NOVEMBER 2021

State of Manufacturing in the Pacific Northwest

Aldrich

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WELCOME

After a challenging year and a half, we at Schwabe and Aldrich are delighted to present you with the results of our second survey on the **State of Manufacturing in the Pacific Northwest.** Since our first survey in 2018, we have stayed on top of changes affecting the manufacturing industry and are grateful to continue the conversation to reveal and understand the new challenges and opportunities for growth.

Whether it's about supply chain management, expansion plans, regulation, talent or technology, our goal is to shine a light on the topics that matter most to this industry. These survey results are a way to bring this community together and hear valuable perspectives on how manufacturers across our region are tackling shared issues.

Thank you to the more than five hundred participants who shared their insights on what keeps them up at night, what gets them out of bed in the morning and the optimism they have through it all. We hope you find the answers as valuable and inspiring as we do.

It's an honor to serve and be a part of the manufacturing community in our region.

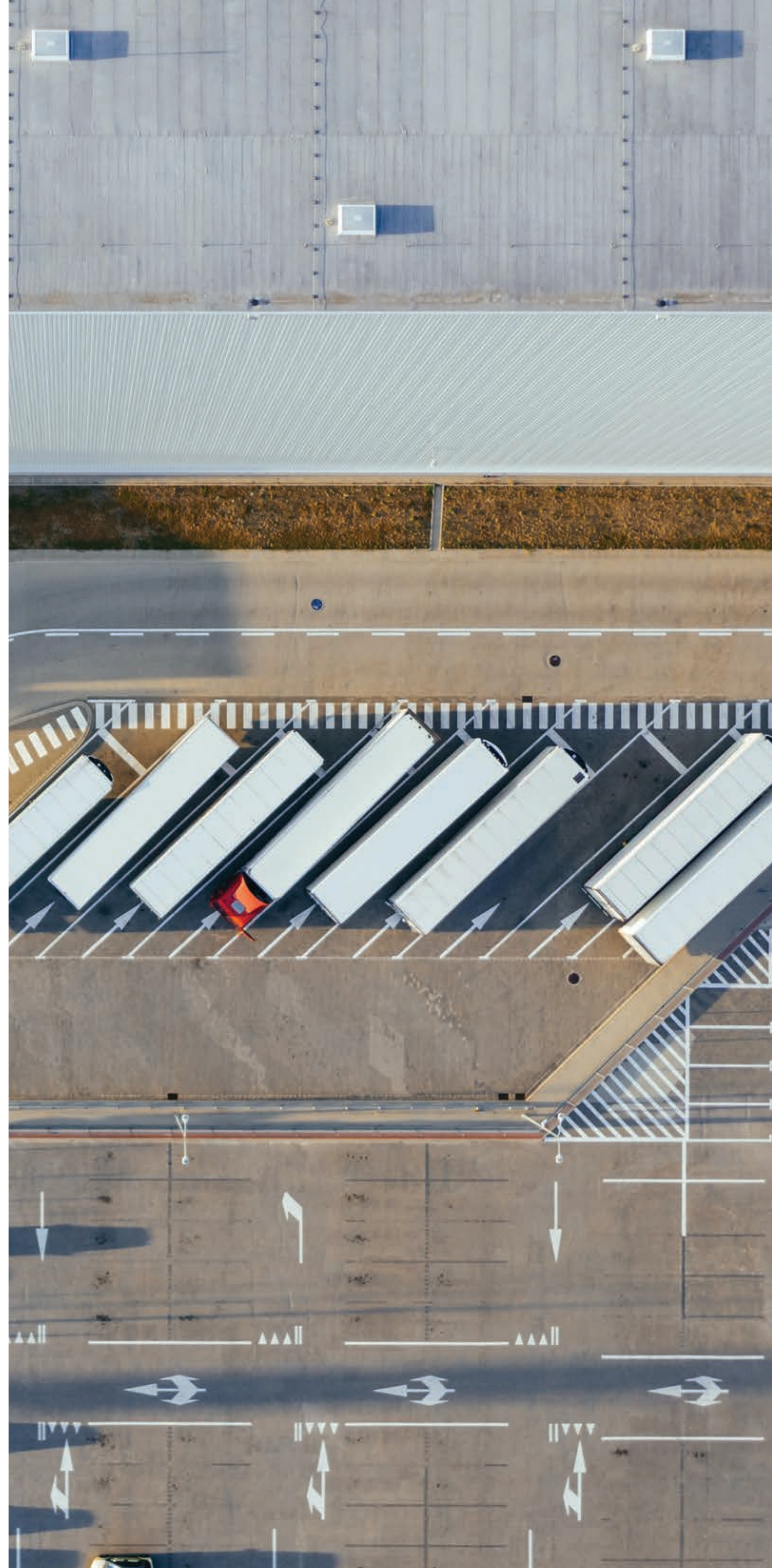
Onward!

Carrie Sowders

Michael Cohen

Carrie Sowders
Aldrich CPAs + Advisors

Michael Cohen
Schwabe, Williamson & Wyatt, P.C.



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EXECUTIVE SUMMARY

A resounding majority of manufacturing industry leaders in the Pacific Northwest have a positive 12-month outlook for both their own companies and the industry despite challenges posed by the pandemic and other ongoing challenges affecting their business.

When asked about their biggest opportunity, survey respondents pointed to the potential for business growth. In fact, six of ten manufacturers in our region are currently exploring expansion plans, including growing the size and breadth of facilities and office locations, their workforce, and geographic location.

The top challenge manufacturers say they face continues to be attracting and retaining a skilled workforce, mirroring our 2018 survey results. However, with the added issues related to the pandemic, they also have to make business modifications and are experiencing supply chain disruptions that have ripple effects. While manufacturers are largely optimistic and predicting growth, they are concerned about the rising costs of doing business, and the regulations they face.

Industry regulations that affect manufacturers' bottom lines the most have to do with wages & benefits, taxes, and land & real estate. Half of those who responded say that current regulations and policies have caused the price of their supplies to increase, which in turn has forced businesses to increase the selling cost of their products. Nearly half perceive their state and local business tax policies as anti-business. Eight out of ten are concerned that state laws and regulations place additional costs and taxes on them as employers.

While manufacturers are currently using various technologies to help them remain competitive, eight out of ten plan to increase their technology investments over the next 12 months. This includes purchasing new computer software, hardware and equipment, cloud, and automation technology. They are also placing heightened importance on safeguarding data privacy and mitigating cybersecurity threats.

When it comes to business transition planning, a greater number of survey participants (about half) said they already have a succession plan for transition of executive leadership or ownership compared to our 2018 survey. However, that leaves another half who are still working on a plan or do not have one.

BIG PICTURE BUSINESS FORECAST

Businesses are optimistic and looking to grow

12-Month Outlook

When asked about their 12-month business outlook for their company and industry, seven out of 10 survey participants characterized it as good or excellent. While their overall outlook is mostly positive, it dipped as compared to our 2018 survey results when that number was eight out of 10. It's also noticeable that their outlook is more positive closer to home and gets progressively less positive for the regional, national and international economies. More than half of the manufacturers we surveyed see the outlook for the international economy as fair or poor.

Manufacturers in Washington had a slightly more positive outlook for their companies than those in Oregon, 75% vs. 70% respectively. The difference between states is more dramatic when comparing their outlook for the manufacturing industry as a whole, where a greater number of Washington manufacturers (76%) have a positive outlook for the industry as compared to Oregon's (66%).

The decline in confidence since our 2018 survey may linger from the uncertainty and supply chain issues amplified by the pandemic as well as ongoing issues related to taxes, regulations, and tariffs. In 2018, 81% of manufacturers in Washington and 83% in Oregon had a positive outlook for their business versus the 75% and 70% respectively in 2021 mentioned above.

The larger the company, the more positive their outlook was for the industry. While 80% of companies with $20+ million in revenue expressed a positive outlook for the next 12 months, that number decreased to 70% of those in the $5-$20 million range, and even lower to 65% of those under $5 million.

2021 versus 2018

Change in Positive Business Outlook for Manufacturers

Oregon	Washington
70% in 2021	**75%** in 2021
81% in 2018	**83%** in 2018

Expansion Plans

Since those who responded to our survey see the potential for business growth as their biggest opportunity, it's not surprising to see that six out of ten are currently exploring expansion plans for their business. When looking by state, a greater number of Oregon manufacturers (67%) said they are exploring expansion than those in Washington (53%).

The top three expansion plans manufacturers are exploring include adding facilities or office locations, increasing the size of their workforce, and entering new markets. These all go hand in hand, especially for those looking to increase production capacity since that will likely require expanding locations and hiring on more employees.

Unfortunately, 8% are considering relocating outside of Oregon or Washington, which could be in part due to tax changes that are seen as more burdensome. Another 6% are considering expansion through merger or acquisition.

A greater number of Washington manufacturers (23%) plan to expand into new markets, as compared to 12% of Oregon manufacturers, while a smaller number in Washington (5%) plan to increase production capacity compared to 13% in Oregon.

Company size made a difference in how manufacturers responded regarding expansion plans. Larger companies with $20+ million in revenue (75%) and $5-$20 million (76%) are exploring ways to expand, while that number is only 40% for smaller companies with under $5 million in revenue.

HOW WILL YOU EXPAND?

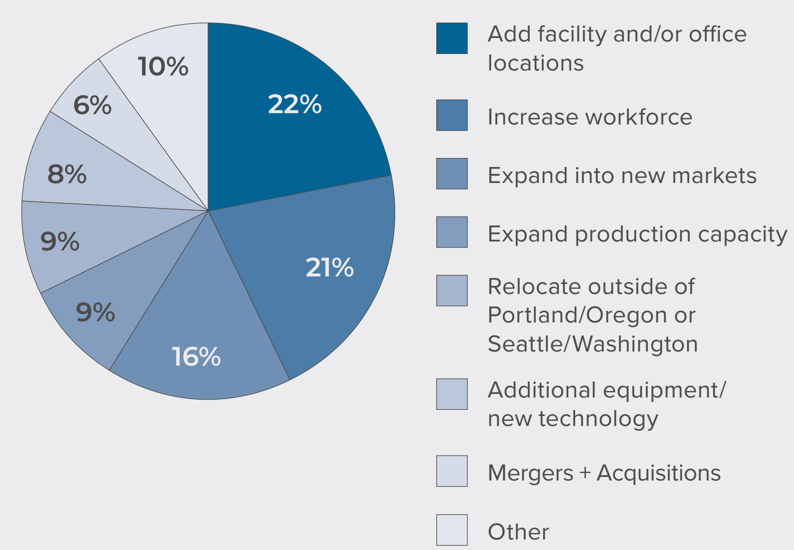
"Looking for a larger distribution facility."
Owner/partner at wood products company in Oregon

"Additional equipment, robotics and faster, more integrated DTC fulfillment."
Owner/partner at defense/tactical company in Oregon

"Greater e-commerce presence and adding stores in other regions."
Owner/partner at food and beverage company in Oregon

12-Month Outlook Characterization for:

Types of Expansion Plans Being Explored



Plans for Expansion by Company Size

40% of companies with under $5 million in revenue **HAVE PLANS TO EXPAND**

75% TO 76% of companies with revenues above $5 million to under $20 million and $20 million or more **HAVE PLANS TO EXPAND**

Biggest Opportunities, Challenges + Concerns Around Business Health

Companies in both states see the potential to grow their business as their biggest opportunity, but increased demand was second on the list for Oregon manufacturers while improved economy was second for Washington.

While the pandemic has been an impactful force over the last year plus, only 10% felt it was their biggest challenge. When looking at funding growth, only 2% noted funding or access to capital as a challenge, which indicates that sources of capital are not a primary constraining factor.

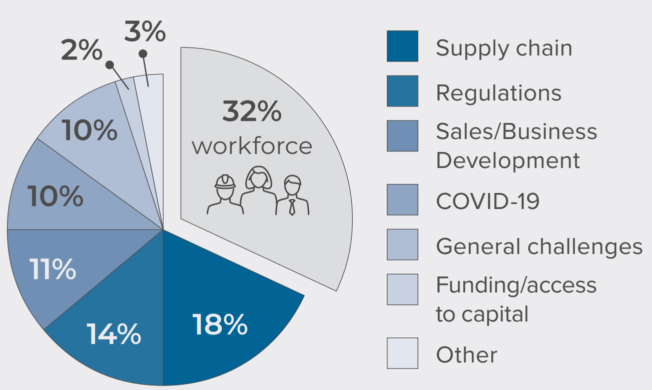
The top three challenges their businesses face right now are related to workforce, supply chain and regulations. When broken out by state, Oregon and Washington manufacturers saw eye to eye on these top challenges. We dive deeper into these later in the survey results.

When asked to select the top things hindering their business, eight out of 10 are concerned about the escalating costs of doing business. Other concerns on the list that could be contributing factors to this include the cost of materials and shipping, employee benefits, and putting new protocols in place because of COVID-19.

More than three quarters of those surveyed are also concerned about supply chain disruptions. Manufacturers have experienced additional issues around their supply chain over the last year due to the pandemic, such as rising freight costs, and scarcity of materials or trade issues. These ongoing challenges may have contributed to a less positive business outlook compared to 2018.

Attracting and retaining skilled talent, along with maintaining employee morale, came in third as a top concern. It's not surprising since issues around workforce continue to be a top challenge for manufacturers and will likely remain since they have been amplified through the pandemic.

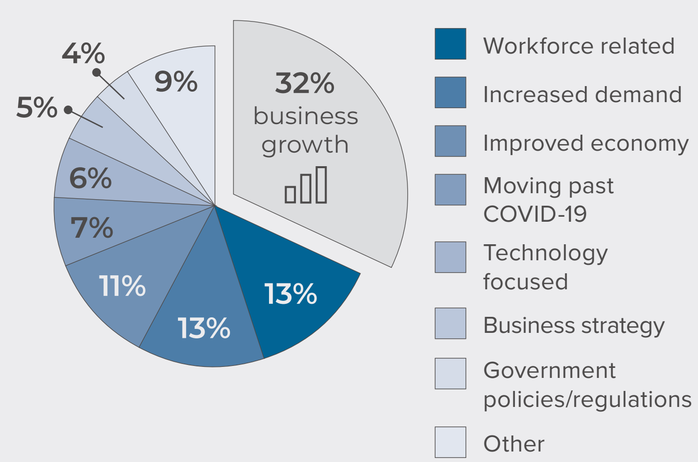
Biggest **Challenges** for Businesses



"Making sure we have enough inventory to supply the demand for our products."
Owner/partner at food and beverage company in Oregon

"Ocean freight and its effect on the cost, and availability, of imported goods."
C-Level executive or other corporate officer at chemical company in Washington

Biggest **Opportunities** for Businesses



"Develop more flexible manufacturing profile in order to meet demand of existing and new customers."
Owner/partner at food and beverage company in Washington

"Bringing new value to current and new customers through innovative, feature-rich products and services."
Senior vice president/vice president at industrial products company in Washington

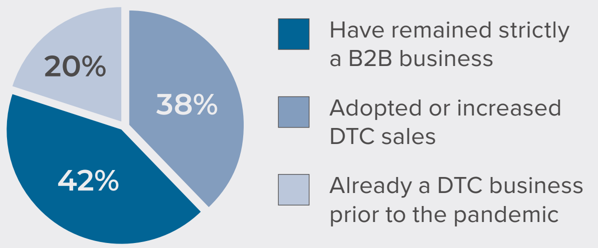
Northwest manufacturers said their top three opportunities right now are around **business growth, workforce, and increased demand.**

The concerns differ when we break down the results by company revenue. Supply chain disruption was the top concern for larger businesses with $20+ million in revenue. Replacing an aging workforce and diversity, equity and inclusion (DEI) issues were more likely to come up as concerns for larger companies, while all manufacturers are equally very concerned about attracting and retaining workers overall.

For mid-size manufacturers with $5-$20 million in revenue, cost of health insurance and employee benefits was their top concern, while smaller businesses with under $5 million in revenue pointed to rising costs of doing business. Manufacturers with smaller revenues were also more likely to be concerned about attracting new customers.

Concerns Related to Health of Business % very/somewhat concerned	UNDER $5 MILLION	$5 MILLION TO UNDER $20 MILLION	MORE THAN $20 MILLION
Rising cost of doing business	**79%**	85%	77%
Attracting + retaining skilled employees and/or employee morale	77%	79%	71%
Cost of health insurance + other employee benefits	76%	**89%**	65%
Supply chain disruptions, including cost of freight	73%	64%	**80%**
Being able to attract new customers	72%	69%	59%
Customer and/or supplier business operations	70%	64%	65%
Meeting increased demand	54%	64%	63%
Increased competition	48%	47%	53%
Replacing an aging workforce	45%	52%	61%
Access to capital, business loans and/or credit	41%	48%	40%
Adapting to new workplace protocols due to COVID-19	38%	51%	55%
Diversity, equity + inclusion issues	37%	47%	56%
Health + safety concerns	36%	45%	45%

Effect of Pandemic on Direct-to-Consumer Sales



Business Model/Strategy Changes due to COVID-19

Pandemic-Driven Challenges

No doubt, the pandemic has forced businesses to adapt. Most manufacturers had to make some changes to their business model and strategy. More than half instituted remote or hybrid work policies (at the time of our survey) and changed or reconfigured employee workspaces. Larger companies were more apt to change their workspaces, manufacturing floor, and/or company footprint.

Almost four out of 10 adopted or increased their direct-to-consumer (DTC) sales strategy. Oregon manufacturers were much more likely to have set their DTC strategy into full gear as compared to those in Washington (55% vs 24% respectively). However, more Washington manufacturers already had a DTC model going into the pandemic or plan to remain a strictly B2B enterprise.

76%

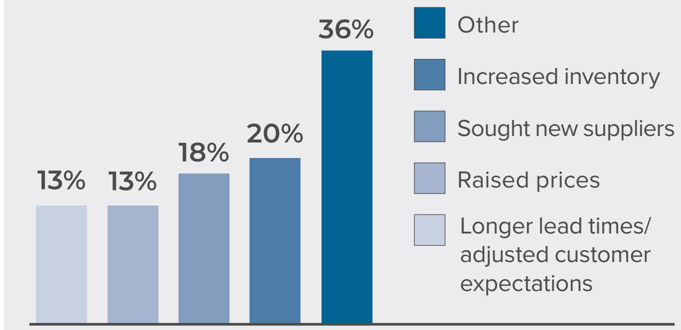
had their supply chain affected in the last 18 months

Adverse Effects on Supply Chain

A whopping three-quarters of respondents experienced some effects on their supply chain in the last 18 months. Roughly one-fifth either increased their inventory supply or sought new suppliers that could meet their demand.

We see a major difference in results by state, where nearly all Washington manufacturers (96%) said their supply chain was affected versus 65% of those in Oregon. Manufacturers in both states made adjustments by increasing inventory, but Washington manufacturers were more likely to seek out new suppliers while Oregon manufacturers were more likely to raise prices.

Adjustments Made to Address Supply Chain Changes



OTHER CHANGES MADE TO ADDRESS SUPPLY CHAIN ISSUES:

"We have ordered well ahead of normal to get in line for backordered materials."

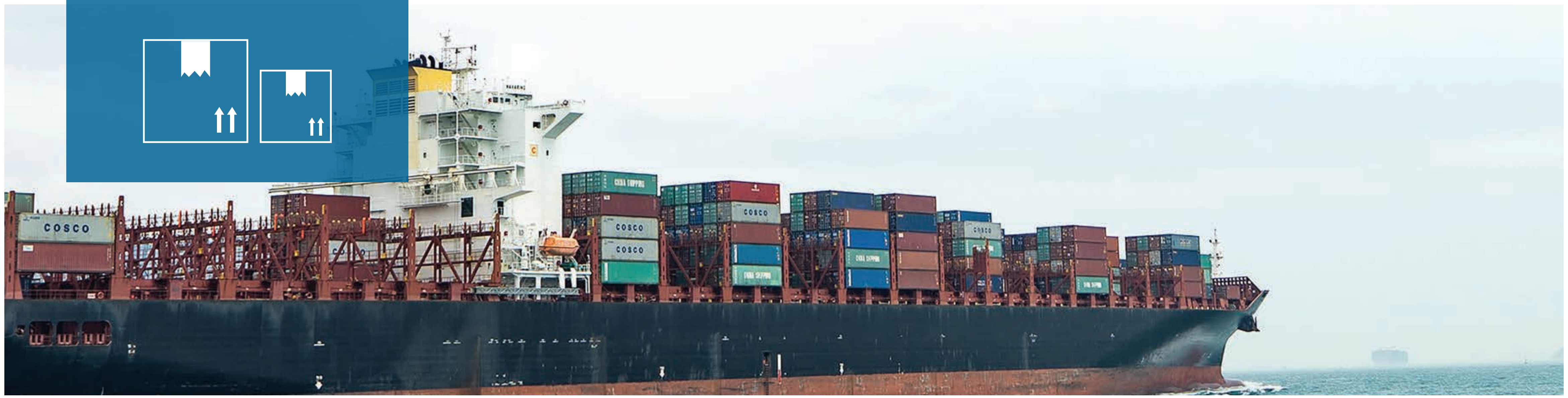
Executive director/senior director/director at food and beverage company in Washington

"More supplier diversification and in-house manufacturing of supplies."

Senior vice president/vice president at high-tech company in Oregon

"We've had to quote longer lead times or offer alternative products that are in stock."

Manager at aerospace company in Oregon



Professional Insights

Addressing Concerns Around Rising Costs of Employee Benefits

Events of the last year and a half highlighted the importance of employee benefits, particularly health insurance. Employees are beginning to pay more attention to the benefits offered and costs associated with care. Likewise, the current skilled labor challenge has led many employers to re-evaluate their employee benefits package to ensure it is competitive enough to attract and retain top talent.

But mid-sized manufacturers identified the cost of health insurance and employee benefits as their top concern, and studies show that perception matches reality. Mid-sized employers have been disproportionately affected by the rise in the cost of coverage: while the average employer saw a trend increase of around 7% in 2021, mid-sized employers averaged an 11.1% trend increase. Despite the unique challenges facing the mid-size market (i.e., limited access to utilization data and funding structures), employers can pull levers to contain costs while minimizing disruption.

On average, most employers offer three different plan design options. Crafting the right package can have a significant effect on cost and quality of coverage. Employers can also consider implementing several cost-containment measures, including narrow networks, high deductible plans alongside a Health Reimbursement Account (HRAs) or Health Savings Account (HSA), and association plans. 2020 marked the first time that more employees enrolled in High Deductible Health Plans than in traditional PPO plans, while more than 3 in 4 employers are now offering HSA compliant plans as an option. HRAs are particularly attractive for employers who have a higher risk tolerance and engaged employees. While HRAs allow the employer to take on more financial risk in exchange for lower premiums, the HSA allows employees to take on more financial risk for lower premiums.

Narrow networks can serve as cost-effective “base plans” when paired alongside a more traditional full-network PPO as a “buy-up” option. The employer’s contributions are then based on the narrow network plan and employees would pay the cost difference to “buy up” to the full network option. This strategy has increased in popularity since the beginning of the pandemic. The percentage of employers who had implemented narrow networks, or were considering it, increased from 34% to 46% after the COVID-19 outbreak. There are also several manufacturing specific association health plan groups that can offer rate stability for mid-sized employers by allowing them to pool their employee population with industry peers, giving you enhanced buying power and a greater spread of risk.

Evan Cole
Employee Benefits Consultant
Aldrich Benefits

WORKFORCE CHALLENGES

Many need to grow their workforce, but finding skilled talent is still tough

12-Month Hiring Expectations

Manufacturers see workforce as both an opportunity and a challenge. While seven out of ten anticipate hiring more full-time employees over the next year and roughly half will add part-time or contract employees, it's been difficult to find qualified and skilled labor.

Manufacturers with higher revenues are much more likely to bring full-time employees on board, while more than half of those with revenues under $5 million are not planning to add new employees at all.

Challenges in Attracting or Retaining Qualified Employees

A shortage of skilled labor is the biggest challenge manufacturers say they face when looking to attract and retain qualified employees. In fact, seven out of 10 point to a lack of skilled workers, the same number our survey results revealed in 2018.

This year, maintaining competitive compensation or benefit offerings was much higher on the list of challenges, with 66% of manufacturers noting it versus 26% in 2018. A higher number of manufacturers cited competition from other employers, and a lack of affordable housing and public transportation this year as compared to 2018.

New challenges have also come into the mix over the past year. About four out of 10 manufacturers noted that providing flexible work schedules, requiring or encouraging vaccines, and attracting a diversified workforce are all challenges they now face.

While a shortage of skilled labor is the top challenge for Oregon manufacturers, more Washington manufacturers cited competition from other employers and maintaining competitive compensation or benefits as bigger challenges.

2021 versus 2018

7 out of 10 manufacturers
still say finding qualified, skilled labor is the biggest challenge to attracting/retaining qualified employees

"Maintaining competitive compensation or benefit offerings"
is much higher on the list of challenges for manufacturers when attracting/retaining talent in 2021 compared to 2018

66% in 2021

26% in 2018

A CHALLENGE

"Bringing back laid off workers."
Senior vice president/vice president at aerospace company in Washington

A POTENTIAL OPPORTUNITY

"Providing as flexible as possible work schedules/locations now that many have set up home offices since 2020."
Executive director/senior director/director at consumer products company in Oregon

Companies Planning to Add Employees Over Next 12 Months

	No	Yes
UNDER $5 MILLION		
Full-Time Employees	51%	49%
Part-Time Employees	64%	36%
Contract Employees	62%	38%
$5 MILLION TO UNDER $20 MILLION		
Full-Time Employees	15%	85%
Part-Time Employees	57%	43%
Contract Employees	44%	56%
MORE THAN $20 MILLION		
Full-Time Employees	18%	82%
Part-Time Employees	37%	63%
Contract Employees	24%	76%

Challenges When Attracting/Retaining Qualified Employees

	LEVEL OF CHALLENGE: Not a challenge	Low	Medium	High	CHALLENGE* BY STATE: Oregon	Washington
Shortage of qualified, skilled labor	11%	19%	32%	38%	72%	68%
Competition from other employers	12%	22%	36%	29%	61%	71%
Lack of nearby affordable housing	20%	25%	30%	25%	55%	58%
Determining if candidate is a good culture fit	15%	28%	36%	20%	57%	58%
Diversified workforce	30%	30%	26%	13%	46%	34%
Requiring or encouraging vaccines	28%	30%	30%	12%	45%	39%
Providing flexible schedules	25%	30%	34%	11%	50%	38%
Lack of public transportation options	36%	34%	20%	11%	38%	27%
Maintaining competitive compensation and/or benefits (health insurance, 401(k), etc.)	14%	20%	41%	25%	60%	70%

**% of Medium/High Challenge*

Diversity + Equity in the Workplace

When we asked manufacturers about the ways they promote diversity and equity in their workplace, efforts around pay equity, providing a safe platform for employees to express their voice, and eliminating bias from employee applications are the three that came out on top.

Business Efforts to Promote Diversity + Equity in the Workplace	UNDER $5 MILLION	$5 MILLION TO UNDER $20 MILLION	MORE THAN $20 MILLION
Pay equity	49%	45%	30%
Safe platform for employees to express their voice	43%	47%	53%
Unbiased review of all employee applications	36%	43%	41%
Diversity, Equity and Inclusion (DEI) personnel policies + equity training	29%	25%	37%
Evaluating diversity of talent and/or promotion opportunities and/or employee engagement with management	25%	18%	30%
Internship, apprenticeship, training opportunity and/or mentorship programs	23%	29%	36%
Selecting vendors and suppliers from qualifying suppliers such as women-, veteran-, LGBTQ+, disadvantaged and minority-owned and other small businesses	19%	10%	15%
Selecting vendors and suppliers that have DEI policies + practices	15%	8%	23%
Offering meaningful opportunities for historically under-served employee engagement with management	14%	26%	27%

Legal Insights

When it comes to finding talent, gone are the days when an ad on Craigslist will attract the people that manufacturers need to fill their orders. Exploring other sources, such as the state Employment Departments, job fairs, community colleges, high schools, and trade schools will be more successful in finding talent.

Manufacturers can retain talent by offering competitive wage and benefit packages to their workforce. Since not all employees will come fully trained for the job, manufacturers may have to develop and train raw talent for the more skilled labor positions. Companies offering good workforce development training programs with defined career paths that lead employees to more responsibility and higher paid jobs within their organizations will have an advantage in today’s economy.

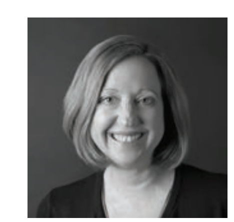
Tips for Manufacturers on Finding and Retaining Talent

- Contact your local manufacturing extension partnership to ask whether there are training programs geared toward your business. Market these programs to raw talent and offer to provide training and internship programs.
- Use signing agreements and stay-in-place bonuses to entice new talent and to retain your existing talent.
- Explore programs such as the Oregon Manufacturing Innovation Center (“OMIC”) program offered in conjunction with Portland Community College for ideas on innovative training.

What to Consider When Hiring Contract Employees

There is really no such thing as an independent contractor who works for only one company at its place of business using that company’s tools. An independent contractor is generally economically independent of any one company. They have their own business and work for many different companies independently, providing their own tools and insurance, without another company’s direction or control over the manner and means of performing their work. They generally work out of their own office and market their services to others. Manufacturers must be careful in classifying a W2 employee as an independent contractor as it violates state and federal law, especially related to collecting unemployment, and state and federal taxes.

A “contract employee” who is not an independent contractor can be hired as an employee with an employment agreement for a fixed term to solve a temporary shortage. That may include employees who retired but will be hired back for a fixed period to fulfill a particular need. They are considered W2 employees while employed on a contract.



Jean Back
Employment and labor attorney
Schwabe, Williamson & Wyatt

REGULATORY ROADBLOCKS

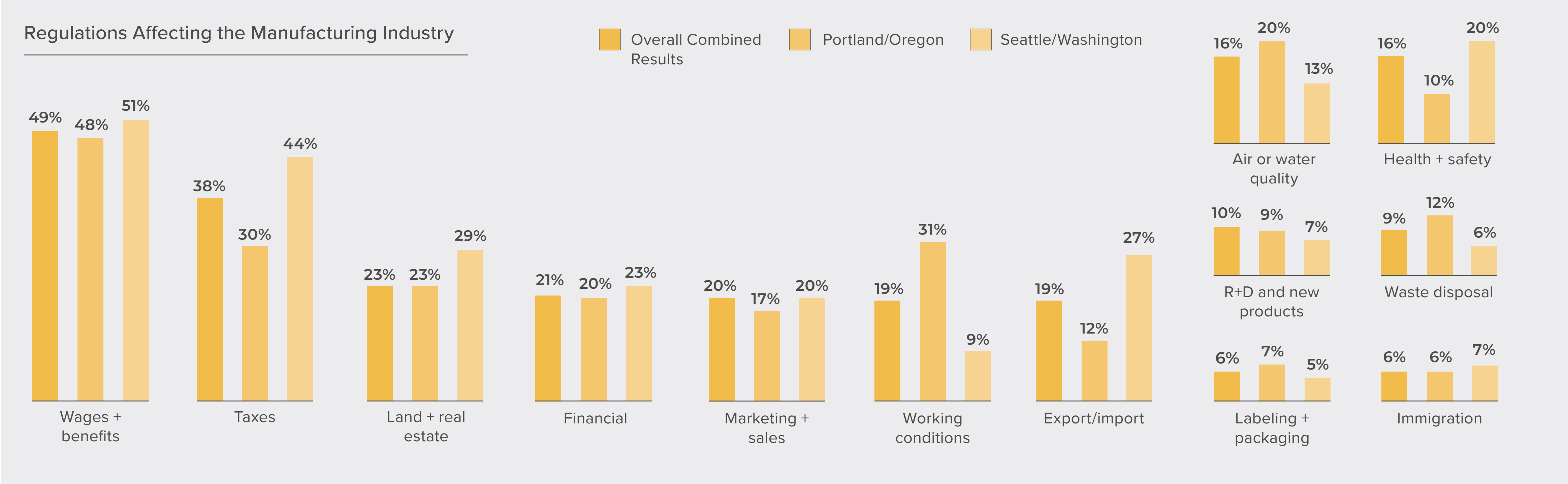
Regulations are adversely affecting business

Regulations Affecting the Manufacturing Industry

When asked to select the three regulations that affect their bottom line the most, Northwest manufacturers cited regulations around wages and benefits for employees, followed by taxes, and regulations related to land and real estate.

Oregon manufacturers noted regulations around working conditions second, much closer to the top as compared to Washington manufacturers who were more concerned about regulations around export/import and health and safety than those in Oregon.

A greater number of manufacturers with revenues under $20 million cited regulations related to wages and benefits as a top issue along with taxes and financial regulations. Those with revenues of $20+ million were more concerned about regulations around air or water quality along with health and safety than those with lower revenues.



Regulations Affecting the Manufacturing Industry

	UNDER $5 MILLION	$5 MILLION TO UNDER $20 MILLION	MORE THAN $20 MILLION
Wages + benefits	57%	49%	40%
Taxes	44%	30%	24%
Marketing + sales	25%	7%	11%
Financial	23%	27%	14%
Land + real estate	22%	27%	27%
Working conditions	19%	31%	20%
Export/import	17%	14%	19%
Air or water quality	14%	24%	26%
Health + safety	12%	6%	20%
R+D and new products	11%	2%	7%
Waste disposal	7%	13%	13%
Immigration	5%	5%	7%
Labeling + packaging	2%	6%	13%

Effects of Current Federal, State and/or Local Taxes, Tariffs and Policies

Manufacturers are concerned about regulations that are increasing costs and taxes on employers. Here we see the negative effects where more than half have experienced increased prices for supplies and almost half have had to increase the selling cost of products as a result.

Reduced margins and increased labor costs were more of a factor for Washington manufacturers, while disrupted cash flow was higher on the list for Oregon manufacturers.

More manufacturers with lower revenues under $5 million pointed to increased prices for supplies and reduced margins. Mid-size manufacturers were much more likely to note tension with suppliers and customers, while large manufacturers highlighted effects on imports.

Top Concerns about Regulations

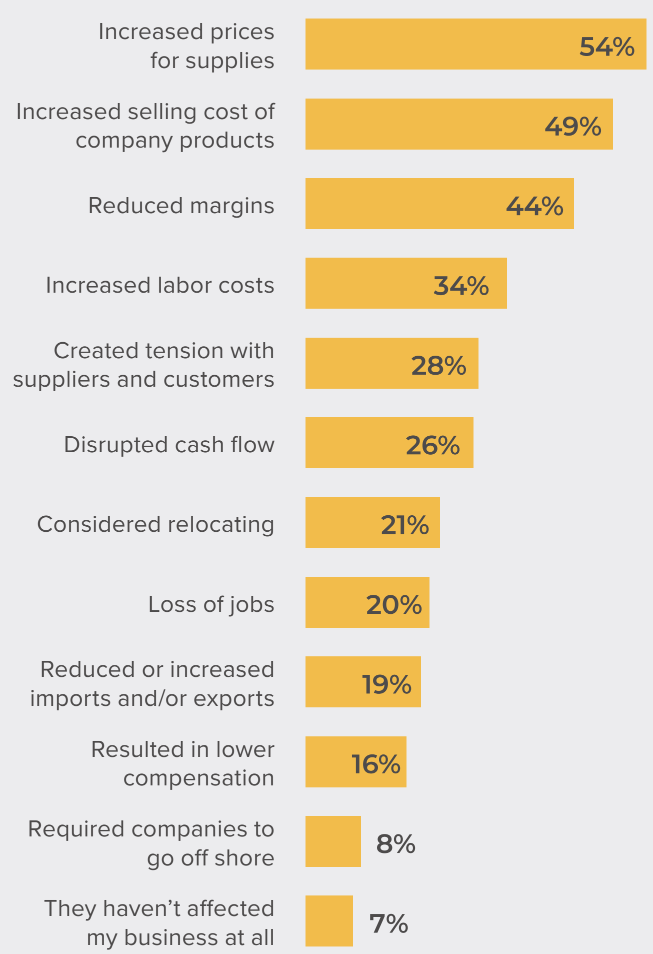
When asked about what concerns them the most about their state laws and regulations, almost eight out of ten said the additional costs and taxes placed on employers. About seven out of 10 expressed concern about the ever-changing federal, state, or local regulations.

A higher number of Oregon manufacturers appear more concerned about environmental and sustainability regulations, cap and trade, and increased re-shoring.

No matter their revenue, manufacturers across the board were overwhelmingly most concerned about state laws and regulations placing additional costs and taxes on employers.

Larger companies were more likely to be concerned about trade war effects, increased re-shoring, and environmental or sustainability regulations.

Current Federal, State and/or Local Tax, Tariffs and/or Other Policies Effect on Business



Nearly half of those we surveyed perceive their current state and local business tax policies as anti-business, a sentiment felt by more Washington manufacturers (50%) as compared to those in Oregon (36%). The smaller the manufacturer, the more likely it was to view business tax policies as anti-business.

These numbers shifted noticeably since our 2018 survey when about two-thirds of Oregon manufacturers felt this way versus just over one-third in Washington.

2018 versus 2021

WA
ANTI-BUSINESS SENTIMENT
up from 1/3 to 50%

ANTI-BUSINESS SENTIMENT
down from 2/3 to 36%
OR

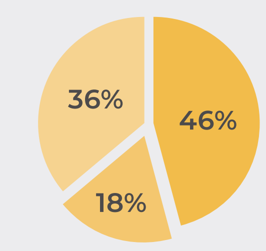
Regulation Concerns % very/somewhat concerned	UNDER $5 MILLION	$5 MILLION TO UNDER $20 MILLION	MORE THAN $20 MILLION
State laws/regulations placing additional costs + taxes on employers	80%	79%	77%
Changing state and/or local regulations	70%	76%	64%
Changing federal regulations	66%	75%	66%
Trade war effects	50%	55%	71%
Environmental and/or sustainability regulations	47%	56%	62%
Cap + trade	45%	55%	55%
Increased re-shoring	28%	40%	46%

Regulation Concerns

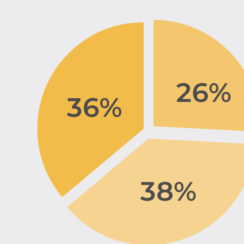
Overall Combined Results % very/somewhat concerned
Portland/Oregon % very/somewhat concerned
Seattle/Washington % very/somewhat concerned

Perception of State + Local Business Tax Policies

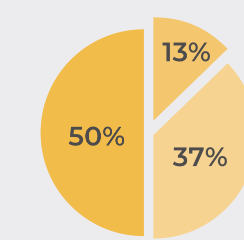
Anti-business
Pro-business
Neither pro- or anti-business



Overall Combined Results



Portland/Oregon



Seattle/Washington

Legal Insights

Manufacturers are feeling a pinch with taxes and tariffs that are increasing their costs which in turn decreases their margins. Although taxes are generally factored into pricing over the long-term, new taxes and tariffs often cut into the margins of businesses in the short-term because they are usually implemented with little notice. Most taxes and tariffs are added on top of other charges that all come off the bottom line initially until they are factored into a manufacturer's sale price for its product.

Looking ahead, it's likely that anti-business sentiment felt by manufacturers will swing more widely given how taxes are currently being implemented and challenged. Although Oregon has implemented the Corporate Activity Tax and the Portland-Metro Area now has two new income tax measures, Washington and the Seattle-Metro Area implemented taxes that have gone directly to the court system. For example, Washington's new capital gains tax was passed into law in early 2021 and is currently in litigation. That sort of litigation tends to dominate the headlines and cause business owners to think more negatively about the tax system.

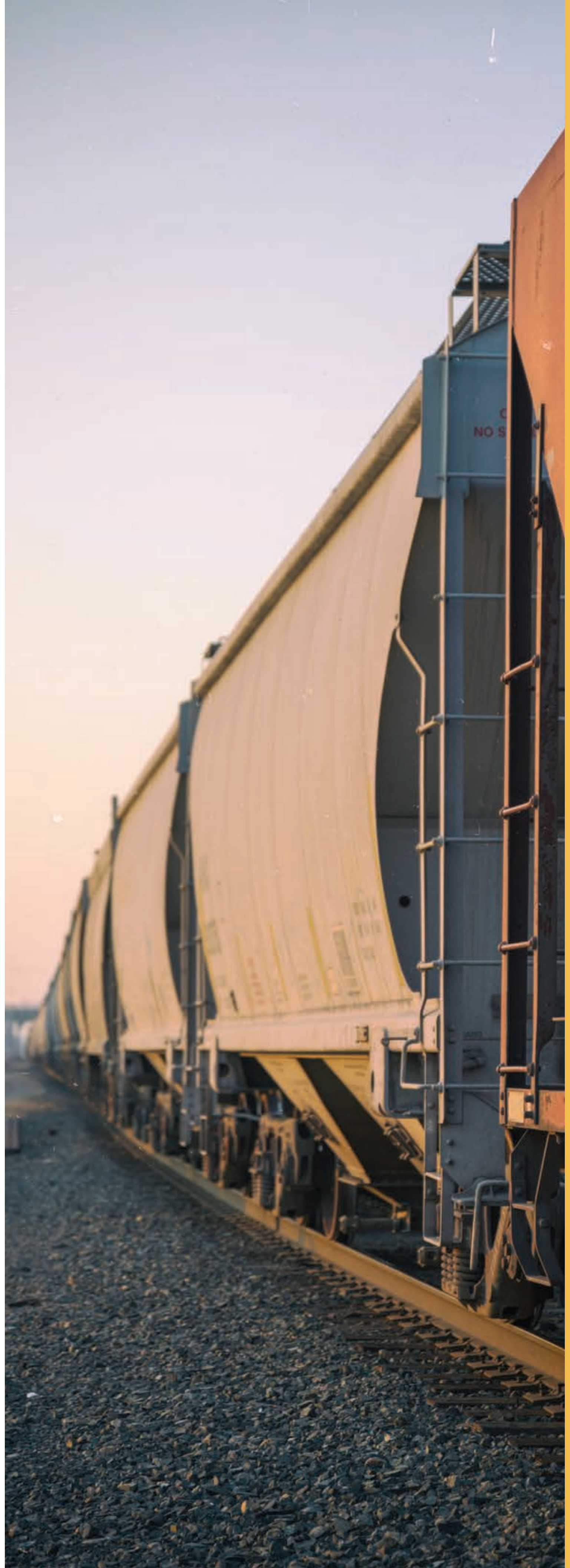
Dan Eller
Tax lawyer
Schwabe, Williamson & Wyatt

Oregon has been quickly and aggressively expanding its regulatory oversight of manufacturers. New air, solid waste and stormwater regulations and expanded interpretations of existing regulations have increased uncertainty for manufacturers. This uncertainty and lack of trust in a steady regulatory environment has impeded the likelihood of manufacturers directing capital toward operations in Oregon. To overcome this, a number of manufacturers are taking a more proactive approach by engaging with management at the agencies and state government, banding together through business associations, and incorporating their EHS manager earlier in development planning.

Brien Flanagan
Environmental law lawyer
Schwabe, Williamson & Wyatt

The only certainty with respect to safety and health regulations related to COVID-19 pandemic is that they will continue to change, be updated, or even be withdrawn as the risks of COVID-19 ebb and flow and our knowledge about the disease evolves. The key for manufacturers as we continue to grapple with the pandemic, and, hopefully, begin to see some light at the end of the tunnel, is to remain flexible. Manufacturers that adapt to new regulations quickly will be in the best position to avoid significant disruptions from outbreaks and, ultimately, succeed once the pandemic has ended.

Josh Dennis
Environmental compliance and safety lawyer
Schwabe, Williamson & Wyatt



TECHNOLOGY MOVING INDUSTRY FORWARD

Most are looking for a competitive edge through technology investments

Plans for Increased Technology Investments Over Next 12 Months

Eight out of ten manufacturers in the Pacific Northwest plan to increase technology investment for their business over the next 12 months. That number was slightly higher in Oregon than Washington (84% vs 78%). While there was a slight geographic difference in spending expectations in the region, the bigger difference was by company size. About 85% or more of companies in the manufacturing sector with revenue over $20 million plan to increase their technology investment in the next 12 months. That number drops to 68% of respondents working for companies with less than $5 million in revenue.

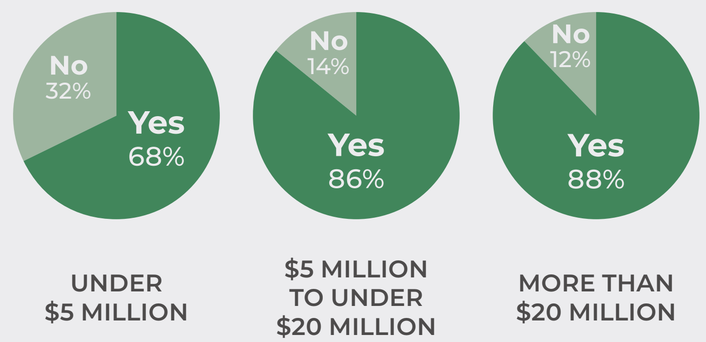
We asked what technology investments manufacturers are planning to make, and computer software came out on top followed by equipment, and hardware.

Leveraging Technologies Currently in Place

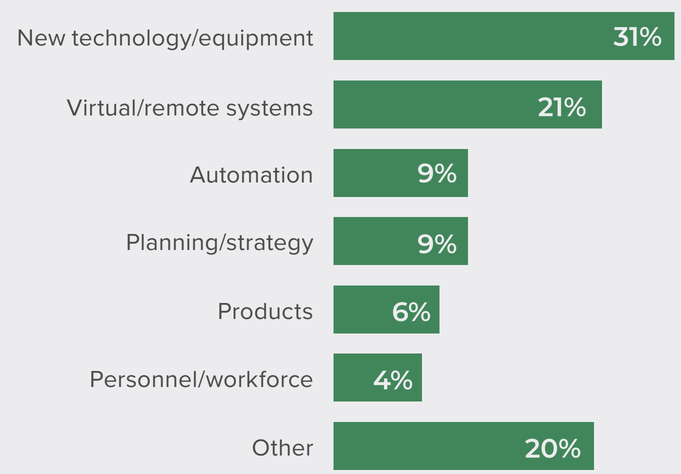
More than one-fifth of manufacturers we surveyed are currently using Internet of Things, ERP systems, or predictive maintenance technologies for their business.

Larger companies with $20+ million in revenue, or even those in the $5+ million range, are more likely to be already using technologies to make data-driven decisions and improve efficiencies. Technology implemented includes blockchain, AI, machine learning, and a wider range of newer technologies such as automated vehicles and robotics.

Plans to Increase Technology Investments Over Next 12 Months



Recent Innovative Initiatives, Their Effect and Future Planned Innovations

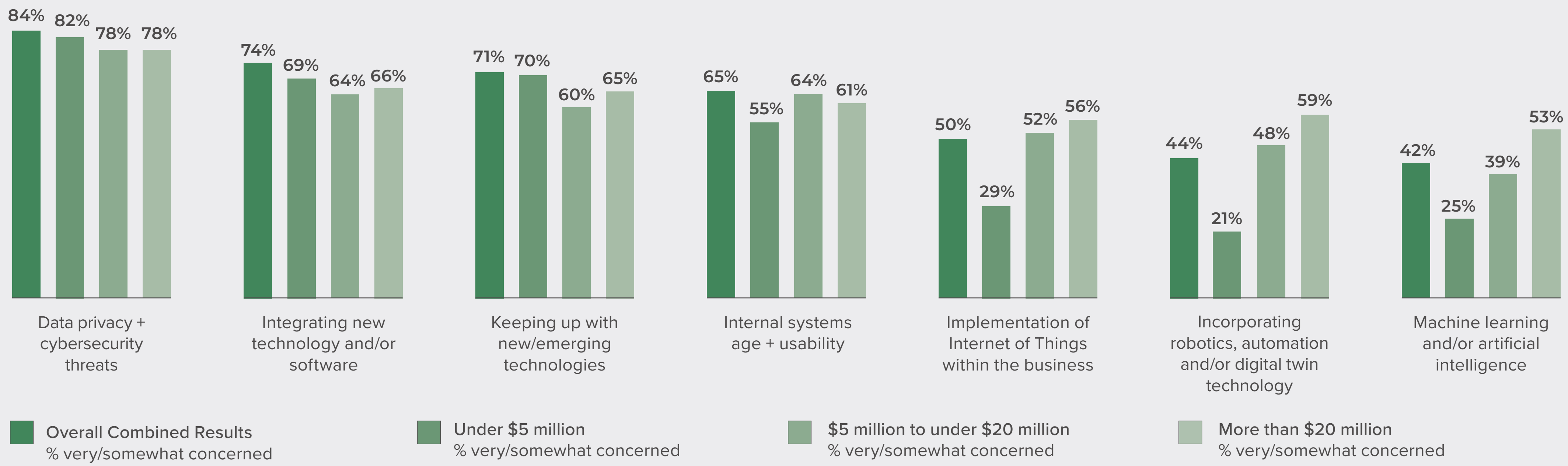


As for recent innovative initiatives they have implemented in the last 12 months, manufacturers pointed to their new technology and equipment, and systems that allow for virtual and remote work.

An interesting note from our 2018 survey is that manufacturers pointed to automated manufacturing as the new technology that they expected to have the largest effect on the industry, yet only 9% of survey respondents this year noted it as technology they have implemented in the past year and automation was toward the bottom of the list of important technologies.

Technologies Currently Used	UNDER $5 MILLION	$5 MILLION TO UNDER $20 MILLION	MORE THAN $20 MILLION
Internet of Things	27%	22%	27%
Artificial intelligence and/or machine learning	19%	23%	26%
QR codes	16%	11%	15%
3D printing	10%	15%	23%
Predictive maintenance	8%	22%	24%
Blockchain	7%	18%	19%
Enterprise resource planning (ERP) systems	7%	15%	29%
Augmented reality and/or virtual reality	6%	5%	22%
Automated vehicles	4%	13%	26%
Automated manufacturing	4%	20%	23%
Robotics	4%	15%	22%
Digital twin technology	0%	3%	6%

Level of Importance Regarding Technology



Most Important Technology Areas of Focus

When it comes to their key focus areas around technology, manufacturers across the board view data privacy and cybersecurity threats as the most important. They also placed a high emphasis on integrating new technology, keeping up with new/emerging technologies, and on watching the age and usability of their internal systems.

Larger companies with higher revenues place newer or more advanced technologies, such as the Internet of Things and robotics/automation, higher on their list than smaller companies.

INNOVATIVE INITIATIVES IN THE LAST 12 MONTHS:

"Looking into possibility of implementing robotic technology and investing in owned machinery for currently outsourced processes for more control of lead times and overall manufacturing process/timeline."
C-Level executive or other corporate officer at machinery company in Oregon

"AI bots on our website which have enabled us to connect better with prospects, meet with customers and close more deals."
Senior vice president/vice president at high-tech company in Washington

Professional Insights

Manufacturing technology falls into five primary categories:

- Enhance the manufacturing process (machines and tooling)
- Automate the manufacturing process (machines and software controls)
- Business systems to improve business processes and data (CRM, ERP, MES, PLM, etc.)
- Customer-facing systems to improve the customer experience (EDI, Portals, etc.)
- Cybersecurity (overarching all systems above)

The coming revolution in technology will be a transition from thinking about "applications" to thinking about "data." Data is the foundation and can drive results through predictive analytics that enable business leaders to make better decisions faster.

Preventing Cybersecurity Threats

The greatest cybersecurity risk in manufacturing is related to machines, tooling, and their control systems. Those systems should generally be isolated from all external influences. Business systems tend to live on the internal network, on cloud-hosted networks, or on vendor's cloud networks (typically a combination of all three). They can be secured through education of people, proper architecture of IT, diligent administration, tools to identify and remove threats, access controls like passphrases and MFA, encryption, SSL certificates, VPNs, filtering, backups, Disaster Recovery, etc.

To be effective, cybersecurity must take into account human behaviors. Solutions that make work difficult are not likely to be followed as people will invent work-arounds that create whole new vulnerabilities. Cybersecurity must also be holistic and designed as a system, not a patchwork of afterthought utilities and devices. But what works for one company and its processes and culture may not be appropriate for another. There is no one-size-fits-all approach. But if cybersecurity is designed into the business, this will improve productivity and it will be naturally easier for people to do the secure thing rather than invent insecure work-arounds.

Peter Adams
Vice President, Business Strategy
Aldrich Technology

BUSINESS TRANSITION PLANNING

More manufacturers are putting a plan in place

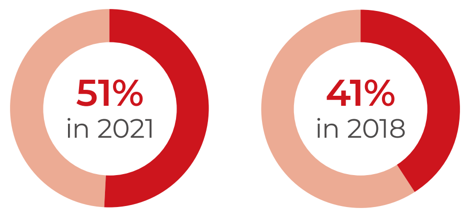
Half of the survey participants said they already have a succession plan for transition of executive leadership or ownership while a quarter still do not. It's promising to see that more manufacturers have a plan in 2021 versus our last survey in 2018 (51% vs 41% respectively).

It appears that the time frame for expected transitions has gotten shorter. Nearly six out of 10 anticipate a transition within the next two years, which is higher as compared to 2018 when that number was four out of 10.

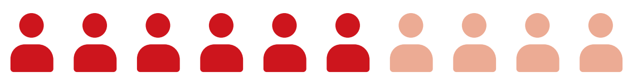
Manufacturers with higher revenues tend to already have transition plans and a shorter window in which they intend to transition leadership or ownership. Seven out of 10 manufacturers with $20+ million in revenue will make that transition in the next two years versus only about half of companies with smaller revenues. Manufacturers with smaller revenues are much less likely to have a plan but also have a longer window for the transition.

2021 versus 2018

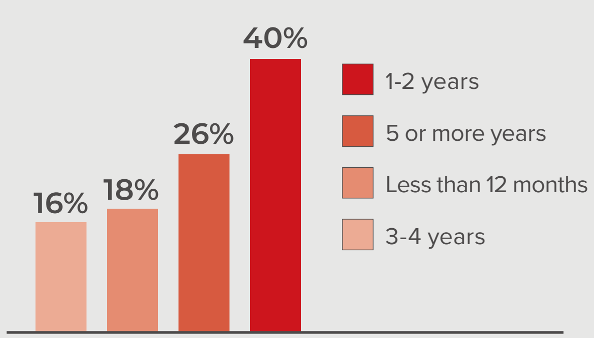
Manufacturers with transition plans



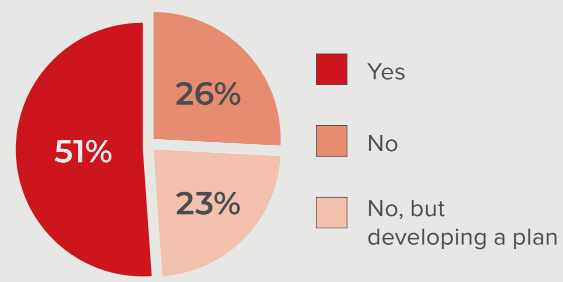
6 out of 10 manufacturers
expect a transition within the next two years.
An increase from four out of ten in 2018.



Anticipated Time Frame for Transition of Executive Leadership or Ownership



Plan in Place for Transition of Executive Leadership or Ownership



Legal Insights

It is encouraging to see that manufacturers are increasingly developing succession plans and executing those plans. Succession plans that involve transition to the next generation of leadership within the company often require a long runway. It can take many years to identify successors, gauge their readiness to assume ownership and leadership functions, creative incentives for both owner and non-owner leadership, and implement an ownership sale that is economically viable for both the buyers and sellers. We have seen an increasing number of companies implement creative structures that do not burden the new owners with excessive debt. Outside financial buyers also have shown an increasing interest in some manufacturing sectors.

Matt Bisturis
Corporate lawyer
Schwabe, Williamson & Wyatt

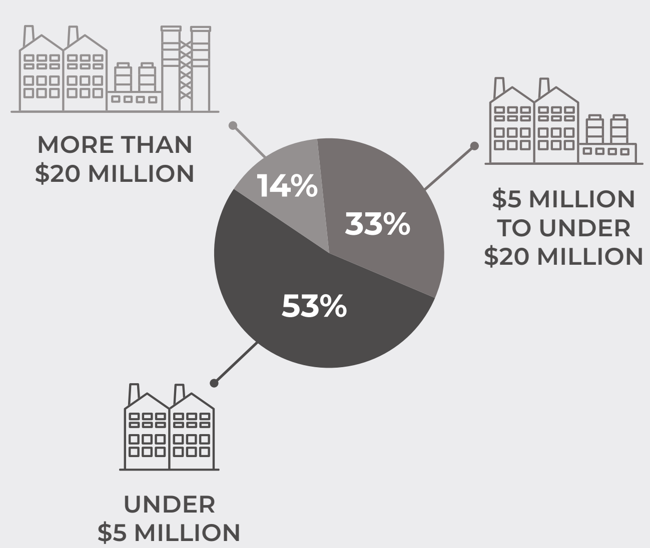
PARTICIPANT PROFILE

We heard from leaders and decision-makers representing manufacturers based in Oregon (54%) and Washington (46%), with a substantial majority serving in executive leadership in their organizations. For a survey of this type, a sample size of 543 provides meaningful insight into the opinions of industry stakeholders, with 29% of respondents holding the title Owner/Partner and another 23% as C-Level Executive or President.

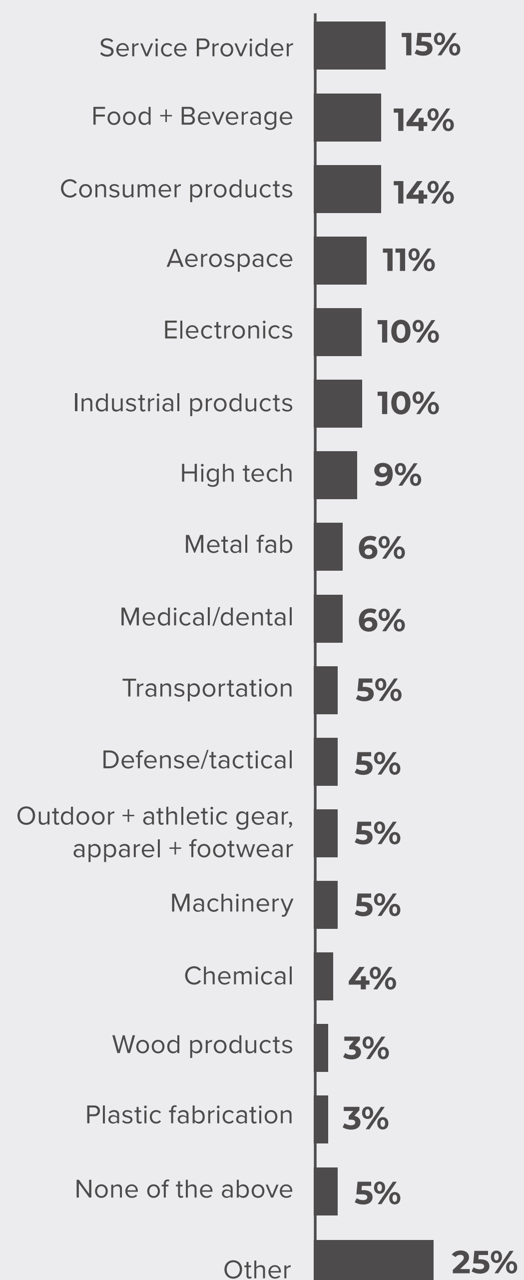
The sectors represented varied widely, with the most responses coming from service providers, food and beverage, and consumer products.

A third of respondents included companies with revenues under $5 million, more than half were with revenues between $5 and $20 million, while 14% have revenues of $20 million or more. One-fifth were women-owned businesses, while another fifth were LGBTQ+-owned businesses.

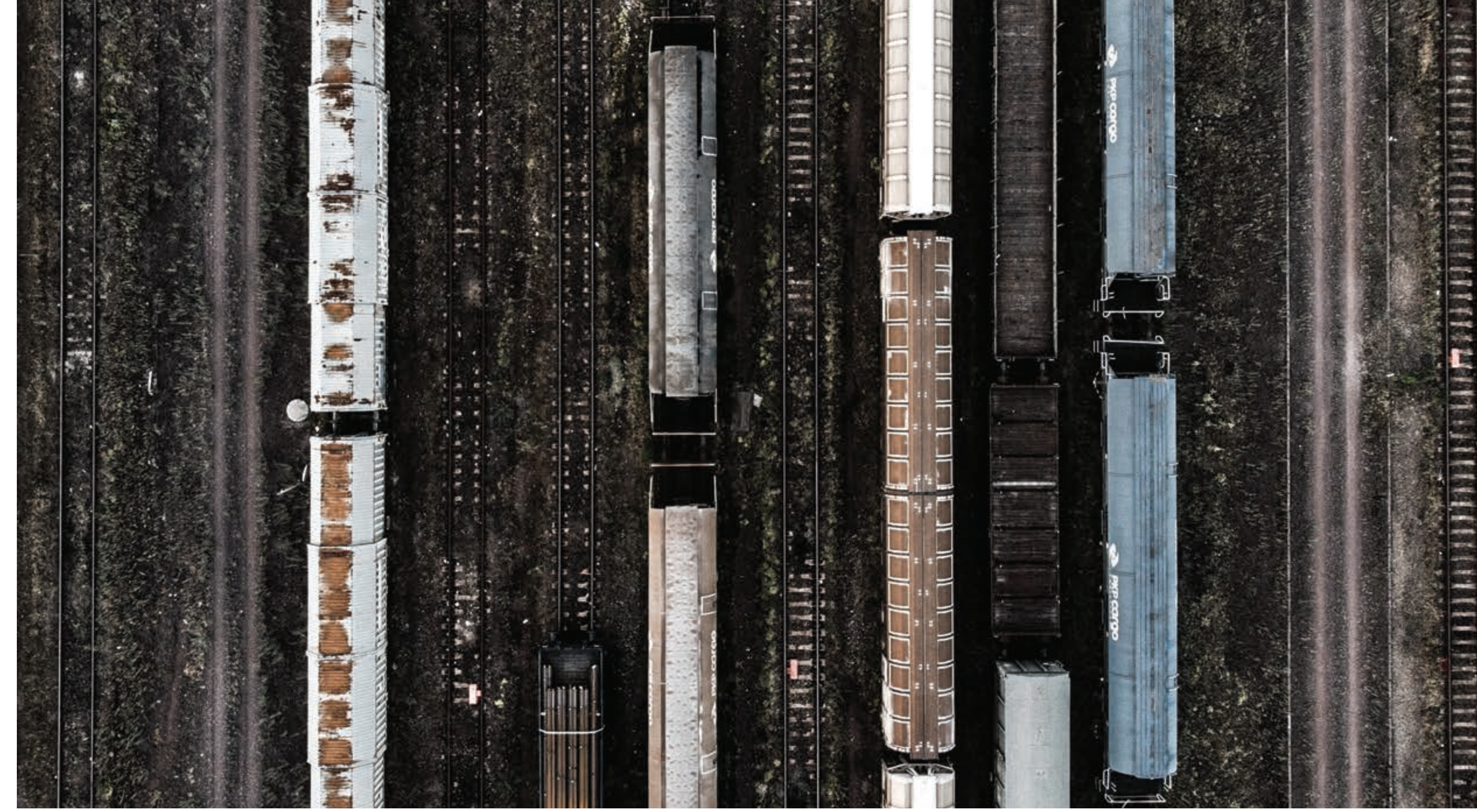
Respondents by Revenue



Manufacturers by Industry



**Participants could select more than one industry.*



METHODOLOGY

From May 13 through June 7, 2021, The Business Journals (a division of American City Business Journals) conducted an online survey of leaders in the manufacturing industry. The purpose of the survey was to assess perceptions of the industry broadly and inform future communications and services related to manufacturing in the Pacific Northwest.

Research Methodology: The online survey consisted of 543 participants from various manufacturing industry sectors and took approximately 16 minutes to complete. To be respectful of stakeholders' time, all questions were optional, meaning that not all respondents completed each question. Accordingly, the sample size for each question varies.

Respondents were invited to the survey by one or more of the following organizations: Schwabe, Williamson & Wyatt, P.C., Aldrich CPAs + Advisors, The Business Journals, Food Northwest, Oregon Manufacturing Extension Partnership, and Pacific Northwest Defense Coalition. Ads were also placed on LinkedIn, targeting stakeholders in specific manufacturing industries with appropriate job titles.

Statement of Limitations: Although research of this type is not designed to measure the attitudes of a particular group with statistical reliability, it is valuable in giving a sense of perspectives and opinions of the populations from which the sample was drawn. In this annotated questionnaire, results may add up to 99% or 101% due to rounding.

CONTRIBUTORS

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Industry Group Leader | Schwabe, Williamson & Wyatt

Mike leads a firm-wide team of attorneys dedicated to serving Pacific Northwest manufacturers. Schwabe believes that a strong manufacturing sector is critical to the health of our economy. Attorneys from all legal specialties have joined together to learn about and focus on the needs of manufacturers. Schwabe maintains a keen focus on the issues and trends affecting their clients. They work closely with each other and their clients to understand and solve their clients' problems. Mike specializes in brand management and protection. He offers strategic advice to clients regarding the selection, registration and enforcement of trademarks in the U.S. and worldwide for clients ranging from internationally-recognized sportswear, footwear and apparel brands to food and beverage products, to financial services and technology companies.

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Carrie Sowders specializes in serving large and middle market companies, primarily in the consumer and industrial products sectors. Carrie has exclusively practiced tax since beginning her career in 1998. Prior to joining Aldrich in 2009, she spent a decade with Deloitte and oversaw the tax function of a publicly traded consolidated group of companies. Her background is rich in experience with multi-state operations, transactions, cross-border taxation, and ongoing tax consulting and compliance.

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Jean brings more than 25 years of experience in helping manufacturers and technology-focused employers solve problems to complicated employment scenarios. She has broad expertise in litigation, mediation and settlement of employment and business tort claims. She is fluent in all areas of state and federal employment, wage and hour, discrimination, and leave laws. She is skilled at training managers and employees in employment compliance.

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Matt helps companies and their owners navigate the legal challenges that come with establishing, growing, operating and eventually transitioning their businesses. Matt's business background and his experience handling both business and real estate transactions allows him to provide valuable guidance to clients of all sizes in the manufacturing industry and a variety of other industries.

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Josh also has extensive experience representing employers through inspections and litigation arising out of state and federal OSHA enforcement actions. Josh takes pride in his ability to add value to his clients' businesses by seeking out creative and cost-effective solutions to otherwise complex problems.

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Brien Flanagan helps manufacturers, marine terminals and public ports seek the permits, authorizations and financing they need to develop state-of-the-art facilities. He has advised clients in the manufacturing, mining, bulk storage and maritime industries on complex and controversial projects, including bulk storage facilities for ethanol, crude oil and coal, and groundbreaking fossil fuel export projects on the Columbia River. He also leads Schwabe's Natural Resources Industry group.

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Peter Adams leads business strategy for Aldrich Technology. Peter helps lead clients through the development and realization of Business Operations/Technology strategy. No strategy is complete without addressing risk, of which a major topic is cybersecurity. Developing effective cybersecurity plans while enhancing business productivity is the hallmark of Peter's leadership. Peter's expertise includes: Enterprise software selection and implementation, operations and process analysis, technology as a strategic asset, and pragmatic cybersecurity.

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