The State of Urban Manufacturing

PORTLAND
CITY SNAPSHOT

Urban Manufacturing Alliance

Portland State UNIVERSITY

Acknowledgements

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Report Authors: Greg Schrock, PhD & Mark Foggin

Report Design: Maria Klushina

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About *State of Urban Manufacturing*

Manufacturing—particularly specialized, small-batch production—benefits from being in cities. Firms get to tap a rich labor market, dense supplier networks and often sophisticated consumer markets for their finished goods. And cities benefit from manufacturing's economic multipliers and family-wage employment opportunities. Increasingly, cities see this emerging sector as rich with possibility for promoting entrepreneurship, innovation, and economic growth. But members of the Urban Manufacturing Alliance (UMA), including many city decision-makers, told us they know remarkably little about smaller scale manufacturers. These innovative businesses often combine design, art, and production. As a result, they often do not fall neatly into the data collection categories that government has used to classify manufacturers for generations. What's more, the data that do exist are often at the metropolitan level, which

can swamp nuances as this sector grows and establishes itself in modest-sized clusters at the hearts of cities. The result is a dearth of understanding by city policymakers on this burgeoning sector within their boundaries. The impact, potential, and needs of these businesses are poorly understood.

The Urban Manufacturing Alliance conceived the *State of Urban Manufacturing* study as a way to fill this information gap and begin to give our members and other decision-makers information they can act on immediately in Baltimore, Cincinnati, Detroit, Milwaukee, Philadelphia, and Portland. Longer term, we hope this information serves as a foundation to expand our understanding across the country. We have collected information directly from hundreds of manufacturers—including nearly 100 in Portland—on the nature and challenges of their businesses; we also spoke with numerous Portland-based organizations that support these firms, such as Prosper Portland, the City's economic development agency. In Portland, we accomplished this in collaboration with our research partner, Portland State University (PSU).

Our goal is to begin to understand what the small-batch manufacturing sector looks like, who its entrepreneurs and employees are, and what cities can do to help these firms thrive and grow into larger jobs generators, and retain them within the urban core. We have released a snapshot of our findings for each of the six inaugural *State of Urban Manufacturing* cities, as well as a national report, that identifies promising practices that might be shared among cities to help these firms succeed. Finally, we hope the conversations we have had with businesses and stakeholders as part of this study have created relationships that will continue to grow the sector and the promise it holds for cities. To help ensure that, we have developed a "manufacturing ecosystem map" for each city that includes all of the organizations we worked with directly as part of the *State of Urban Manufacturing* process. There are other organizations that we haven't worked with yet and we encourage Portland stakeholders to continue to increase the coverage of this tool, which will help producers—and the organizations that support them—match the right resources to business needs or identify where gaps exist.

Methodology & Limitations

The *State of Urban Manufacturing* was conducted in two phases, beginning in early 2016. Phase 1 helped us set the context across the country for urban manufacturing by analyzing publicly available data over a ten-year period (2004-2014) from 16 metropolitan areas. These metros represented a cross-section in terms of size, geographic region, and dominant manufacturing trends or "typologies" (i.e. metros seeing a growth in activity driven by one major industry; metros heavily focused on the innovation economy and advanced manufacturing; large 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 / craft production sector). These included: Atlanta, Buffalo, Baltimore, Charlotte, Chicago, Cincinnati, Detroit, Houston, Los Angeles, Milwaukee, New York, Philadelphia, Portland (Ore.), Salt Lake City, San Francisco, and San Jose.

Focusing on the MSA level allowed for ease of comparison over time using easily obtainable data from the Bureau of Labor Statistics, Bureau of Economic Analysis, and U.S. Census, specifically observing manufacturing sector trends. The indicators we evaluated included: establishment change; employment change; wage rates and change; demographics of workforce; education of workforce; and contribution of the manufacturing sector to MSA-area Gross Domestic Product. To get a better sense of changes at the local level, we obtained city- and district-level Quarterly Census of Employment and Wages (QCEW) data from the City of Portland's Bureau of Planning and Sustainability.

Because existing data reveal only so much about small-scale manufacturers' challenges, we sought to understand with greater precision their day-to-day experiences with the hope that it would spur new thinking about how service providers and advocacy groups can support these firms. In Phase 2, we used a survey to collect data directly from manufacturers in Baltimore, Cincinnati, Detroit, Milwaukee, Philadelphia, and Portland. Questions focused on basic business demographics, challenges in scaling, and understanding where businesses go to get assistance and information when they need it. Where possible, we looked at how businesses in each city differed in the way they answered questions based on whether they were new or more established, big or small, or producing exclusively for themselves or others. In Portland, we worked with the Central Eastside Industrial Council, representing businesses working in one of the city's key industrial sanctuaries, to inquire about particular challenges and benefits of operating in what has become a crucible of Portland's increasing real estate market pressures.

In each city, we also interviewed key policymakers and service providers—practitioners in economic development, community development, workforce development, real estate development, chambers of commerce, and neighborhood nonprofits. Finally, we conducted focus groups in each city with large manufacturers, small manufacturers, and the groups that support both with services like connections to financing, navigating regulations, market development, business acceleration, and finding affordable real estate.

While the *State of Urban Manufacturing* advances our understanding of this sector simply by providing perspective on what small-scale producers experience as they navigate business ownership and growth, our study has a few limitations worth pointing out.

The main limitation is that we did not develop a stratified sample in advance of our survey distribution and focus group recruitment, so participants are not necessarily representative of manufacturers as a whole in each city. In particular, we relied on community partners to promote the survey and focus groups, so participation in each place likely reflected the types of businesses our partners interact with most.

Introduction

Portland has long been known as a town that makes things. From its early history as a milling and shipping hub for timber and agricultural goods to its establishment as a center for shipbuilding and metalworking during and after the Second World War, Portland's location relative to raw materials and markets has served it well. In the last half-century, Portland's economy has continued to evolve and add new sectors to its industrial portfolio, including electronics, apparel, outdoor gear, and cleantech. The result is a Portland manufacturing economy that is broad and diverse.

One reason that Portland's manufacturing economy continues to succeed is because entrepreneurs are continuously hatching new ideas and new businesses. Portland prides itself on being a small-business town, a place with an innovative entrepreneurial spirit and do-it-yourself culture that is not merely celebrated, but nurtured.

Today, a city's success in manufacturing is less about proximity to material inputs and more about access to creativity and

talent. Portland benefits greatly from the infusion of newcomers – not just the young and college-educated, but also immigrants and refugees in search of opportunity and a better life. Education institutions, like Portland State University, and robust apprenticeship programs are part of the critical infrastructure needed for today's manufacturing economy.

Recently, Portland has changed in ways that are both encouraging and challenging. Today, in sharp contrast to the years after the Great Recession when unemployment rates hovered around 10 percent, job growth is evident across a wide range of sectors (including manufacturing, software, and biosciences), incomes are rising, and new real estate development is visible wherever one looks. But at the same time, rents have increased faster than incomes for most of the community, jeopardizing the affordability and accessibility that have made Portland unique among West Coast metros. Communities of color and low-income populations have been pushed to the margins through gentrification and displacement, exacerbating long-standing inequities. Small industrial businesses are also feeling the pinch as rents rise, making it harder to operate in the areas, like Central Eastside, that have traditionally supported these businesses to start and grow.

This report is motivated by a desire on the part of a broad swath of Portland's manufacturing community to foster an economy that is not only innovative, but also more equitable; that supports both established and emerging manufacturing businesses; that values both innovation and production; and, above all, creates and retains good jobs that support families and communities across many segments of the city's population. This means understanding clearly what established manufacturers in Portland need to compete and adapt successfully in a rapidly-changing global economy. It also means grappling with the challenges that emerging, small-scale manufacturers face as they look to grow and become Portland's manufacturing leaders of tomorrow in a city that is increasingly challenging for new businesses to start and grow.

To accomplish this, we used a variety of data sources and strategies. We began by looking at existing, publicly-available

data to help assess where Portland's manufacturing economy stands in relation to other sectors and other regions. But since the existing data leave many questions unanswered, we surveyed 85 of Portland's manufacturers to help understand their characteristics, experiences, and needs. We supplemented by convening focus groups with smaller manufacturers, medium-sized and larger manufacturers, and manufacturing-related service providers to fill in the gaps and identify the most important concerns facing Portland's manufacturers.

Based on our findings, we have identified the following areas of opportunity for Portland to strengthen its urban manufacturing economy:

1. Strengthen policies and strategies that **support real estate affordability**, especially for smaller manufacturers as they scale up;
2. Ensure availability of **growth capital for manufacturers**;
3. **Develop intermediaries** to help smaller-scale manufacturers work with at-scale manufacturers;
4. **Strengthen the capacity of workforce intermediaries** serving manufacturers of all sizes (especially within Portland's industrial districts) as well as their linkages with one another to ensure coordination;
5. Seed an organization where manufacturers of all sizes can come together to share their varied needs or concerns, and to **increase opportunities for collaboration**; and
6. Build on efforts to **ensure a diverse pipeline** of manufacturing workers, entrepreneurs, and leadership.

Portland's Manufacturing Ecosystem

The Portland-Vancouver-Hillsboro metropolitan region has a robust manufacturing economy. After dramatic declines during the Great Recession, the region has experienced steady employment growth in the manufacturing sector since 2011. In 2015, manufacturing accounted for more than 101,000 jobs, or approximately one out of eight jobs in the region's economy. In terms of employment, manufacturing was the second-largest sector, but at $8.76 billion in annual earnings in 2015, it was the largest source of income and earnings. Jobs in businesses in the manufacturing sector had an average annual pay of over $74,000 per year, which was 42 percent higher than the all-industry average of $52,417[1].

1 This figure includes all jobs within manufacturing, covering production and non-production occupations, based on QCEW data. The manufacturing-wide figure for the Portland MSA is skewed upward by the Computer & Electronic Product Manufacturing industry (NAICS 334), which includes companies such as Intel, and had an average annual pay of $123,659 in 2015. The remaining manufacturing industries had an average pay of $53,342, which still exceeded the average for all jobs in the MSA.

Figure 1: Total Employment by Major NAICS Category, 2015; Portland MSA

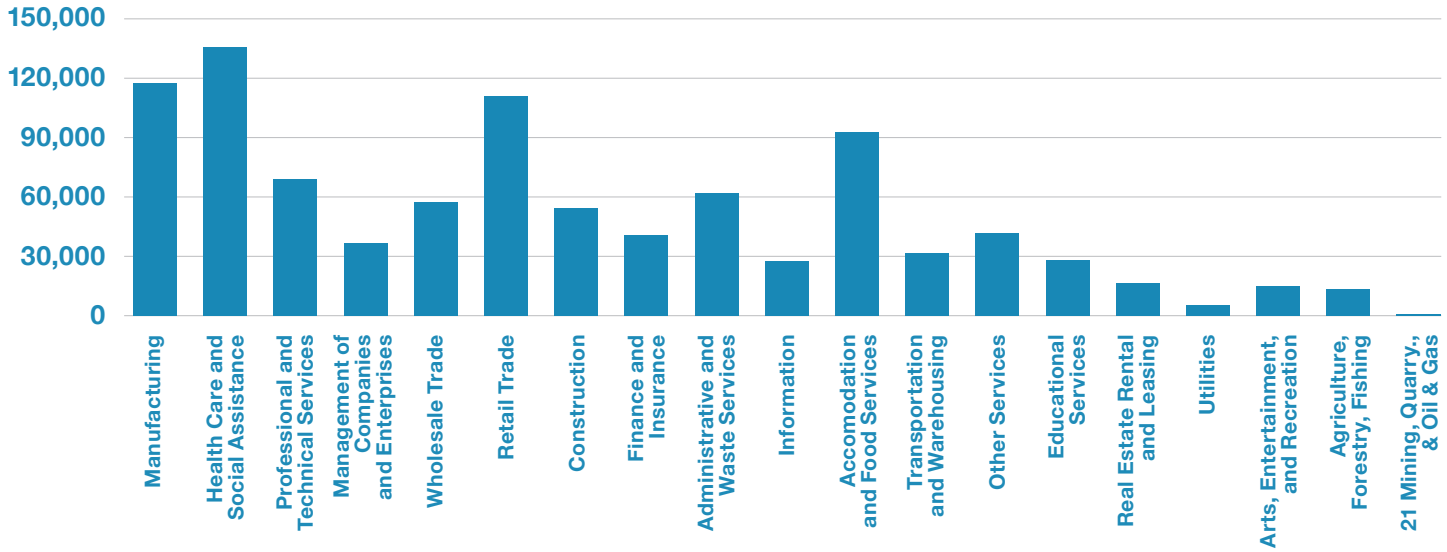


Figure 2: Total Wages by Major NAICS Category, 2015; Portland MSA

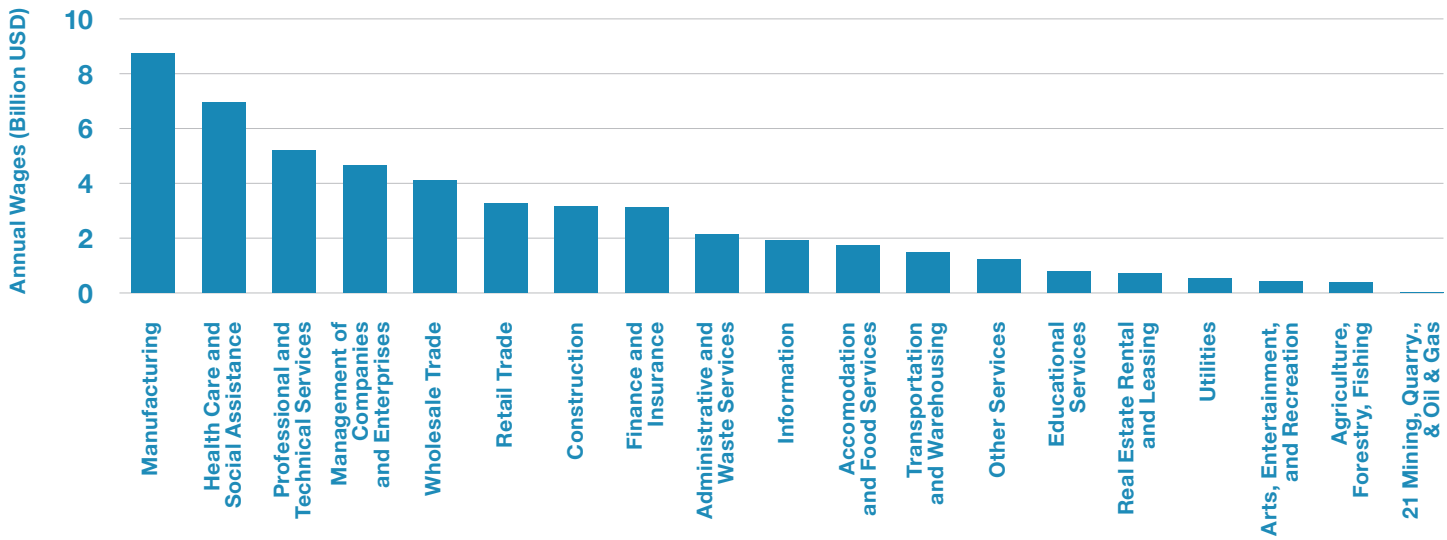
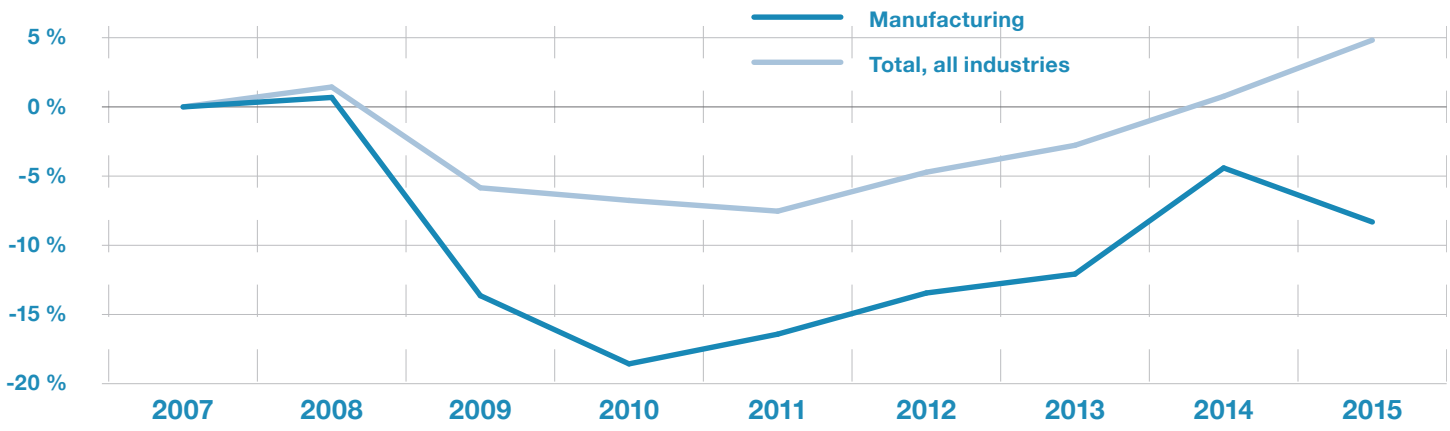


Figure 3: Employment Trends, Cumulative Percent Change, 2007 to 2015



Part of what makes the Portland regional manufacturing economy so robust is its diversity: a mix of high-tech, consumer-oriented and intermediate goods sectors; smaller and larger businesses; as well as newer and more established companies. At a regional level, five distinct but overlapping subsectors exist within manufacturing:

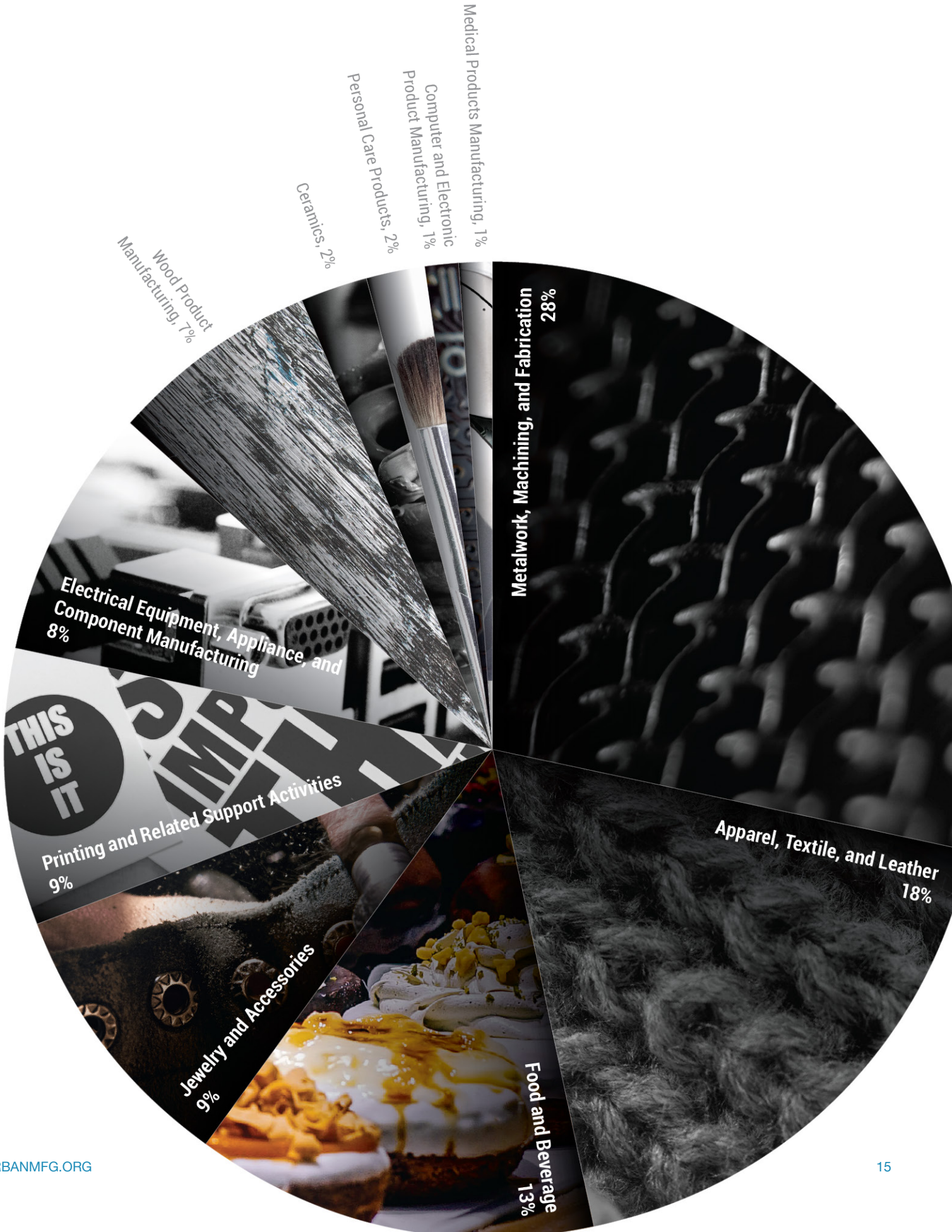
- Metals, machining, and transportation equipment, anchored by companies like Daimler Truck, Gunderson, Evraz, Precision Castparts, Oregon Iron Works, and others;
- Computers, semiconductors, and electronic and electrical equipment, anchored by Intel but with a variety of companies small and large, with linkages into the region's software cluster;
- Food and beverage manufacturing, with fast-growing specializations in beer, wine, and coffee roasting;
- Wood and timber-related sectors, including lumber and wood products, paper milling, and furniture manufacturing; and
- Apparel and athletic and outdoor equipment, with a diverse array of established and start-up companies.

Our survey drew respondents from each of these sectors in the city of Portland, with the largest share from metals and machinery.

Figure 4: Employment Change by 3-Digit NAICS Sector

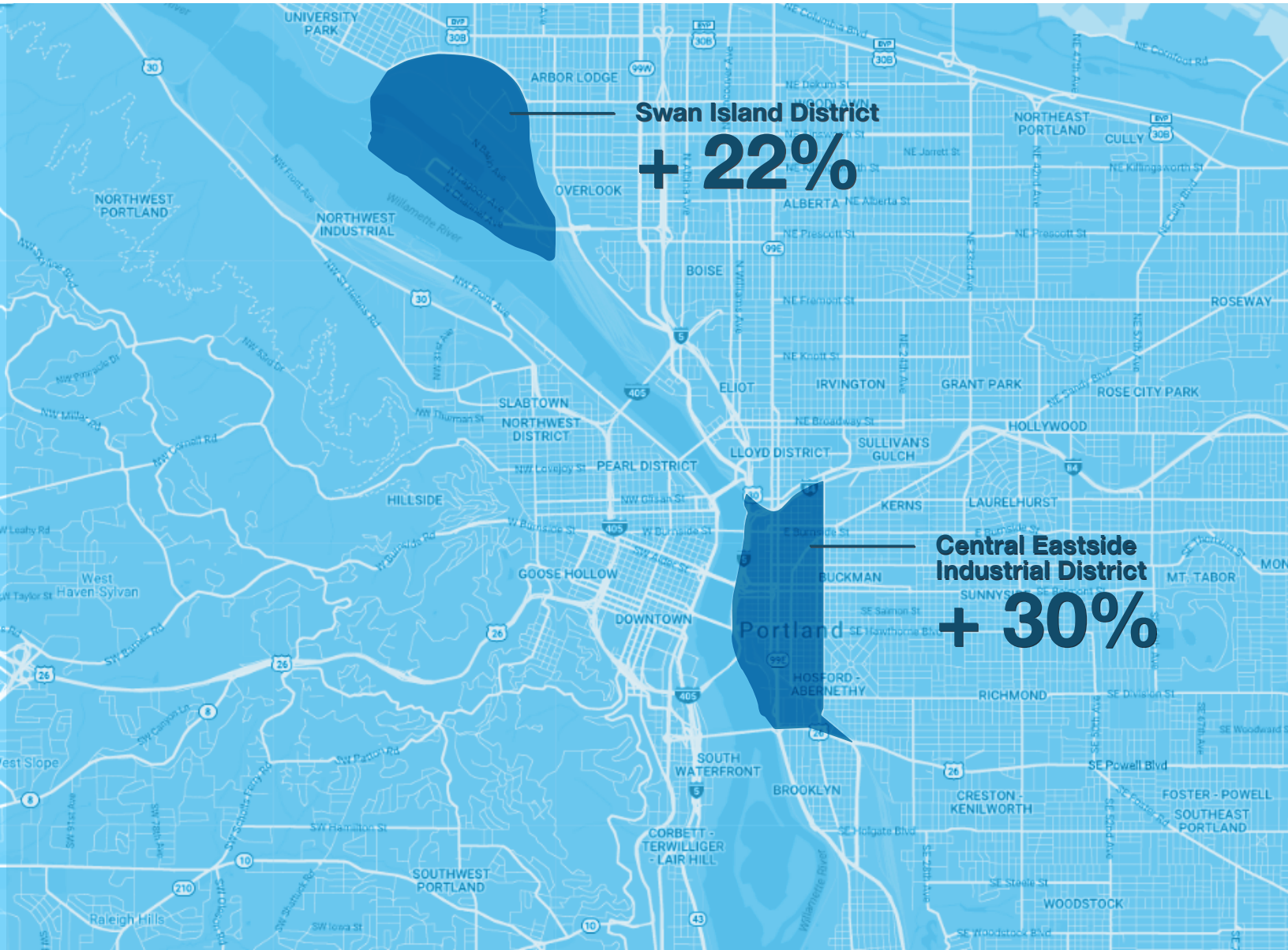
	Portland MSA			City of Portland		
Industry	Employment, 2015	% of Mfg Total	% Change 2007-15	Employment, 2015	% of Mfg Total	% Change 2007-15
Computer and electronic product manufacturing	17,117	16.9	- 22.2	920	3.2	- 35.1
Fabricated metal product manufacturing	12,631	12.5	- 4.2	3,237	11.4	- 12.2
Food manufacturing	10,047	9.9	22.0	5,715	20.1	40.0
Machinery manufacturing	9,806	9.7	- 1.5	1,101	3.9	- 2.3
Transportation equipment manufacturing	7,677	7.6	- 8.6	4,263	15.0	- 4.3
Primary metal manufacturing	6,511	6.4	7.2	3,149	11.1	- 17.4
Miscellaneous manufacturing	5,313	5.2	10.4	1,608	5.7	- 4.7
Plastics and rubber products manufacturing	4,271	4.2	- 16.2	421	1.5	- 1.0
Printing and related support activities	3,895	3.8	- 20.4	2,153	7.6	- 25.3
Wood product manufacturing	3,518	3.5	- 33.0	376	1.3	- 24.7
Total	101,221	100.0	- 8.3	28,422	100.0	- 5.7

Figure 5: Survey Respondents by Manufacturing Subsectors (n = 85)



Although Portland's manufacturing economy operates at the regional scale, a significant share of it is located within the city of Portland. As of 2015, there were 28,422 manufacturing jobs in the city, representing 6.7 percent of the city's total employment. Between 2010 and 2015, manufacturing jobs grew by 13.8 percent citywide, which was slightly faster than the regional growth rate for manufacturing (12.6 percent) but slower than the growth rate for all sectors within the city (14.4 percent). Within the city, the largest cluster of manufacturing jobs – over 10,000, or 36 percent of the sector's total in the city – was found in the Columbia Corridor. Manufacturing job growth between 2010 and 2016 was most evident in the Central Eastside and Swan Island districts, where it increased by 30 percent and 22 percent, respectively.

Figure 6: Portland Industrial District Map



Survey and Focus Group Findings

While many findings emerged from our survey and focus groups, several key themes came into high relief for us.

Portland enjoys a well-established community of small-scale manufacturing businesses that generate a significant and growing impact in terms of jobs and revenue.

Of the 85 businesses that responded to our survey, only 17 percent were founded since 2013, while more than half (55 percent) indicated that their businesses were founded between 2001 and 2012. Respondents were relatively evenly split among sole proprietorships (28 percent), those with fewer than 10

employees (31 percent), and shops with 10 to 49 employees (28 percent). The remaining share (14 percent) had 50 or more employees.

Figure 7: Year of Business Founding (n = 85)

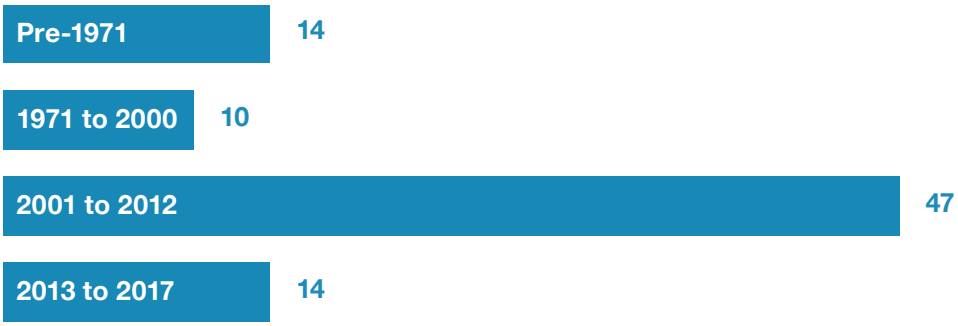
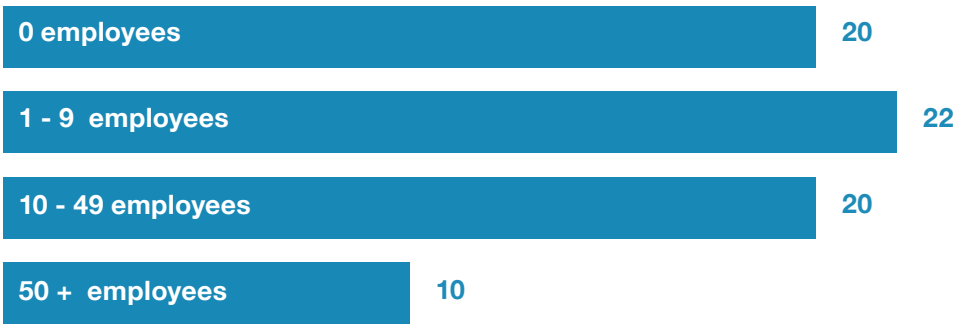
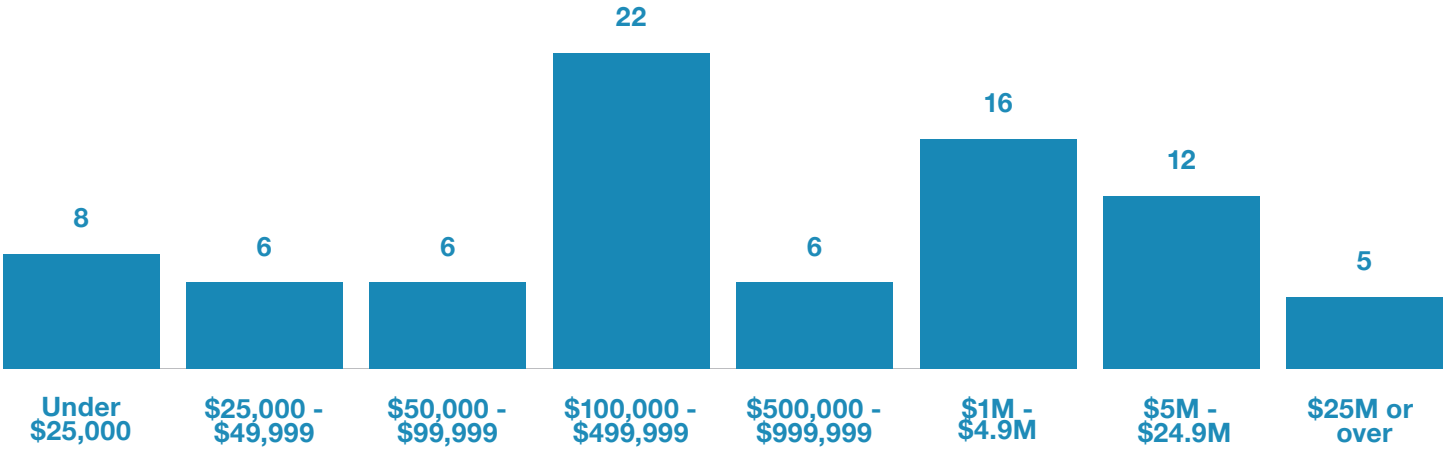


Figure 8: Number of Employees (n = 72)



The survey showed two distinct clusters of firms by annual sales level: one in the $100,000 - $500,000 range, the other in the $1 million - $25 million range, with a noticeable gap in between.

Figure 9: 2016 revenue range (n = 81)



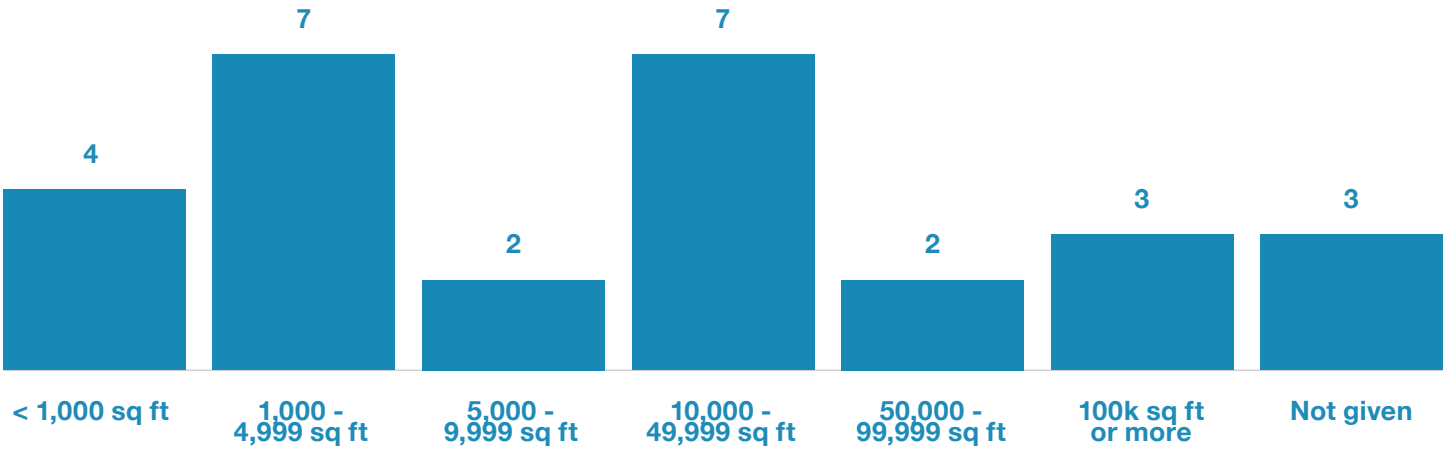
But respondents of all sizes grew in both sales and employment. More than four in five reported sales growth in 2015 or 2016, and nearly two-thirds (64 percent) reported double-digit sales growth in 2016. Two-thirds of companies (67 percent) reported higher employment levels in 2017 than two years prior.

Many respondents also appeared to be poised for future growth. Overall, nearly all (94 percent) indicated that they hoped to grow their business in the next two years, with over half (53 percent) reporting that they hoped their business would be significantly larger. Nearly nine in ten expected to add jobs in the next two years, projecting a total of over 600 new jobs. While this figure is skewed somewhat by a small number of bigger companies expecting to add large quantities of jobs, smaller companies were also optimistic: 86 percent of respondents with fewer than 10 employees, and 95 percent of with 10-49 employees, anticipated some job growth. A significant majority (71 percent) of respondents without any employees (i.e., sole proprietorships) indicated their intention to add staff in the next two years. Nearly half of respondents (46 percent) reported that they started their business out of their home; of those, nearly two-thirds indicated that they had moved into a separate business location. Only 13 percent remained home-based.

Figure 10: Business Location Over Time (n = 72)

A significant share (38 percent) of respondents reported that they expect to move into a larger space in the near future. When asked how much space they anticipated needing in the future, ranges of 1,000-4,999 square feet, and 10,000-49,999 square feet were given most often.

Figure 11: Anticipated Space (Sq Ft) Needed for New Location in 2 years (n = 28)

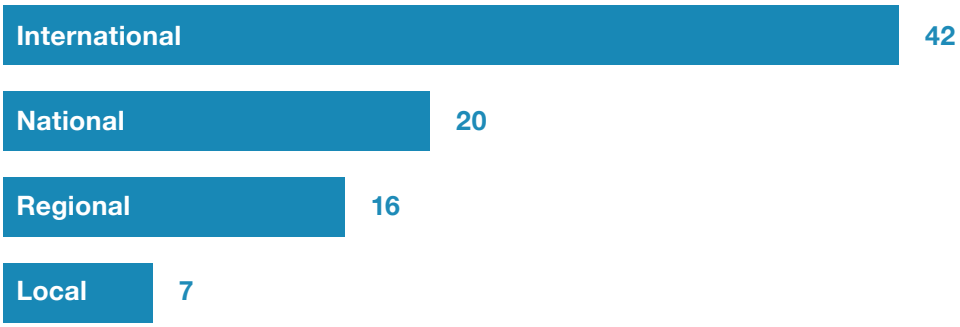


Portland has a strong and supportive entrepreneurship culture for smaller-scale manufacturers.

In our focus groups, it was often noted that emerging, smaller-scale manufacturers[2] benefit from the strong culture of entrepreneurship in Portland. As one business person described it, “Anything goes in Portland. You aren’t constrained by the typical ways of doing business.” But they also described Portland as a supportive environment, where new ideas and businesses get support from one another and from consumers. Formal and informal networks bind makers and emerging manufacturers together. Facilitators include organizations like Portland Made and Built Oregon, entrepreneurial ventures such as ADX Portland, and retail outlets like MadeHere PDX. Local branding efforts have been helpful in raising the visibility of these businesses and their products, both within and beyond Portland; nearly half (49 percent) of the survey respondents reported that they sold products internationally.

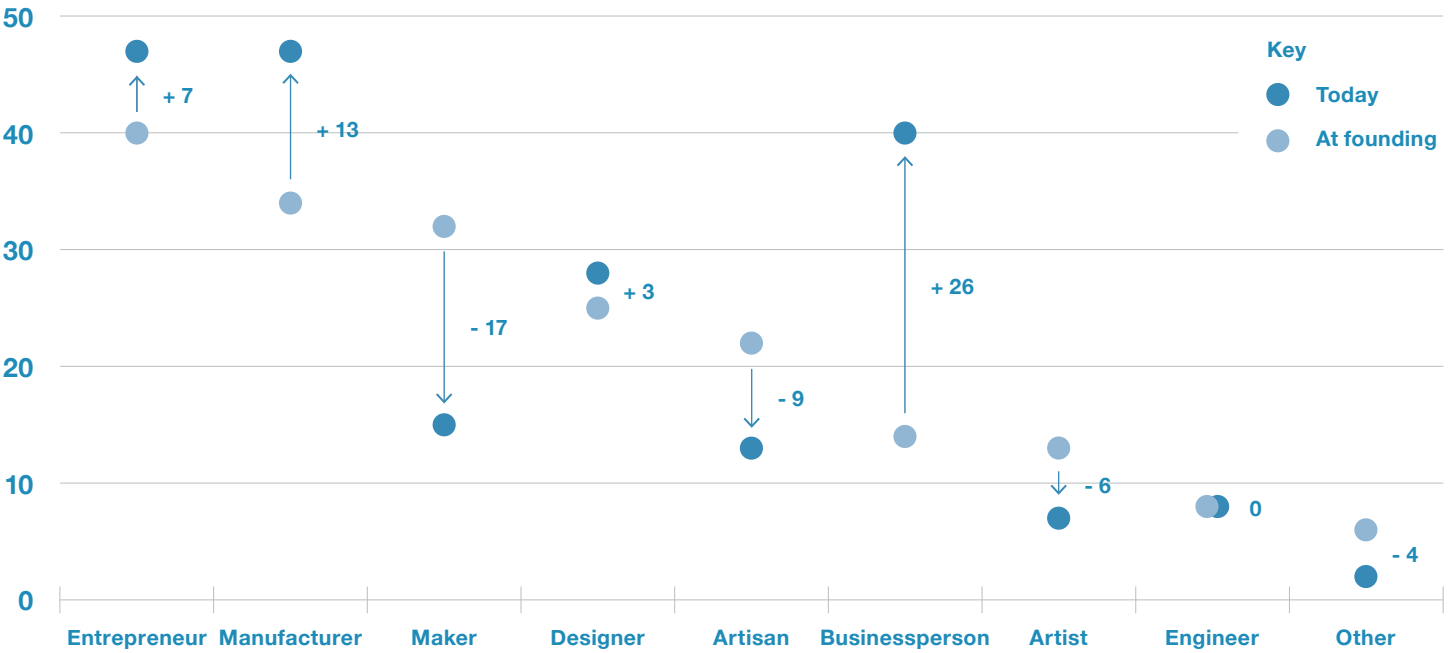
2 Elsewhere we have defined small-scale manufacturing as “all types of small businesses producing tangible goods.” (https://www.urbanmfg.org/project/discovering-your-citys-maker-economy/) Here we define smaller-scale primarily in terms of employment and sales levels.

Figure 12: Broadest Market Reach Mentioned (n = 85)



"Maker" and "artisan" culture is well established in Portland, but as businesses grow, their founders increasingly identify as businesspersons, manufacturers, and entrepreneurs. This is important to understand because it may impact how and where these entrepreneurs go for information and assistance early on if they determine they want to evolve into a commercial mindset and grow their business. (For instance, if they don't yet think of themselves as manufacturers, they may not be looking for assistance from manufacturing support organizations or incentive programs.) In Portland, it also suggests increasing opportunities to engage manufacturers across scale around issues of common interest and concern.

Figure 13: Professional Identity over Time



But smaller-scale manufacturers appear to have a hard time finding larger manufacturers to collaborate with on production.

A sentiment we heard consistently among smaller-scale manufacturers in Portland was the difficulty of finding and accessing the capacity of larger manufacturers who might be positioned to support makers' production needs. Some suggested that Portland simply had fewer job shops than larger urban areas or regions with broader industrial bases, such as the Midwest. Others noted that Portland is strong in certain manufacturing subsectors (e.g. metals), which are relatively easier to find. (However, some participants noted that even metalworking shops have been leaving Portland recently.)

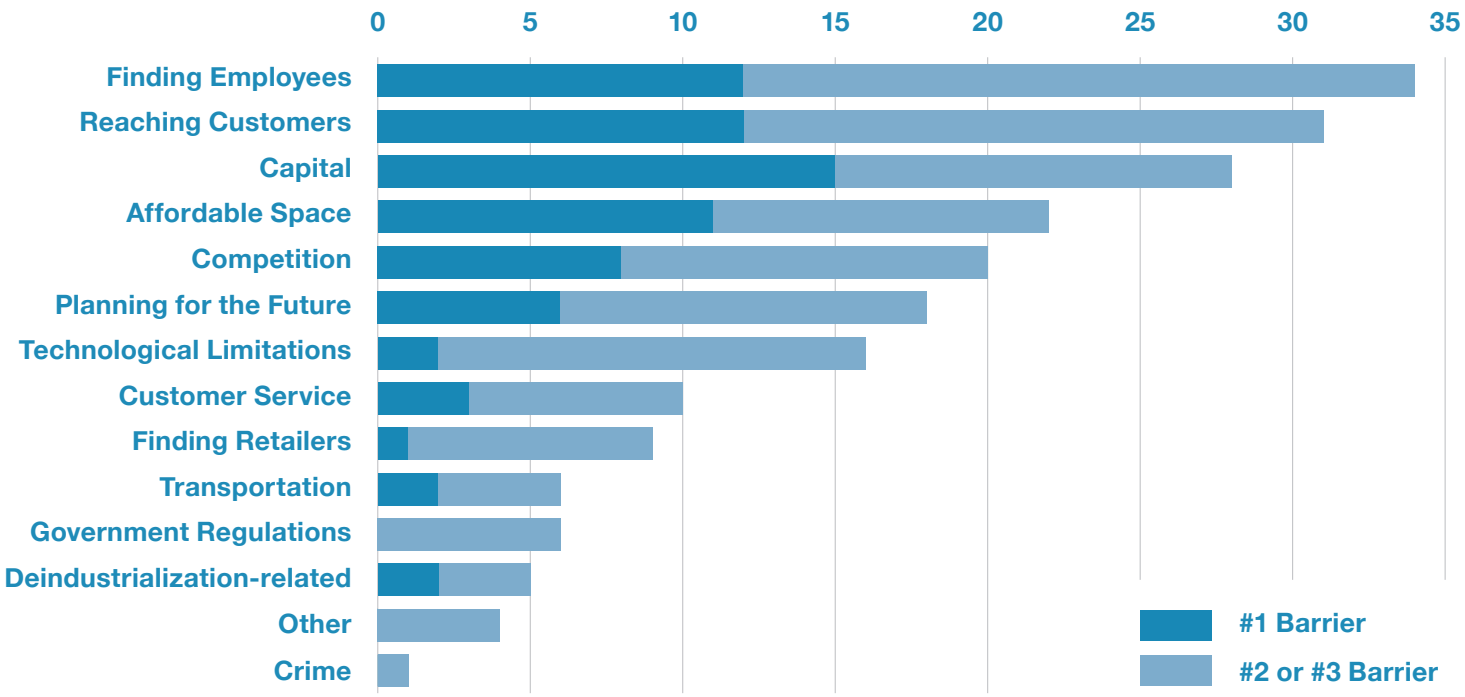
While using contract manufacturers can be a smart way for smaller producers to scale their businesses, it requires forethought and some initial investment to get their product designs ready for someone else to make. In that vein, nearly one-third (31 percent) of respondents manufactured products for other companies. The biggest barrier they reported to expanding this line of business with less-experienced manufacturing customers was "[their customers'] lack of knowledge about pricing and cost." Small-scale producers who perhaps have designed their product without taking large-scale production into account may have to re-think aspects of its design—or have their contract manager help them to do this. This requires time and money—something we heard, in Portland and elsewhere, often came as a surprise to makers. This points to information gaps that could be addressed to help manufacturers do business with one another.

Yet the survey also revealed numerous examples of local collaborations, including several between newer, smaller-scale companies and more established manufacturers. This was most evident in sectors like metals, where, for instance, emerging makers of items like bicycles or furniture are partnering with local established manufacturers to execute elements of the makers' production runs.

Real estate affordability is an urgent challenge, especially for smaller, growth-oriented companies.

Affordable space represents the most urgent challenge facing manufacturers in Portland today, especially smaller, fast-growing companies that prefer to accommodate their expansions within city limits. Among survey respondents with fewer than 10 employees, one in five listed affordable real estate as the top barrier to growing their business, and one-third listed it among their top three barriers. Compared to the other *State of Urban Manufacturing* cities, this was a challenge that was more particular to Portland with its red-hot real estate market, especially for close-in areas like the Central Eastside.

Figure 14: Barriers to Growth Ranked by Businesses (n=74)



Nearly one-quarter of smaller companies indicated that they were likely to seek help with finding affordable real estate, although only a handful indicated that they had already obtained such help. This suggests a potential gap in the support infrastructure for smaller manufacturers to help access

affordable real estate as their companies grow and their space needs change.

Among those companies indicating that they were planning to move within the next two years, land and real estate affordability was a widely cited issue pushing them toward cheaper locations in Portland or beyond.

Capital access is a barrier to growth for manufacturing companies of all sizes.

Manufacturers have distinct capital needs from other types of businesses. They are typically more capital-intensive than service businesses, requiring significant investments in technology and production equipment, with ongoing requirements for working capital to secure needed production inputs. And innovative, emerging manufacturers often have longer timelines for revenue flow and profitability, making them less attractive to investors of risk capital.

Access to capital represented a barrier to growth for survey respondents of all sizes in Portland. One in five listed it as their number-one barrier. Smaller companies were slightly more likely to consider it a barrier, with 22 percent listing it as the top barrier, and 40 percent listing it as one of the top three barriers (compared to 17 and 36 percent among medium-sized and larger companies, respectively). One-quarter of companies that had foregone sales in the previous year cited insufficient financial capital to address production shortages as the primary limiting factor.

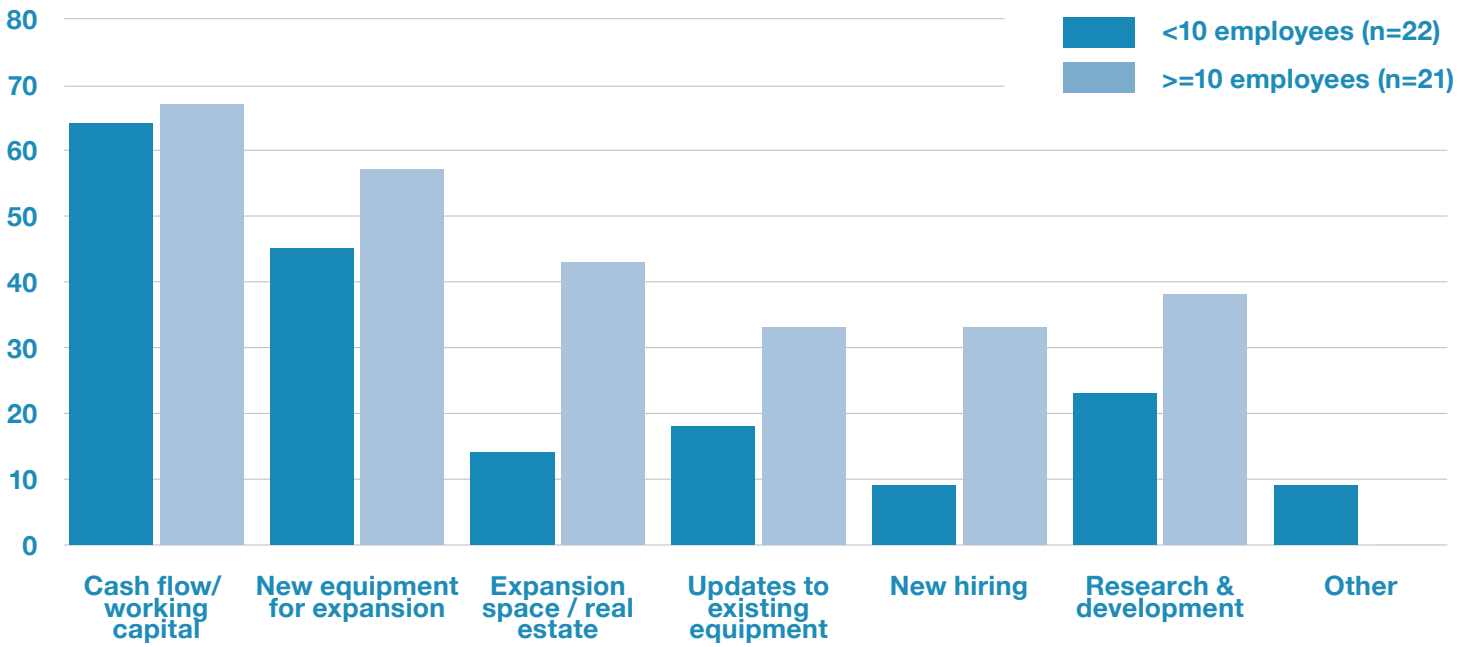
Financing was the top issue for respondents seeking help from outside organizations (42 percent), yet only 10 percent indicated that they had gotten such help with financial issues from a local organization in the past.

As we have seen in other cities UMA has studied, smaller firms appeared to be less likely to pursue financing even when they needed it. Only one-third of companies with under 10 employees had pursued financing in the previous year; of those, nearly 30

percent were unsuccessful. And one in five small companies indicated that they had not pursued financing because it would be too difficult to obtain. On the other hand, strikingly, among companies with 10 or more employees, over 90 percent that sought external financing succeeded.

The uses of financing differed by company size. Virtually all respondents with under 10 employees needed financing for working capital, while only two-thirds of larger firms did. Larger companies were more likely to seek financing for capital investments, such as new or updated equipment, or physical expansion.

Figure 15: Uses of Additional Capital by Company Employment Level (% Who Needed External Financing)



Workforce availability is an issue for medium-sized and larger companies.

Medium-sized and larger manufacturing companies in Portland reported that difficulty finding qualified workers was their most significant barrier to growth. Among survey respondents with 10 or more employees, more than half (55 percent) considered workforce availability one of their top three barriers to growing their businesses, with 28 percent calling it their number one challenge. And of the 48 percent of respondents who indicated

that they had foregone sales in the past year due to production constraints, nearly half of them (46 percent) said that workforce limitations were the primary factor leading them to turn down work.

Among companies with 10 or more employees, nearly 40 percent indicated that they were likely to seek help from an outside organization to find qualified employees. However, only 17 percent indicated that they had actually received this help.
Employers of all sizes indicated that skills and experience were more important than formal credentials for their production workforce, especially job-readiness (or so-called soft skills) and prior manufacturing experience. Over 40 percent of respondents indicated that soft skills were required, compared to only 26 percent indicating that a high school or equivalent degree was required. Nearly all (92 percent) respondents preferred candidates with prior manufacturing experience, although only one-quarter considered it a requirement. When asked which skills and traits were particularly difficult to find in production job applicants, employers mentioned a range of skills and capabilities; nearly half (44 percent) mentioned technical or job-specific skills like metalworking, while an equal share mentioned basic employability traits like reliability and consistent attendance.

These sentiments were echoed in the focus groups, especially among larger manufacturers. As the economy has picked up locally and nationally, they said, employers are finding it more challenging to retain workers.

Production workforce is racially diverse but owners and entrepreneurs are less so.

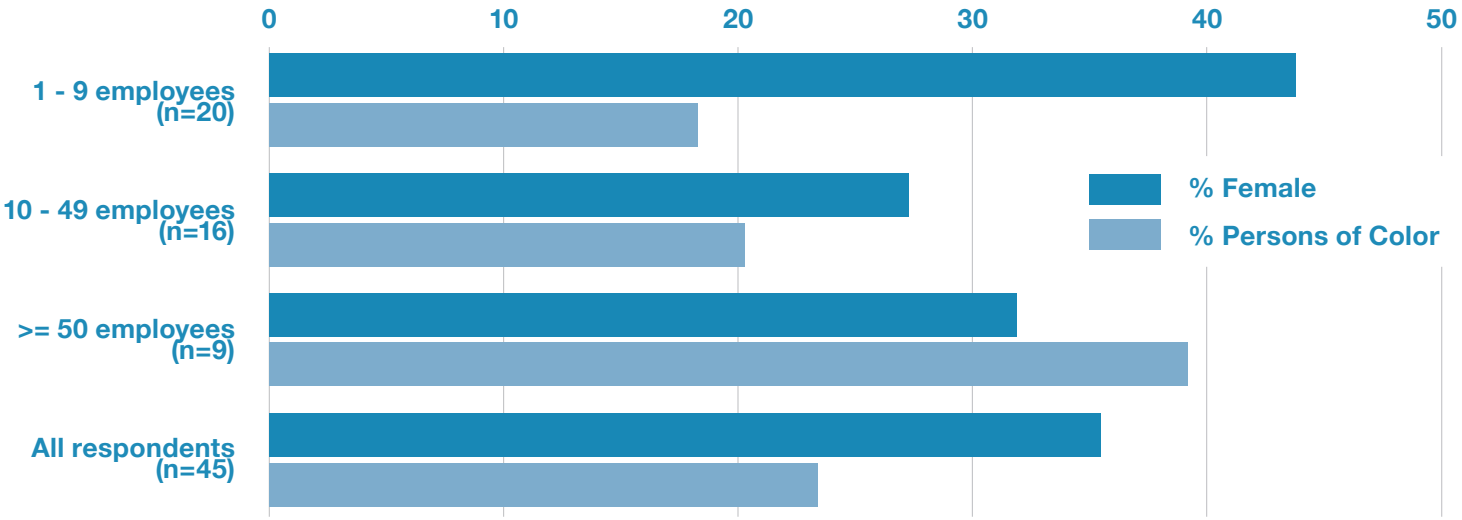
Portland's manufacturing production workforce is broadly representative of the racial and ethnic composition of the region's workforce as a whole. The average respondent indicated that persons of color (POC) comprised approximately 23 percent of their production workforce, which is just below the POC share of the Portland-area labor force.[3] However, larger companies were more likely to have a racially-diverse workforce. Companies with

3 American Community Survey, 2016 one-year estimates.

50 or more employees reported an average POC share of nearly 40 percent, compared with only 20 percent for medium-sized (10 to 49 employees) and 18 percent for smaller companies. Business owners or managers completing our survey were less racially and ethnically representative of the overall Portland community. Fewer than 10 percent of survey respondents—typically the companies' owners—identified as persons of color.[4]

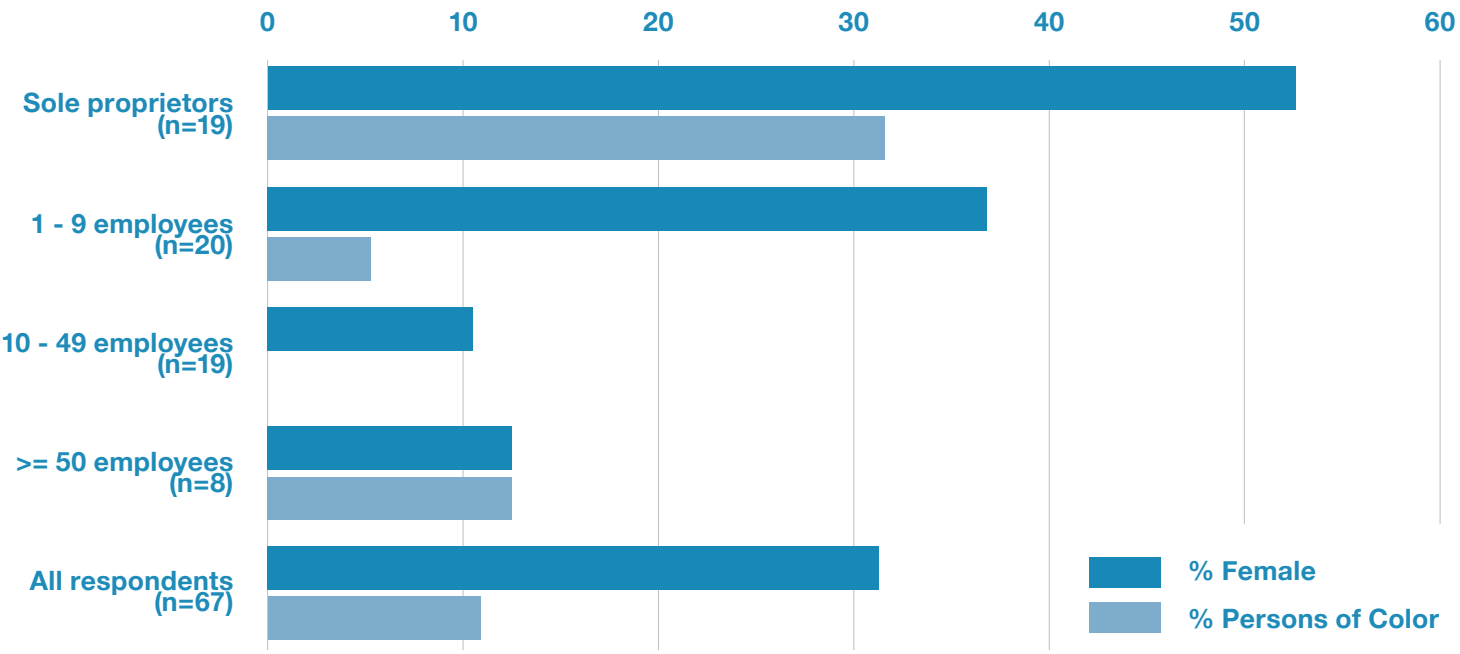
The production workforce of our respondent companies tended to be male-dominated, with the average company reporting that women comprised 35 percent of its production workforce. But this also varied by size; smaller companies (under 10 employees) reported an average female share of 44 percent, compared with 32 percent for larger companies (50 employees and over) and 27 percent of medium-sized companies (10-49 employees). This largely mirrored the gender distribution of business owners or managers responding to the survey: while only 31 percent of respondents who indicated their gender identified as women, they comprised 37 percent of respondents from companies with fewer than 10 employees, and the majority (55 percent) of respondents of sole practitioners. By contrast, only 8 percent of respondents (i.e. a business owner or manager) from firms with 10 or more employees were women.

Figure 16: Average Production Workforce Demographics (Race/Gender) by Company Employment Level



4 This is a proxy for companies' owners. However, while the survey directions asked that surveys be completed by a company's owner, or from the owner's perspective, we cannot assume every respondent did so.

Figure 17: Respondent Demographics by Company Employment Level



What drives these patterns? One factor that likely influences the lack of racial and gender diversity in companies is business owners' inclination to rely upon informal, socially-driven hiring channels. These practices tend to reproduce existing workforce or ownership demographics. Although almost 60 percent of survey respondents indicated that they hire through formal job postings, significant numbers indicated that they hire through referrals from existing workers (54 percent) and from among owners' friends (43 percent). Smaller companies were particularly reliant upon informal hiring, while larger companies reported using formal sources like staffing agencies more often. Only 13 percent of all respondents indicated that they utilized non-profit or government-operated workforce development organizations that might help businesses identify more diverse candidates for production jobs.

Manufacturers expressed frustration about the difficulties of navigating and working with public agencies and resources.

In our focus groups, manufacturers both large and small expressed frustration regarding their interactions with government decision-makers; access to public resources; and their lack of opportunity to participate in, or inform the promulgation of, local government policies. The tenor of this conversation differed somewhat based on the size of the companies. Larger, more established companies expressed concern around everyday interactions with city bureaus regarding permitting and regulatory compliance, as well as new regulations such as paid sick leave and minimum wage increases, and ongoing issues of congestion and transportation access. Some indicated that these issues were causing them to consider a relocation to elsewhere in the region outside of the city of Portland.

Smaller manufacturers expressed difficulty understanding how to access public agencies and resources to solve problems impacting their businesses – or even know what programs and services exist. One participant said, “There are a lot of resources in the city, they’re just dispersed. It’s hard to find and learn about them.” While many had utilized services through various publicly-funded agencies and organizations, these connections typically came through word-of-mouth from other businesses. Not being “in the know,” they said, meant expending valuable time and energy to track down answers, leading to what one participant described as “sleepless nights and expensive learning curves.”

Central Eastside represents a crucible for the changing environment of innovation and production in the city.

The Central Eastside Industrial District (CEID) represents a critical space for Portland’s aspirations to maintain a robust urban manufacturing economy while benefiting from the growing presence of creative firms in the district. CEID was designated

an “industrial sanctuary” by the City in the 1980s as a way to preserve valuable land for employment within the urban core by limiting encroachment from non-industrial uses. Over time, CEID has helped sustain a combination of large, established manufacturers, like Franz Bakery and Portland Bottling, while serving as a hothouse for a generation of smaller, entrepreneurial emerging manufacturers.

We asked businesses located in CEID in particular about their concerns. As new development in and around CEID has increased in the past five years, manufacturers said they were worried about the loss of parking, increase in congestion, as well as issues of crime and safety in the midst of the city’s homelessness crisis, which has resulted in more individuals camping on public space in the district. They also voiced concern about a lack of available or affordable space, and conflict and encroachment from non-production uses.

Yet despite their concerns, a majority (59 percent) of respondents indicated that being in CEID was an advantage for their business, while only 23 percent indicated that it was a net disadvantage. Proximity to customers and access to workforce were listed as the two top advantages of being located in CEID.

The Innovation Quadrant (IQ) initiative represents a promising opportunity to bridge the past and future functions of the CEID. A partnership between Portland State University, Oregon Health Science University, Portland Community College, and Oregon Museum of Science and Industry, IQ is a collaborative effort to foster linkages between the research and discovery activities of these large anchor institutions with early-stage prototyping and affordable production capacity.

Recommendations & Opportunities

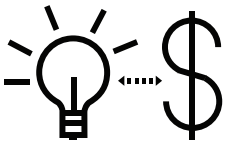
Based on our findings from the survey and focus groups, we have identified below six opportunity areas in which Portland could further support its urban manufacturing economy.

Strengthen policies and strategies that support real estate affordability, especially for smaller manufacturers as they scale up.

Real estate affordability represents the most acute challenge facing Portland's growing manufacturers. Small businesses have benefited mightily from the accessibility of areas like the Central Eastside to customers, suppliers, workers – and each other. The City's Industrial Sanctuary policy remains an important tool for mitigating displacement pressures on viable industrial businesses, but recent changes that allow higher densities of "industrial office" uses – for instance, software development – will need to be monitored to ensure that they don't exacerbate these pressures. Active measures by the City to continue to support affordable industrial development will be critical for ensuring sufficient supply. This includes tracking industrial real estate vacancy rates by size, as well as developing financial tools to stabilize small-scale manufacturers in place as rents rise.

Yet our findings suggest that affordability, on its own, is not enough. Small, fast-growing manufacturers often experience difficulty finding appropriately configured or situated real estate as their space needs change. The City might invest in capacity to facilitate matches between growing manufacturers and industrial property owners and managers, with a goal of cultivating a network of affordable, available industrial spaces throughout the city.

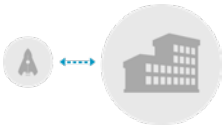
Ensure availability of growth capital for manufacturers.



We found that capital access was a barrier to growth for manufacturers of all sizes in Portland but took on different forms for smaller and larger companies. For smaller companies, working capital represented the biggest challenge; bigger companies needed support to finance capital investments.

Prosper Portland's Inclusive Startup Fund is one encouraging example of growth capital being made available to small companies—in this case particularly to owners from underrepresented groups. Oregon Entrepreneurship Network's Venture Catalyst Initiative, operating in several regions of the state, also represents a model for providing early-stage entrepreneurs with mentoring, talent, and capital. Prosper Portland and Oregon BEST have been working to connect established manufacturers to emerging ones in need of funding support. But additional sources of working capital are needed for companies that, while growing, may not a trajectory to navigate the challenges of moving from direct-to-consumer scale production to supplying wholesalers and distributors. These are the sorts of loans—often for working capital business profiles —that are hardest for traditional banks to underwrite for small, if growing, manufacturers.

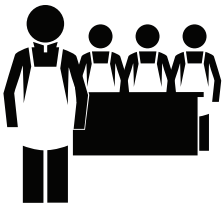
Develop intermediaries to help smaller-scale manufacturers work with at-scale manufacturers.



We found that smaller, newer manufacturers struggled to find support from established manufacturers providing affordable contract production capacity. And for their part, contract manufacturers indicated that lack of knowledge about the production process among makers who might become their customers was a barrier to working with them. This suggests an opportunity to develop or expand intermediaries who can interface with smaller-scale companies to help them understand opportunities to design for larger-scale production, as well as to help set expectations around the time and cost requirements for turning designs into shop drawings. At the same time, contract manufacturers might expand their customer service roles by more proactively marketing their engineering capacity to help smaller firms get to the point of working with them. In addition to selling their engineering services, it could easily result in additional production work for their shops.

One promising development, announced recently, is the opening of the Portland Incubator Experiment's PIE Shop, a manufacturing incubator supported by Autodesk that will help hardware start-ups navigate the design process to ensure they're designing for large-scale production. Other models to build upon include the Oregon Manufacturing Extension Program's industrial supplier matching tool, NWB2B, and Prosper Portland's recent Supply Chain Conference organized in conjunction with Central Eastside Industrial Council and Portland Made.

Strengthen capacity and linkages of workforce intermediaries serving manufacturers of all sizes, especially within Portland's industrial districts.



Among medium-sized and larger manufacturers, workforce availability was identified as a major barrier to growth. For smaller companies, workforce issues were less salient; however, their reliance on informal hiring networks appears to have led to less diverse production workforces.

In recent years, Prosper Portland has invested in workforce navigators serving several geographical areas, as well as one serving the city's manufacturing sector. To serve manufacturers within the city's key industrial districts even more effectively, Prosper Portland should consider partnering with industrial district associations to add capacity to engage employers proactively around workforce recruitment and training. This could be especially helpful within small- and medium-sized companies that have less internal human resource capacity and, thus, are less likely to engage with the existing public workforce development system.

This should be linked with youth-focused efforts to strengthen the manufacturing workforce pipeline, such as Worksystems' careersnw.org initiative to bring awareness of regional manufacturers and identify career pathways in manufacturing for youth. Additional opportunities might include:

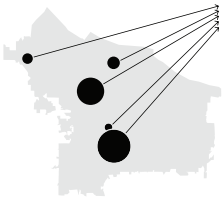
- Strengthen linkages with educational institutions at all levels – secondary to postsecondary – around internships

and work-based learning. A promising example here is the Detroit Linked Learning program, which connects high school career and technical education (CTE) programs to industry[5].

- Expand apprenticeships and other earn-as-you-learn models.

5 https://www.urbanmfg.org/project/state-of-urban-manufacturing/detroit/

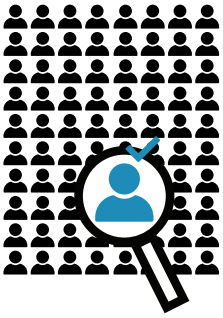
Seed an organization through which manufacturers of all sizes can come together to share their varied needs or concerns, and to increase opportunities for collaboration.



Manufacturers of all sizes felt that their needs and concerns were not fully appreciated by local decision-makers. While the concerns of larger manufacturers, incumbent SMEs, and emerging maker-manufacturers may differ somewhat, they all share the goals of business success and ensuring that Portland sustains the environment for a healthy manufacturing economy. There are a number of organizations in Portland that support manufacturers, but at present there does not appear to be a single citywide organization or entity that unites and advocates for the needs of manufacturers across scale. The City and Prosper Portland might consider seeding an organization, with leadership and co-investment from the private sector, that brings together Portland's broader manufacturing community around shared needs, interests, and policy concerns—and to do so in a way that fosters more and more productive relationships between established manufacturers, makers, and designers. This could include developing manufacturing-specific approaches to service delivery and support, leveraging recent proposals to create City liaisons for the arts and small business. For smaller-scale, emerging manufacturers in particular, this entity could serve as a resource for helping them to navigate available support programs and pertinent regulations. For larger companies this could serve as a forum for discussing issues impacting their business, and interfacing with relevant planning efforts. This is about more than providing information

through a directory or resource portal; it is about cultivating networks to bring Portland's manufacturing community – big companies, small companies, service providers – together in a more unified way.

Build on efforts to ensure a diverse pipeline of manufacturing workers, entrepreneurs, and leadership.

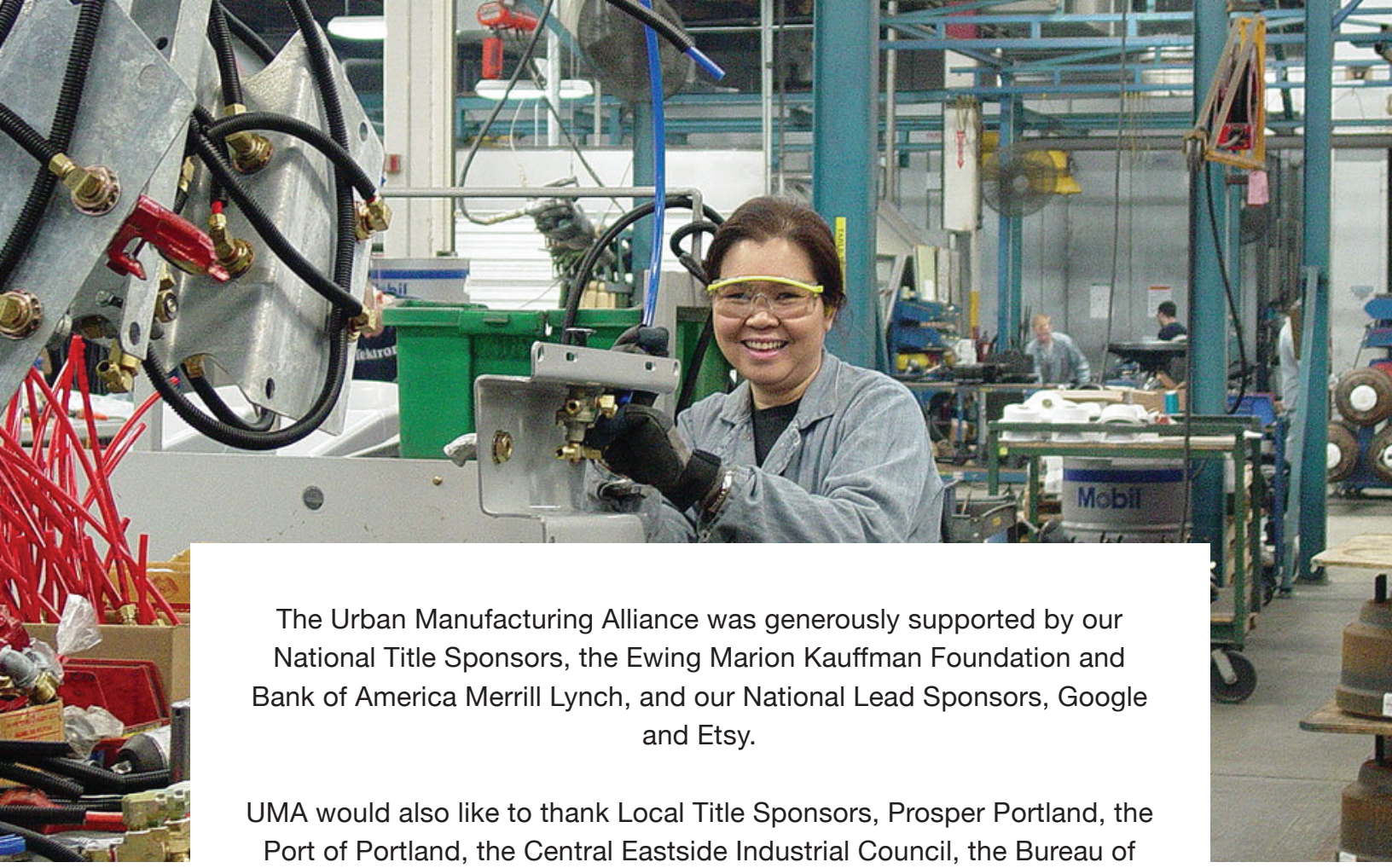


Finally, more can be done to ensure that the future of manufacturing entrepreneurs and leaders are more representative of Portland's diversity. While we found that medium-sized and larger manufacturers tend to employ a racially-diverse workforce, smaller companies were less so. The City, along with industry and community partners, should provide support to smaller companies to engage a more diverse workforce as they grow; SFMade's YouthMade program[6] is a potential model.

But the bigger challenge involves extending the diversity of the manufacturing workforce from the production floor and into the labs and the board room. Opportunities here include:

- Build on initiatives like Inclusive Business Resource Network and Mercatus Collective that provide both resources and collaborative networks to emerging businesses from underrepresented groups.
- Engage medium-sized and larger manufacturers to support career and leadership development for women and workers of color.

6 https://sfmade.org/program/youthmade/



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