updated equipment or for physical expansion fared better.

**Table 2: Uses, or Potential Uses, of Capital <sup>9</sup>**

	Respondents indicating a need for each type of financing (n = 62)	Respondents who applied for financing (n = 33)	Respondents who successfully obtained financing (n = 25)
Cash flow or working capital	48	8	4
New equipment to promote expansion	33	16	9
Expansion space or real estate	29	15	10
New hiring	20	10	5
Updates of existing equipment	19	11	7
Research and development	15	5	1

<sup>9</sup> Respondents could select more than one reason.

In general, focus group participants described obtaining funding from banks as difficult, citing typical small-business challenges such as not having enough of an operating history or the right financial documents in place for underwriting. Additionally, even some participants who saw themselves as innovative in manufacturing expressed facing “a double standard” with venture capitalists and other would-be investors, a sentiment shared by service providers. “In tech, investors make decisions based on believing in the team” that’s developing a product, one service provider said by way of describing how relatively easy it is to raise funds based on a product concept. But, he continued, “In manufacturing, they want to see the finished product first.”

Relatedly, many survey respondents relied on their own funds, personal loans (including home-equity lines of credit), credit cards, or family and friends for capital. Indeed, among the 83 businesses founded in 2007 or later, the vast majority cited personal investments (93 percent) or friends and family (40 percent) as sources of start-up capital.

# Marketing and Reaching New Customers

With respect to finding marketing support, one participant referenced Proctor & Gamble, and the presence of firms providing business services that support P&G and other large companies in Cincinnati. “Better marketing [support for my firm] shouldn’t be so hard in a town with P&G and its marketing infrastructure.” This point garnered broad agreement among the other small-scale manufacturer focus group participants. However, they noted difficulty in finding marketing firms to serve very small businesses. Interestingly, mid-sized manufacturers echoed this sentiment in their focus group, remarking that existing marketing expertise appears to cater only to large-scale, national firms based in Cincinnati.



# Access to Services

Small producers that participated in the focus groups cited access to business technical assistance as a key challenge. “It’s easy to start a business,” one said, “but it’s much harder to keep it going and to grow. There is so much to learn that isn’t related to production.” Small manufacturers and service providers alike pointed to a particular lack of support for businesses that had overcome the start-up hurdle and are in the process of scaling their firms.

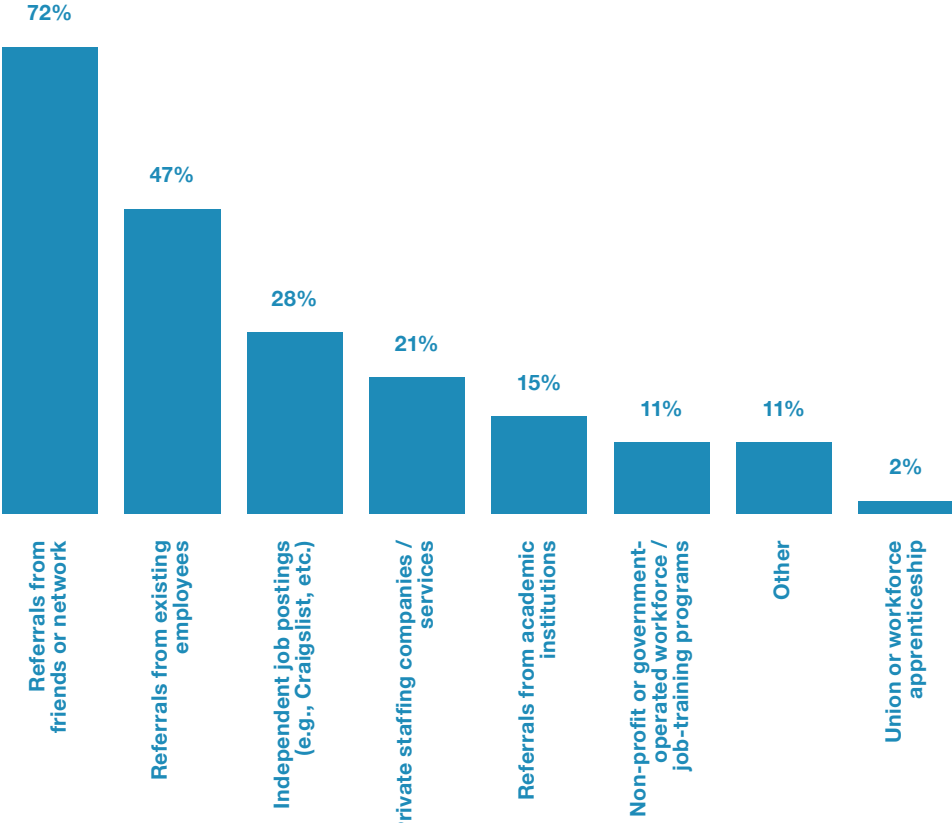
An area of agreement between small-scale manufacturers and service providers was the challenge of navigating the various services that do exist to help small businesses succeed and grow. “There is no one person to go to for help with what I need,” said one maker. “We have a lot of individual services to offer,” a service provider said, “but they’re not well-connected.” Both service providers and small manufacturers said that small business owners do not have the time to figure out the maze of assistance programs for which they might be eligible.

**Business  
Practices  
and the Role  
of Service  
Providers**

# Workforce Recruitment and Hiring Practices

By far, the most common recruitment method for new employees is referrals, either from existing employees or through friends and social networks. Also common are independent postings and the use of private staffing companies. Government or nonprofit workforce programs and academic institutions were the least mentioned sources by respondents.

Figure 10: Survey Respondents' Recruitment Methods (n = 47)



According to the survey respondents, the most important qualifications for production employees include a high school degree, previous manufacturing experience, and high-

level soft skills. Additional characteristics and qualifications respondents look for in employees include a willingness to learn, perseverance, passion, and artistic talent, and they also sought workers who are drug-free and those that come highly recommended. These results suggest that while the educational barriers to entry are relatively low for production jobs at the Cincinnati firms in this sample, job-readiness and soft skills are key requirements for employers.

**Table 3: Qualifications Sought in New Production Employees (n = 43)<sup>10</sup>**

	Preferred	Required	Not important
High school diploma/GED	27	9	5
Previous manufacturing experience	27	9	7
High-level soft skills	22	17	2
College	13	0	24
Professional certificate	10	0	30

Fourteen of the 42 responding companies with employees reported having in-house apprenticeship or internship programs for production workers. This included the three largest companies (each with between 100 and 200 workers), as well as nine companies with fewer than 10 employees. The three largest companies say they utilize federal-, state-, or city-funded programs to cover some of the cost of training new production employees, but the rest do not. Most of those 39 companies that do not currently use such programs expressed interest in learning more about them.

<sup>10</sup> Some respondents did not rate every qualification.

# Contract Manufacturing

Contract manufacturing was described as an opportunity for sector growth with unrealized potential. But many smaller producers said it was challenging to establish cost-effective arrangements. Larger manufacturers told us that makers and smaller manufacturers who have not previously designed for larger-scale production routinely lacked the fully conceptualized specifications needed by contract manufacturers. “I’m increasingly asked [by makers] if we can make something,” said one larger manufacturer. “Sure. The question is, can they afford it for a small run? Things come in conceptualized instead of ready-to-build.” At the same time, smaller manufacturers told us that they were surprised by the cost associated with getting their design ready for a contract manufacturer and were dissuaded from pursuing this route, especially for small production runs.

Additionally, makers and several service providers pointed out that there is no one place to go to for information about which contract manufacturers in the Cincinnati region provided which services or processes and at what scale. This is a first-order barrier to greater collaboration among makers and manufacturers in the area.

# Role of Service Providers

Both the focus group participants and survey respondents were asked to identify organizations they reach out to for guidance or assistance. According to survey respondents, makerspaces played a significant role for businesses younger than 10 years old, with 42 percent saying they had used one. A little more than half of those identified specific makerspaces, including First Batch Accelerator, the maker space at the Cincinnati Public Library, Findlay Kitchen, MORTAR, and Losantiville Design Collective.

Many makers in the focus group reported success in working with Cincinnati Made for helping to better navigate the maze of resources and opportunities available to their firms. Makers also mentioned MORTAR Cincinnati, an entrepreneurial hub and springboard program for under-represented and redeveloping communities, such as the Over-the-Rhine neighborhood, that teach the basics of small business operations. Participants spoke specifically of the benefit of the networks they were able to access among their fellow entrepreneurs after participating in MORTAR's programs.

# Opportunities

A number of promising initiatives or potential opportunities arising from stakeholder conversations during the *State of Urban Manufacturing* process in Cincinnati may deserve further exploration.

## Workforce



The reliance on social capital and informal networks for recruiting and hiring, a tactic which has been observed in the other cities studied as part of the *State of Urban Manufacturing* process, has potential implications for equitable employment. At the same time, publicly funded workforce development providers are challenged by working with very small businesses looking to place a single candidate at a time, and only occasionally. The success of publicly funded programs is often measured by total number of placements; working with large companies results in more placements at a time. Finding ways for workforce intermediaries to aggregate the hiring needs of several smaller manufacturers may be one way to meet in the middle and leverage the public system to help ensure a diverse workforce has access to jobs in the manufacturing sector.



Focus group participants engaged in a robust conversation about how manufacturers might design their jobs differently to meet the needs of potential workers who have barriers to employment. It was noted that a roundtable has spun off from the Child Poverty Collaborative to convene employers who are seeking to learn from each other about how to help employees deal with challenging life issues that affect work. Strategies discussed include hiring social workers and on-site work coaches, and giving employees flexibility to leave work for family needs. At the time of the focus group, 40 employers were participating regularly, but it was set to expand to 70.



Relatedly, there may be opportunities to better prepare manufacturers for working with harder-to-employ populations. Recommendations



include setting expectations for mutual learning curves among both new hires and the companies hiring them, and coaching for frontline supervisors not familiar with managing staff with life challenges that might affect of steady, productive employment.



At least one stakeholder is inquiring with the University of Cincinnati's industrial design program, which is a key source of skilled workers, about adding a program for the skills needed by employers in a production context.



Some midsize companies are engaging with schools to expose students to career opportunities in manufacturing. For example, one mentioned participating in October Is Manufacturing Month, while another attended a middle school's Construction Day.

## Financing

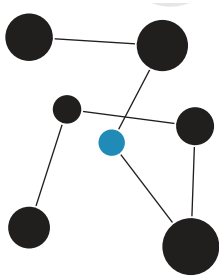


Mission-driven capital, including from Community Development Financial Institutions (CDFIs), could be tied to job-quality improvements, increasing the chances of success in hiring, and retaining a diverse workforce.

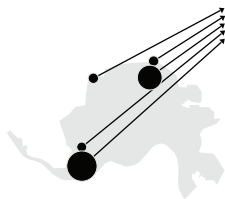


Business support organizations pointed to a need for both investment funding and management talent for businesses that have successfully overcome the start-up phase but that haven't yet scaled. There may be opportunities for investors to pool capital and management talent, as private equity investors often do, for promising companies, or portfolios of them.

## Support Services



More service providers in Cincinnati responded to the UMA's call to be included in its "manufacturing ecosystem map" than in any of the other cities it is studying as part of *State of Urban Manufacturing*. This level of response indicates a potentially rich set of support services for manufacturers to access as they navigate growth in the city. Despite these programs, several participants voiced the need for service providers to identify and support high-potential makers. Small makers said they need help to grow beyond the idea stage, including assistance to find space, set up shop, and understand key business needs, such as business accounting and human resources. Given the number of participants agreeing that this was a need, it would appear that better linkages need to be made. In particular, participants noted the need for connections between existing service providers and these emerging entrepreneurs—or a fuller understanding of where gaps exist between the needs of these business owners and the services available—such that new, targeted support can be developed. Targeted marketing of manufacturing support services may more effectively reach small-scale producers, many of whom do not think of themselves as "manufacturers."



Many stakeholders suggested a need for a single "front door" or "one-stop shop" for small-scale businesses that lack expertise in navigating the menu of support services. A related need was identified for a well-developed single point of information on industrial suppliers, including information on which suppliers engage in particular processes, and at what scales.



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