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CHAPTER 6

ECONOMIC DEVELOPMENT

By: Anastasia Cale, Neelim Randhawa, and Andrew Sorenson

ABSTRACT

This chapter focuses on economic development in relation to the East Thea Foss in Tacoma, Washington. Early on in our research, we noted tensions between industries in the tideflats area and various groups in Tacoma. We wanted to investigate the role of industry historically, especially its importance as an economic driver, while also recognizing the ways in which industry has degraded the environment and encouraged stratification of social classes. From looking back at the myriad effects of industry, our goal has been to look ahead to ways we can safeguard industry while also taking a stand for a healthy environment and for the people who have historically not benefitted from industrial activities associated with the tideflats. We investigated why and how industry can be protected in urban areas. This led to our discovering how industry has changed over time and how implementation of Industry 4.0 could usher in sustainable and socially just ventures for the local port. Finally, we focused on the most compelling elements of Industry 4.0 and measures to move local industry forward.



INTRODUCTION

Cities have been moving away from manufacturing and industrial jobs for some time. Leigh and Hoelzel (2012) point out that planners who champion the principles of smart growth (i.e., diverse, mixed-use, connected, eco-friendly design of space), overlook the role of industry. This observation prompted them to conclude that “industrial land is at risk in cities” (p. 87). Why? The legacy of industry is tied to “dirty jobs, unsafe work environments, and inevitable layoffs and shutdowns” (Giloth, 2012, p. 9). Along with this unsavory reputation, past industrial uses have damaged our ecosystem and severely polluted our air and waterways. However, as industry changes, the dialogue about its social and environmental effects should too. Overall, the benefits of industry should not be overlooked, and the preservation of industrial lands should be viewed as an important calling for our communities.

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Manufacturing and industrial land is valuable for many reasons. For instance, industry brings living wage jobs to communities, with STEM positions accounting for 30% of manufacturing employment opportunities, and with half of those opportunities not requiring a four-year degree. Industrial and manufacturing workers are also more likely to be protected by a union (Leigh and Hoelzel, 2015; Clark and Clavel, 2012). When manufacturing sites are located in mixed-use areas, community resilience increases, with industry blocking gentrification processes and with local businesses and manufacturers helping to create self-sufficiency and vitality (Clark and Clavel, 2012).

In reading the book *America's Waterfront Revival* (Brown, 2009), we learned that many ports around our country have transitioned away from maritime cargo and industrial uses to maintain themselves economically and politically viable. They have done so in the face of tremendous technological

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and geopolitical change. Ultimately, relatively few working ports of the past remain competitive as maritime cargo, industrial ports. And, as communities take greater interest in port activities, Ports must turn to work with local constituencies to revision themselves. In many cases, modern ports say goodbye to their maritime cargo and industrial pasts to become lifestyle ports or even tourist hubs – harboring cruise ships, commercial strips, and sports arenas. While this is the case for the ports described by Brown in his book, it is not the case for the Port of Tacoma.

The Port of Tacoma remains intact as a maritime cargo and industrial port with international significance. Locally, the Port of Tacoma provides 1,500 jobs, with an average salary of \$76,200 a year. Its activities generate about \$15 million in state and local taxes. There is also burgeoning opportunity for economic development throughout the East Thea Foss, particularly for light industrial and manufacturing enterprises. At the same time, manufacturing jobs are becoming increasingly

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technical with the onset of Industry 4.0, which aims to “[overcome] contemporary challenges, such as intensifying global competition, volatile markets and demands, required customization, as well as decreasing innovation and product life cycles” (Müller, Keil, Voigt, 2018, p. 1); and, the industrial and

manufacturing workforce is aging. To ensure that the Port of Tacoma, and specifically that the East Thea Foss, remains economically viable, concerted efforts to ensure that the aging workforce is replaced by highly skilled employees is important.

In view of the Port of Tacoma as a working port with aspirations to remain viable as such, we proceed to highlight a course of action for the Port to further

invest in urban industry and prevent its land from becoming rezoned and redeveloped as a lifestyle port. First, we consider advantages of Industry 4.0 and what it could look like in Tacoma. Then we provide three specific action statements which can be implemented to achieve sustainability, workforce resilience, and industrial advocacy.

OPPORTUNITY FOR A YOUNG AND HIGHLY SKILLED INDUSTRIAL AND MANUFACTURING WORKFORCE

Leigh and Hoezel point out that even if the number of manufacturing jobs decreased in coming years, the number of job openings in the sector would still increase because of all the baby boomers retiring at once (2015). Baby boomer retirees leave space for new forms of economic advancement as

well as for the development of manufacturing processes that attend to the major calling of our time, to create socially, environmentally, and economically sustainable systems. Younger people can now access secure employment which supports a middle-class lifestyle.



RESEARCH OVERVIEW

First, we completed a literature review which revolved around Industry 4.0. We focused on its implications for sustainability and workforce development, as well as how industrial advocates can promote its broad benefits. We reinforced our theoretical understandings of Industry 4.0 with four case studies which illustrate practical applications:

- 1) The Energy-Sector Workforce Development case study underscores the importance of workforce development.
- 2) The Portland Business Alliance (PBA) case study reveals how industrial advocacy can be operationalized.

- 3) The Urban Manufacturing Alliance case study highlights the many benefits of twenty-first century manufacturing and industry.
- 4) The UPROSE case study reflects the importance of protecting blue-collar jobs which provide secure, well-paying employment.

We supplemented our research with a foray into the local scene in Tacoma, where we interviewed the Operations Manager of a local biotech incubator, Readiness Acceleration and Innovation Network (RAIN); the Director of the South Sound Manufacturing Industrial Council; and a Senior Planning Manager at the Northwest Seaport Alliance (NWSA).

WHY INDUSTRY 4.0 FOR TACOMA?

Cities have been moving away from manufacturing for decades as a result of both technological change and the simplistic view that industry produces dirty jobs and is bad for the environment and public health. This view conjures industry as unsustainable. Thus, it is vital to begin any conversation about the place of industry with recognition of its importance to economic stability and, ultimately, sustainability. Sustainability

accounts not only for environmental quality and social equity but also for economic vitality. With this in mind, one can understand why protecting industrial lands, including Tacoma's maritime port, is crucial to creating a realistic sustainability agenda. In Tacoma, where industry remains a pillar of the local economy well into the twenty-first century, this reality cannot be overstated.

CONNECTION TO SUSTAINABILITY

In a research study on how Industry 4.0 contributes to sustainability, Müller, Kiel, and Voigt (2018) demonstrate that "strategic, operational, as well as environmental and social opportunities are positive drivers of Industry 4.0 implementation" (p. 1). Pertaining to the economic sphere of sustainability, transparency, and interconnection among organizations (as well as among portions of an organization internally) allow for their "optimization, increasing efficiency, flexibility, quality, and customization" (Müller, Kiel, and Voigt, 2018, p. 2). Environmentally,

load balancing reduces energy consumption and with integration of smart technologies there can be "improved product lifecycle management including recycling" (Müller, Kiel, and Voigt, 2018, p. 3). Lastly, in the equity sphere, the renewed emphasis on human learning and workforce development leads to "increased employee satisfaction in industrial workplaces" (Müller, Kiel, and Voigt, 2018, p. 3). These and other sustainable outcomes are what industrial advocates refer to when they speak up for the value of Industry 4.0.

WORKFORCE DEVELOPMENT

To produce smarter cities, capable of growing and creating spaces for innovation and technological advancement, workforce development programs are necessary. The goal of workforce development is to encourage people of all ages to advance their skills, and to provide them with opportunities to do so. Individual companies can devise methods, strategic frameworks, and partnerships with outside agencies to tailor workforce development programs to their operations. These programs, in

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and of themselves, support economic growth as they provide jobs to those involved with creating programs and training others. For example, Project Transit is an organization that has created a workforce development program for high school youth (Harnack, 2010). Project Transit offers youth job readiness, mechanical training, customer service training, college prep training, and job counseling services.

Since modern technology plays a significant role in Industry 4.0, it is essential that higher educational institutions and companies work together to develop programs that will ensure people acquire the necessary skills to step into new industrial and manufacturing positions. The creation of specialized, industry-specific trainings, with experiential learning components included, and/or special certifications or degrees will benefit not just future industrial and manufacturing workers but their employers as well as all the people working in the various training programs.

GOALS, VISION, AND THE ROLE OF INDUSTRIAL ADVOCATES

Currently, local maritime industries express an interest in pursuing Industry 4.0, outlining the goals of “1) Fostering Collaborative Public/Private Partnerships, 2) Growing and Diversifying Washington’s Industry Sectors with a Strong Business Climate, and 3) Encouraging a 21st Century Workforce Ready to Meet Industry Needs” (Washington State Department of Commerce, p. 5). These goals support the following vision: “the maritime industry will grow good, family-wage jobs, and be recognized as an international leader in sustainability, utilization of the best technologies, and as a center for maritime education and training” (Washington State Department of Commerce, 2016, p. 6). Locally, industrial advocates can give voice to this vision and gain support for Industry 4.0.

The three local professionals we interviewed echoed the need for advocacy to educate the public about industrial practices which uphold the tenets of sustainability. There is need for collaborative partnerships to support the continued presence and evolution of local industry and manufacturing, and to advocate for its value as part of generating sustainability. Through advocacy, the Port of Tacoma could gain broad public support for continued industrial development. Local planners who champion smart growth practices may begin to recognize the value of industrial development and view opportunities to integrate industrial and manufacturing land uses with other mixed-use development.

STUDY RESULTS AND KEY FINDINGS

CASE STUDIES

URBAN MANUFACTURING ALLIANCE

The Urban Manufacturing Alliance (UMA) is a manufacturing advocacy alliance comprised of organizations and individuals who are working to build manufacturing economies suited to the twenty-first century. UMA offers a national as well as local voice of support for the creation of equitable economic development strategies which support small- and mid-sized manufacturers in urban areas (Urban Manufacturing Alliance, 2019). UMA creates opportunities for networking and collaboration around four areas:

- 1) Local branding
- 2) Equity
- 3) Workforce development
- 4) Land use policy and real estate development

UMA's vision is to bring middle-class jobs to American towns and cities, inspire homegrown innovation, and ensure that cities and towns continue to participate in manufacturing operations (Urban Manufacturing Alliance, 2019). By forming partnerships and coalitions, UMA seeks to educate the public, policymakers, and leaders of the myriad of social, economic, and environmental benefits which can be derived from embracing Industry 4.0 and maintaining and creating new manufacturing opportunities.

PORTLAND BUSINESS ALLIANCE

The Greater Portland Chamber of Commerce is represented by the Portland Business Alliance (PBA), a 66-member board of directors who represent the interests of diverse companies, industries, and businesses. PBA is an industrial and business advocate not only for Portland but for the broader Pacific Northwest region. While speaking up on behalf of businesses and manufacturers on policy issues, PBA supports regional economic vitality through a range of efforts, such as supporting private-sector job creation and retention, and increasing educational attainment for the region at large (Portland Business Alliance, 2019). Of PBA's multiple policy initiatives, business and job growth are central and speak directly to Industry 4.0. Much like the South Sound Manufacturing Industrial Council, the PBA "advocates for business at all levels of government to support commerce, community health, and the region's overall prosperity... [while] offer[ing] a variety of networking events and professional development opportunities to

connect and foster growth in our region's business community" (Portland Business Alliance, 2019).

The PBA's recent project 2017 Industrial Lands Inventory describes the need to inventory and secure industrial lands as "development-ready employment lands...critical [for] expanding and attracting trade-sector businesses and middle-income jobs" (Portland Business Alliance, 2019). PBA recognizes that higher wage earning jobs produced by industry benefit entire communities by generating more revenue to fund schools, parks, and other public services (Portland Business Alliance, 2019). PBA's inventory of industrial lands focused on the development status of large industrial sites (of at least 25 square acres) in the Portland region. The project's goal was to reinforce local, regional, and state efforts to ensure protecting those industrial lands (Portland Business Alliance, 2019).

UPROSE AND INDUSTRIAL RETENTION

UPROSE is an intergenerational, multi-racial, nationally-recognized, women of color-led, grassroots organization that promotes sustainability and resiliency through community organizing, education, leadership development and cultural/artistic expression in Brooklyn, New York. It is Brooklyn's oldest community-based organization, one that promotes sustainability and community resilience in the Sunset Park neighborhood. Through advocacy efforts, UPROSE has become a leader in speaking up for climate justice. The organization views equitable urban policy as the heart of equitable climate adaptation, and as the way to create real community resilience. One focus of UPROSE is the concept of a “just transition,” defined as “a move away from the extraction economy...towards climate solutions that put frontline communities in positions of leadership” (UPROSE, 2019). The work UPROSE occurs at the crossroads of social, racial, economic, environmental, and climate justice issues. UPROSE strives to foster interconnections across a multitude of single-focused campaigns and initiatives, revealing that a range of social justice topics naturally interlink and should be addressed together.

One of UPROSE's projects has been to protect Sunset Park's industrial waterfront for the growth of sustainable manufacturers. Sunset Park's industrial waterfront, as well as many existing blue-collar manufacturers, were threatened by plans to rezone the area for commercial land uses (UPROSE, 2019). UPROSE voiced concerns related to those plans, stating that the “preservation and expansion of a blue-collar manufacturing base is crucial to the economic viability of a working class community” (UPROSE, 2019). UPROSE framed six principles to ensure local economic development, social equity, and community resilience for Sunset Park:

- 1) Ensure community control over infrastructure and planning projects
- 2) Protect the economic needs of long-time residents, workers, and businesses
- 3) Expand blue-collar union and career-track jobs
- 4) Promote the development of maritime-dependent industrial uses
- 5) Protect lands zoned for manufacturing
- 6) Incorporate climate adaptation and resiliency into waterfront development

ENERGY-SECTOR WORKFORCE DEVELOPMENT IN SOUTHWESTERN PENNSYLVANIA

This case focuses on the importance of aligning education and training programs to prepare workforces that are capable of handling the technologies of our time. With many job sectors of the twenty-first century incorporating innovative technologies, the “demand for new skills, training, and educational institutions” is on the rise (Gonzalez, Singh, Karam, and Ortiz, RAND, 2014, p. iii). The National Energy Technology Laboratory asked the RAND Corporation to focus on how technological innovation impacts the needs of workforce development in southwestern Pennsylvania. The RAND Corporation found

that as new technologies transform the way tasks are completed, there is great need to invest in training people to acquire new skills. In other words, the innovation of technologies should come accompanied by the design of programs to equip people with new skills. Otherwise, as technologies advance, workers are left behind. The study refers to this work as ongoing since technological innovation occurs all the time. As a result, “institutions need to have the ability to anticipate changes in needed workforce skills... and adapt to changes” (Gonzalez, Singh, Karam, & Ortiz, RAND, 2014, p. 46).

STUDY RESULTS AND KEY FINDINGS (CONTINUED)

CURRENT WORK IN TACOMA

To form sustainable training initiatives and programs, workforce development needs to be valued as essential to a community's thriving. Workforce development programs already exist in Tacoma. For example, Tacoma Community College (TCC) applies workforce development opportunity grants to "help connect students with their career path and carry them through completion to employment" (Tacoma Community College, 2019). By partnering with TCC's workforce development program, local businesses can ensure a skilled workforce is capable of working for them.

A second example is the Goodwill Milgard Work Opportunity Center, which provides job training to youth, adults, seniors, and veterans. Goodwill's vision is that "every person has the opportunity to learn, work, and thrive in all aspects of life" (Goodwill, 2019). Goodwill seeks to achieve its mission by helping "every person reach

their fullest potential through education, job placement, and career pathway services made possible by community donations, purchases, and partnerships" (Goodwill, 2019). Goodwill's job training services foster brighter futures for the individuals that access them.

It is encouraging that Tacoma has many additional organizations also committed to workforce development. In April of 2019, the Washington State Legislature passed HB 1568, "an act relating to port district worker development and occupational training programs" (HB 1568, 2019). The measure empowers ports – including the Port of Tacoma – to fund and lead workforce development programs. Previously, statutory requirements restricted ports from providing such opportunities. In view of the current industrial environment and the need for new, highly skilled workers, this bill could not have been passed at a better time.

PROPOSED ACTIONS FOR THE PORT OF TACOMA

The purpose of this chapter is to provide industries, businesses, leaders, and management staff throughout Tacoma – and at the Port of Tacoma – with key actions that will enable them to embrace Industry 4.0. Below are three action statements that grow out of the literature review we conducted as well as the best practices we extracted from case studies and interviews. Each action statement indicates how local economic development can be improved overall, as well as at the Port of Tacoma specifically.

ONE

COMMUNICATE GOALS AND OUTCOMES WITH COMMUNITY MEMBERS AND SPEAK TO THE ECONOMIC, ENVIRONMENTAL, AND SOCIAL OUTCOMES.

One of the greatest impediments to achieving sustainable industrial development are public perceptions of economic development and industry as incompatible with sustainability. Many people overlook the many positive social benefits that accompany industrial growth (e.g., the creation of secure jobs) and assume that all industry is dirty and, therefore, bad for the environment and human health. This points to the need for the Port of Tacoma and its private and public stakeholders to increase public outreach and communications. Industrial advocates could be called to action to address the gap between perceptions of industry and realities of industry.

TWO**BE PROACTIVE AND COLLABORATIVE IN CREATING ROBUST WORKFORCE DEVELOPMENT PROGRAMS.**

For Industry 4.0 to flourish locally, workforce development needs to be supported strategically by the Port of Tacoma, the City of Tacoma, Pierce County, the Puyallup Tribe of Indians, and other stakeholders. Access to hands-on vocational trainings and educational programs can help people who struggle due to their socio-economic status to gain skills and knowledge.

THREE**INTRODUCE INDUSTRIAL ADVOCATES.**

To achieve Industry 4.0, industrial advocates are needed. By forming an inclusive alliance, the voice of support for industry can become unified around describing the numerous social, economic, and environmental benefits of Industry 4.0. This collaborative force will help protect industrial lands and all those who work on them.

CONCLUSION

The industry leaders we interviewed all referred to the need for workforce development and local and regional industrial advocacy. They explained that industry is becoming cleaner and more technologically advanced, two factors which contribute positively to reducing industry's carbon footprint. However, these positive changes remain largely unperceived by members of the public. Thus, public outreach to communicate how industry is changing, for better, could be improved. By implementing the three action statements listed previously, the Port of Tacoma can gain public support and demonstrate its commitment to community inclusion and social equity. Three of the four suggested action statements deal with creating stronger collaborative bonds with the community (e.g., outreach) and other organizations (e.g., partnering with educational institutions to

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create workforce development opportunities, and partnering with the City to create industrial advocacy). It is detrimental for the Port of Tacoma to operate in a vacuum, making decisions that affect the community without gaining their buy-in. By highlighting the positive things the Port of Tacoma brings to local communities, the Port can begin mending the rift between it and many of its constituencies. Ultimately, more people may view the Port as the economic engine that it is, with fondness and appreciation.