The Development of the Logistics & Warehousing Industries in the Inland Region:

Opportunities & Challenges

UCR School of Public Policy

UCR Center for Community Solutions

Author

Dr. Qingfang Wang, Ph.D.
Professor of Public Policy
Faculty Director, Center for Community Solutions
School of Public Policy, UC Riverside
qingfang.wang@ucr.edu

Kristen Kopko
Research Manager
Center for Community Solutions
School of Public Policy, UC Riverside
kristenk@ucr.edu

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Most Common Words & Phrases from Participants, 2023 - 2024

Simple text-as-data analysis was performed to identify the most common words, bi-grams, and tri-grams spoken by participants/interviewees. The most common word spoken was community (n = 206); the most common bi-gram was Inland Empire (n = 21) and the most common tri-gram was warehousing and logistics (n = 16)).

I. Introduction

Since 1980, the warehousing sector has expanded rapidly throughout both Riverside and San Bernardino Counties. Warehouses and related uses now cover about 40 square miles of area in the region.[1] In addition to the industry's land prowess, in May of 2023, about 16% of those employed in the Riverside-San Bernardino-Ontario Metropolitan Statistical Area (MSA) worked in the general warehousing and logistics sector.[2] Although warehousing developments supply the MSA with a considerable amount of jobs, the dense concentration of warehousing has contributed to increased truck traffic, infrastructure usage, and different types of pollution (E.g. noise, light, ozone, particulate matter, etc.). Furthermore, there is heavy criticism concerning the jobs created by the logistics and warehousing industry (L&W) – noting their poor working conditions, lack of job security, and a future that foresees the rise of robotic workers.[3] While the movement of goods and increased warehousing are crucial links for the Southern California economy, it also bears the question – at what cost? How should the region enhance the benefits and mitigate the negative externalities brought by the rapid growth of L&W industries in the IE region?

From March of 2023 to April of 2024, the Center for Community Solutions, (the former Inland Center for Sustainable Development (ICSD)) with the support of the School of Public Policy at UC Riverside organized seven events (one focus group and six forums) with experts from the L&W industries, government agencies, and nonprofit organizations. The forums, which were open to the public, were included, in part, as an attempt to engage and include the surrounding community in our research and events. Participants were also provided with

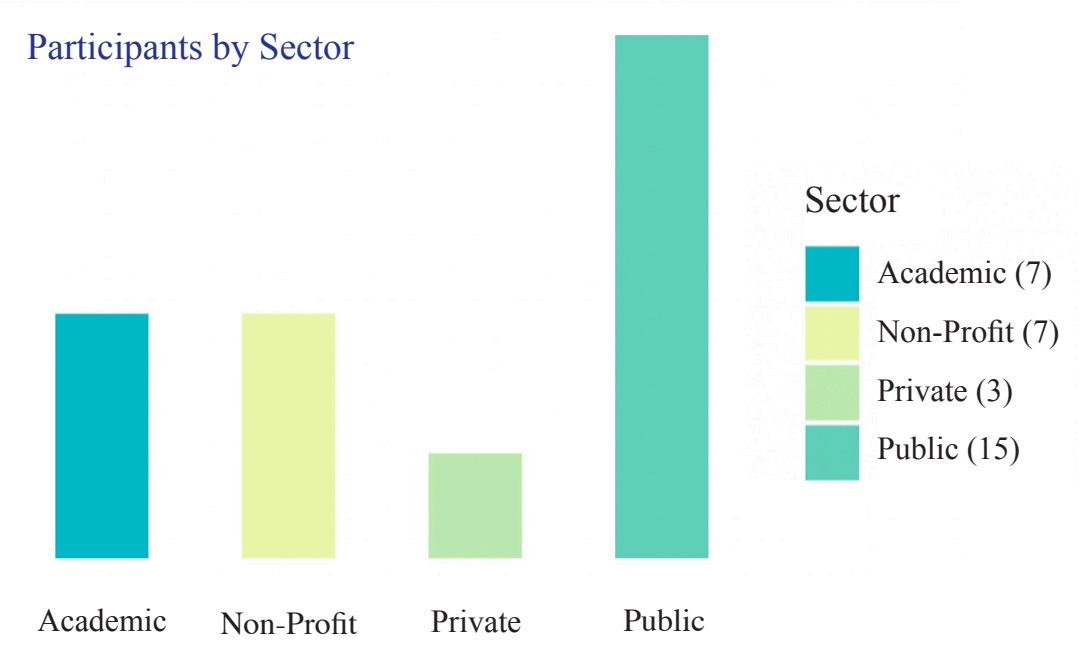

Figure 1: Participants by Sector
Over the course of our seven data collection events, seven professors, seven representatives from the non-profit sector, three representatives from the private sector, and 15 participants from the public sector were interviewed.

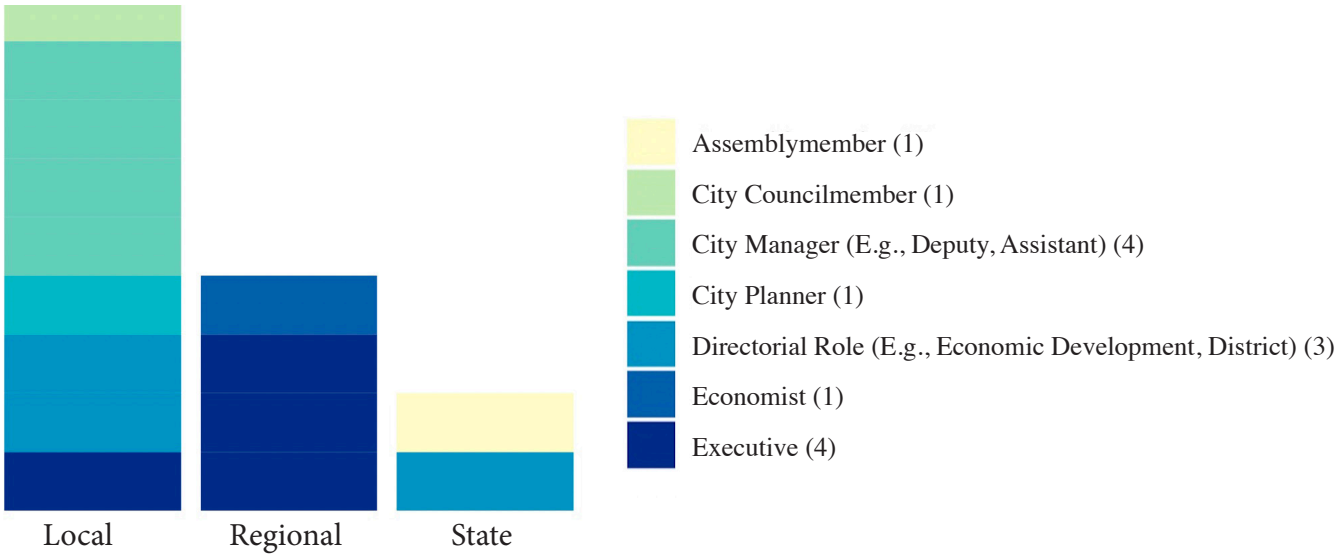

Figure 2: Public Sector Participants by Position & Level of Government

Our government participants skewed towards the local, as municipal affairs per the California Constitution (California Const. Art. XI, § 5) are typically regulated at the local level.

the opportunity to respond to public comments and questions, allowing community members to have a larger role in participatory processes. Experts were chosen based on their publication history, industry involvement, and public policy knowledge. Our aim was not only to have participants from different sectors, but to include participants that have diverse perspectives within each sector.

The videos of our public forums are available here. Based on the analyses of event data, this report answers the following questions:

- What are the major factors that have led to the rapid growth of the L&W industries in the IE region?
- What are the benefits and potential opportunities brought by the L&W industries to the region?
- What are the negative impacts and challenges brought by the L&W industries?
- What is critical for consideration to enhance the benefits and mitigate the negative externalities?

We want to emphasize that the answers to these questions are based solely on the perspectives and experiences shared by participants during our events. CCS's role is to synthesize key ideas and present them to the public. Given the diverse perspectives representing the varying interests of different stakeholders in the development of the L&W industries in the IE region (Table/Figure 1), our goal is to provide a comprehensive understanding of the issues at hand. From this, we aim to identify critical action items for stakeholders across various sectors.

Additionally, we will pinpoint the most pressing research areas that CCS will continue to explore. By valuing evidence- and solution-based research, CCS is committed to providing data and knowledge that supports informed decision-making and policymaking through rigorous scientific research.

II. Factors for the Development of the L&W Industries in the Inland Region

The IE region is described as the economic hub of the logistics industry, primarily due to its proximity to the Ports of Los Angeles and Long Beach, which handle 40% of international trade into the United States. This logistical nexus is crucial for both the regional and national economy, contributing significantly to Southern California's GDP and employment, with one in six jobs in the region linked to these activities (USBLS, 2023). On a global scale, the IE region's logistics infrastructure is positioned as the front gateway to a rapidly growing $31 trillion GDP market in the Pacific, reflecting its pivotal role in global trade.[4]

Our data suggests that the rapid growth of the logistics and warehousing industries in the Inland Empire is the result of a combination of geographical positioning, economic incentives, supportive regulatory frameworks, available labor, and shifts in global trade patterns. As elaborated below, these factors have collectively established the region as a key logistics hub, driving significant development in this sector.

1. Geographic Advantages

The Inland Empire's strategic location near the Ports of Los Angeles and Long Beach is a major factor in its development as a logistics hub. This proximity enables efficient transportation of goods, making the region a critical link in the supply chain that serves not only Southern California, but the broader Western United States. Moreover, the region boasts an extensive transportation network, including major freeways like the 10, 60, and 15, as well as significant rail connections in cities like Colton. This infrastructure supports the efficient movement of goods, bolstering and facilitating the rapid growth of logistics and warehousing facilities in the area.

2. Economic Drivers

The demand for logistics services in the region is largely driven by broader economic activities such as international trade through the nearby ports and the rise of e-commerce. The boom in online shopping has significantly increased the need for warehousing and logistics facilities to store and distribute goods, establishing this industry as a cornerstone of the regional economy. Moreover, the Inland Empire has historically attracted logistics companies due to the availability of affordable land and a workforce willing to take on jobs in the sector. This model of "cheap dirt and cheap labor" has fueled the rapid expansion of warehousing facilities, as companies seek to capitalize on these cost advantages.

3. Regulatory Frameworks

Local governments in the region have facilitated the growth of the logistics sector through supportive land use policies and planning decisions. Cities like Ontario and Jurupa Valley have implemented general plans and zoning ordinances that designate specific areas for industrial and logistics development. Moreover, the regulatory environment in the region has generally been favorable to the logistics industry, with local governments streamlining approval processes for new developments. Streamlined approval processes have encouraged companies to invest in the area, knowing they can navigate the regulatory landscape efficiently.

4. Social & Labor Dynamics

The Inland Empire's growing population, much of which is driven by growth among Latino communities, has provided a steady supply of labor for the logistics and warehousing industries. The availability of workers willing to take on jobs in this sector has supported the industry's expansion, as companies can easily find the labor needed to operate large-scale facilities. Additionally, the reliance on temporary staffing agencies has also contributed to the growth of the industry by allowing companies to maintain a flexible workforce that can be adjusted based on demand. This flexibility has been a key factor in the sector's ability to scale operations quickly and efficiently.

5. Global & National Economic Shifts

The Inland Empire's role as a logistics hub is closely tied to global supply chains, particularly those connecting the U.S. to Asia. The region's strategic position as the gateway to the Pacific market has made it a vital link in international trade, driving the growth of logistics and warehousing facilities to handle the increased flow of goods. Moreover, as the global economy has shifted from an Atlantic-centric focus to a Pacific-centric one, the importance of the Inland Empire in global trade networks has increased. This transition has further fueled the expansion of logistics infrastructure in the region, as it becomes an increasingly critical point of entry for goods from Asia.

III. Benefits & Opportunities Brought by L&W Industries

Based on the participants, the logistics and warehousing industries in the Inland Empire (IE) region have brought numerous benefits, contributing significantly to the economic growth and development of the area. These benefits, as identified by participants, include:

1. Economic Growth & Job Creation

The logistics sector is regarded as the largest employer in the Inland Empire. This industry has created a vast number of jobs, particularly in the wake of the pandemic, which accelerated the shift towards e-commerce and increased demand for warehousing and distribution centers. Some participants argued that jobs in logistics often pay more than other sectors such as retail or food service, providing better income opportunities for some workers, especially those without a baccalaureate degree. Moreover, the industry supports a wide range of jobs, including advanced manufacturing roles that involve automation and robotics, which offer higher wages and require specialized skills. These jobs contribute to upskilling the workforce and provide long-term career opportunities. In addition, the logistics sector is not limited to large companies like Amazon and Walmart; it also includes small and medium-sized enterprises that employ local residents and contribute to the regional economy.

2. Infrastructure Development & Investment

The construction of large-scale warehouses can represent substantial investment in local communities. According to one participant in the real estate development, a single million-square-foot warehouse might involve a $300 million investment, bringing significant financial resources into the region. Moreover, modern logistics facilities can be highly sophisticated, incorporating advanced technology that enhances operational efficiency. These facilities often meet high environmental standards and contribute to the region's reputation as a leader in sustainable industrial development.

3. Revenue Generation for Local Governments

According to participants from the public sector, the growth of the logistics industry has led to significant increases in property and sales tax revenues, which are critical sources of funding for local governments. This revenue helps fund essential public services, including public safety and infrastructure maintenance. Moreover, a warehouse facility can be used as a point of sale for online orders, generating substantial sales tax revenue for cities like Jurupa Valley, although it is important to note that it is not particularly common for warehouse to be used as a point of sale. Regardless, the additional property, sales, and utilities user taxes generated by the L&W industry are crucial financial benefits for local municipalities.

4. Community & Workforce Development

According to the participants, the logistics industry has been actively involved in upskilling its workforce, particularly in areas like robotics and green technology. This investment in employee training ensures that workers are prepared for technological advancements in the industry, leading to higher productivity and job

security. Moreover, the L&W sector has become a defining characteristic of the Inland Empire, reflecting the region's historical role as a transportation crossroads. The industry's growth has helped the region develop a strong economic identity, contributing to its prominence on both a state and national level.

Overall, the discussions illustrate the enormous scale and impact of the logistics and warehousing industries in the Inland Empire; these industries are essential to both the regional and the national economy. However, they also present significant challenges that require careful management and regulation to ensure they contribute positively to the region's development without exacerbating environmental and social issues.

IV. Negative Impacts by L&W Development

The larger logistics and warehousing industries (E.g., transportation, material moving operations, etc.) have brought several negative impacts, particularly concerning environmental issues, public health, socioeconomic conditions, and community engagement in the Inland Region. These impacts highlight the complex challenges faced by the region as it grapples with the rapid growth of the logistics and warehousing industries, and the need for more balanced and sustainable development practices.

1. Environmental Degradation & Air Pollution

Despite regulatory efforts, the region continues to suffer from high levels of air pollution, primarily due to emissions from traffic, trucks, and warehouses. Warehouses contribute to environmental health problems beyond air pollution, including increased urban heat, noise, and light pollution. These issues are exacerbated by the sprawling nature of warehouse development, which also leads to the destruction of natural buffers like trees. Moreover, the concentration of warehouses and the associated truck traffic has led to significant congestion and infrastructure strain. The reliance on trucks, whether powered by traditional fuel or newer technologies like electric, continues to exacerbate these issues, highlighting the challenges in managing both environmental and logistical needs.

2. Public Health Concerns

The logistics and warehousing industries have significantly contributed to high levels of air pollution, which in turn have led to severe public health issues. For instance, there is an increased prevalence of respiratory illnesses in the region, like asthma and COPD. Additionally, the concentration of truck traffic and emissions from warehouses near homes and schools exacerbate these health issues, creating hotspots of pollution, particularly in communities close to these facilities (CalEnviroScreen, 2021; Ha, 2024). The problem is further compounded by the lack of measures to sufficiently mitigate these impacts, resulting in a "diesel death zone" where the air quality

is dangerously poor.

3. Job Quality & Economic Inequality

While the logistics industry has generated a large number of jobs, the quality of these jobs is often low, with many workers facing precarious employment conditions. Many positions are low-wage, temporary, and lack adequate benefits, which has contributed to an increase in the working poor in the region. The reliance on staffing agencies and temporary work arrangements has created an unstable workforce, where employees have little job security and are often paid minimum wage or close to it. This situation has led to a growing underclass of workers who struggle to achieve economic stability. Additionally, warehouse workers themselves are at risk due to the often unsafe working conditions, high injury rates, and the potential for displacement due to automation. Lastly, over-reliance on the logistics sector poses a risk to the region's long-term economic stability, making it vulnerable to shifts in global trade patterns.

4. Urban Sprawl & Environmental Degradation

The rapid expansion of warehouses leads to significant urban sprawl, with warehouses being built further and further away from urban centers. This sprawl not only consumes large amounts of land but also contributes to the destruction of natural habitats and green spaces. The massive construction of warehouses has led to the paving over of large areas, which increases the urban heat island effect and reduces the quality of life for residents. Additionally, the concentration of warehouses has resulted in logistical inefficiencies, with trucks needing to travel longer distances, further exacerbating environmental and traffic issues.

5. Community Displacement & Land Use Conflicts

The expansion of the logistics and warehousing industries has led to the displacement of residential communities, and the encroachment of industrial facilities into areas previously zoned for residential use. This has created conflicts between community members and local governments, with residents often feeling that their concerns about health, safety, and quality of life are ignored in favor of economic development. The proximity of warehouses to homes and schools has raised concerns about the long-term sustainability of such developments and their impact on community well-being. Moreover, local communities often feel disempowered in the face of rapid warehouse expansion. Despite their efforts to oppose new warehouse developments due to their negative impacts, residents frequently find that their concerns are overlooked or dismissed in favor of economic arguments. This has led to a growing sense of frustration and a belief that civic engagement processes are ineffective.

6. Inadequate Civic Engagement & Policy Responses

There is a perceived lack of meaningful civic engagement in the planning and approval processes for new warehouse developments. Community members often feel excluded from decision-making, leading to frustration and a sense of powerlessness. Moreover, existing regulatory frameworks, such as the California Environmental Quality Act (CEQA), are seen as insufficient for protecting communities from the negative impacts of warehouse development. The complexity of these processes and the dominance of economic interests over public health and environmental concerns further exacerbate this issue.

V. Regional Challenges Compounding Negative Externalities of L&W Development

1. Educational Attainment & Workforce Development

The Inland Empire has one of the lowest educational attainment levels in Southern California, with only about 23-25% of the population over the age of 25 holding a bachelor's degree in Riverside and San Bernardino Counties. This is significantly lower than the statewide average. This educational gap limits the region's ability to attract higher-paying jobs that require advanced skills, pushing the workforce into lower-wage positions prevalent in the logistics sector.

There is a significant mismatch between the skills required for emerging, higher-paying jobs in the logistics and warehousing industries and the current capabilities of the local workforce. The education sector is seen as being behind in adapting to the rapid changes in industry needs, resulting in a workforce that is underprepared for more technical and automated roles. This gap not only limits economic mobility for workers but also hinders the region's ability to transition to a more diversified economy.

2. Economic Dependency on Low-Wage Industries

The region's economic structure has become heavily dependent on low-wage jobs in the logistics and warehousing industries. While these jobs provide a higher wage than some other sectors like retail or food service, they still offer limited economic advancement opportunities. This dependency has perpetuated a cycle where the region attracts industries that align with the current skill level of the workforce, rather than industries that could uplift the economic status of the population. Additionally, the region's focus on the logistics sector has come at the expense of broader economic diversification. This lack of diversification makes the region vulnerable to large scale economic downturns, and limits the potential for sustainable, long-term economic growth.

Notably, the region's inability to attract and retain large, diversified corporations has limited job opportunities and

stifled economic growth. Unlike coastal regions that have benefited from investments by tech giants and other multinational companies, the Inland Empire has not developed a strong presence of major corporations that can offer a broad range of high-paying jobs and contribute to the region's economic resilience.

3. Inadequate Infrastructure, Planning, & Coast-Inland Disparities

The region's educational infrastructure, particularly at the higher education level, is insufficient to meet the needs of its large and growing population. The reliance on a few institutions, like UC Riverside, without significant investment in expanding educational opportunities, has left the region ill-equipped to train the next generation of workers for higher-paying jobs. Moreover, the rapid expansion of logistics facilities has not been matched by adequate urban planning. This has led to issues such as urban sprawl, traffic congestion, and inadequate public services in newly developed areas. The lack of a coordinated strategy to balance industrial growth with residential and community needs has exacerbated the negative impacts of the logistics sector. Additionally, the Inland Empire has historically been overlooked in favor of coastal regions when it comes to economic investment and development. This disparity has led to significant gaps in infrastructure, public services, and economic opportunities, further entrenching the region's reliance on low-wage industries and limiting its potential for growth in higher-value sectors.

4. Environmental, Health Concerns, & Quality of Life

There is a recognized need for the region to transition towards more sustainable practices in the logistics sector. However, the current focus on short-term economic gains has delayed the adoption of cleaner technologies and more sustainable development practices, further exacerbating environmental and health challenges. The rapid industrialization associated with the growth of logistics and warehousing has negatively impacted the quality of life in the region. Factors such as increased traffic, air pollution, and lack of green spaces have made the Inland Empire less attractive as a place to live. This has further hindered efforts to attract talent and investment, as potential residents and businesses perceive the region as offering a lower quality of life compared to coastal areas.

5. Talent Engagement & Retention

There is a growing concern that the region is failing to engage and retain young people, who are crucial for the region's future development. The lack of attractive opportunities and environments for young people could lead to a "brain drain," where the most talented individuals leave the region in search of better prospects elsewhere. This trend could further weaken the region's ability to innovate and adapt to future economic challenges. Furthermore, the Inland Empire's reputation as a hub for low-wage jobs and environmental challenges has made it less appealing to young professionals and new businesses. The region is often perceived as less desirable compared to coastal

areas, which enjoy higher prestige and better amenities. This negative reputation complicates efforts to attract the kind of investment and talent necessary to drive economic and social renewal.

6. Inadequate Civic Engagement

Our discussions and participants indicate that local communities, particularly younger generations and marginalized groups, are often excluded from decision-making processes that shape the region's future. This exclusion leads to policies and developments that may not fully account for the long-term needs and aspirations of the broader population, exacerbating social and economic inequalities.

Overall, these regional challenges have compounded the negative impacts of the logistics and warehousing industries in the Inland Empire, making it more difficult for the region to achieve balanced and sustainable growth. Addressing these challenges will require a concerted effort to improve educational outcomes, diversify the economy, enhance infrastructure, and ensure that all voices are heard in the planning and development process.

IV. Critical Elements for Improving Regional Balance

Depending on the sector participants are situated in, they have different emphases on the benefits and challenges brought by the rapid development of L&W industries in the IE region. However, the overwhelming attitude toward the development of the logistics and warehousing industries is characterized by a recognition of its significant role in economic growth, which is considered essential for the IE region; however, this growth comes with substantial challenges, including severe environmental impacts and the strain on public infrastructure. While some view the industry's expansion as inevitable and necessary, there is a strong call for responsible and collaborative planning to balance economic benefits with environmental protection and community well-being. Critics argue that the continuous growth of the L&W industries may not be sustainable, and additionally suggest exploring alternative paths to mitigate its negative impacts. A few items are identified as critical to enhance the economic benefits and mitigate negative impacts of L&W development: Technology, Transportation, Government's role (legislation, land use and local planning, and regional planning), Education and workforce development, and Civic engagement.

1. Technology

The Inland Empire is on the brink of transformation, driven by technological advancements that promise significant economic and environmental benefits. The adoption of automation, robotics, and AI in logistics offers higher-paying job opportunities, allowing the region's workforce to upskill and improve their economic prospects. Sustainable infrastructure development, particularly in electric vehicles and clean energy, is positioning the region as a leader in the transition to a low-carbon economy. These advancements also open doors for economic diversification into

sectors like advanced manufacturing and biotechnology, reducing the region's dependency on logistics. Moreover, technology can enhance operational efficiency while supporting environmental sustainability, with investments in green infrastructure helping the region achieve its sustainability goals. Overall, these advancements could provide a more prosperous and sustainable future for the Inland Empire. However, The Inland Empire faces several challenges as it navigates technological advancements.

A significant skills and education gap in the local workforce limits the region's ability to fully capitalize on emerging high-paying jobs in automation and technology-driven sectors. Additionally, the substantial investment required for infrastructure upgrades, such as EV charging networks and grid enhancements, poses financial challenges. The rise of automation in the Inland Empire brings significant concerns, particularly around job displacement for low-skill workers and the widening skills gap, as many lack the technical expertise needed to operate and maintain automated systems. This shift could exacerbate economic inequality, as opportunities and higher wages concentrate among high-skilled workers. Additionally, there are ethical and social implications regarding the reduced human oversight in automated processes, as well as security risks, as these systems can be vulnerable to cyberattacks. Finally, the high implementation costs of automation could be prohibitive, particularly for smaller businesses. Therefore, despite the promising potential of technological advancements, the Inland Empire is still far from realizing these benefits. The path forward requires strategic investment in education, infrastructure, and sustainable development practices to ensure that the potential of technology translates into real and widespread improvements for the community.

2. Transportation & Infrastructure

Transportation advancements in the Inland Empire have brought significant economic growth and job creation, particularly in the logistics and warehousing sectors, while also attracting substantial infrastructure investments. These improvements have enhanced regional connectivity, making it easier for businesses to access national and international markets, and have improved mobility for residents. The future focus on sustainable transportation, including zero-emission initiatives and clean energy-powered systems, aligns with environmental goals and positions the region as a leader in sustainable practices. Development of sustainable transportation facilities and infrastructure will foster economic diversification, attract new industries, and potentially increase property values, all of which contribute to an improved quality of life in the region.

However, significant continuing investments are required to upgrade and expand transportation infrastructure, including roads, highways, and public transit systems. Securing sufficient funding and coordinating these developments can be difficult, particularly in the face of budget constraints and competing priorities. Furthermore, as transportation systems become more technologically advanced, there is a growing need for a skilled workforce that can manage and maintain new technologies, such as electric vehicles and automated systems. The current skills

gap in the region's workforce could hinder the effective implementation and operation of these advanced systems. Additional challenges include but are not limited to navigating the complex regulatory environment in California, environmental concerns, ensuring equitable distribution of transportation benefits, particularly for marginalized communities, as well as overcoming public resistance and ensuring effective community involvement to advance large-scale projects. These challenges need to be addressed through strategic planning, investment in education and training, and careful consideration of environmental and social impacts.

3. Legislation

Legislation plays a pivotal role in shaping the logistics and warehousing industries in the Inland Empire, influencing everything from environmental practices to community well-being, land use and economic growth. Environmental regulations, particularly in California, set stringent standards for emissions and pollution control, compelling companies to adopt cleaner technologies and reduce their environmental impact. These laws are essential in promoting sustainability within the logistics sector, pushing companies towards greener practices like the use of electric vehicles and renewable energy sources. In addition to environmental regulations, zoning laws and land use policies are critical in determining where logistics facilities can be developed, helping to protect residential areas from the adverse effects of industrial operations, such as noise, traffic, light, and air pollution.

Labor laws and community benefit agreements further shape the industry by establishing standards for worker safety, wages, and benefits. These regulations are designed to ensure that the jobs created in the logistics sector are not only plentiful but also of high quality, contributing positively to the local community. Economic incentives, such as tax breaks and subsidies, are another aspect of legislation that influences the industry. These incentives are often used to attract logistics companies to the region, spurring economic growth and creating jobs. However, these incentives must be carefully managed to ensure that the benefits are shared equitably with the community.

Despite the critical role of legislation, it also presents several challenges for the logistics and warehousing industries. The complexity and volatility of California's regulatory environment create significant uncertainty for businesses, making long-term planning difficult. Companies must constantly adapt to new rules, which can be costly and time-consuming. The high cost of compliance with stringent environmental and labor regulations can strain financial resources, particularly for smaller businesses, and may even discourage some companies from expanding or operating in the region. Additionally, the inconsistent enforcement of regulations across different jurisdictions can lead to unequal impacts on communities, undermining the effectiveness of these laws. Furthermore, there is often resistance from industry stakeholders to new regulation, particularly when they are perceived as hindering business operations or increasing costs. This resistance can slow the implementation of important regulatory measures and create tension between industry players and regulatory bodies. The piecemeal implementation of policies within the Inland Empire also contributes to gaps in protections, resulting in some

communities bearing a disproportionate share of the negative impacts of logistics operations. This highlights the ongoing challenge of balancing the needs of businesses with the health and safety of communities, ensuring that legislation serves the broader public good while supporting economic growth.

4. Land Use & Planning

Local urban planning and land use decisions are vital for the growth of the logistics and warehouse industries in the Inland Empire. The planning and zoning decisions made by local governments significantly shape where and how these industries can expand. They also influence infrastructure development, including roads and freight corridors, with sustainable practices like electric vehicle charging stations incorporated to promote cleaner transportation. Urban planning also drives economic development by attracting companies, creating jobs, and revitalizing communities, while addressing environmental and public health concerns. Long-term planning prepares the region for future trends like e-commerce and automation, ensuring a balanced approach to economic growth and quality of life for residents.

However, the challenges are numerous. One significant challenge is balancing industrial development with residential and environmental concerns. As logistics and warehouse operations expand, they often bring increased truck traffic, noise, and pollution, which can negatively impact nearby communities. Additionally, the existing infrastructure may not always support the rapid growth of these industries, leading to congestion and wear on local infrastructure. Another challenge is coordinating development across the region. While each city or county has its planning processes, the cumulative impact of logistics and warehousing growth across the IE region can lead to broader issues, such as regional air quality degradation and strained transportation networks. The lack of a unified regional planning approach can exacerbate these problems, making it difficult to manage the overall growth effectively and equitably across the region. Furthermore, the competition among cities to attract logistics businesses can lead to inconsistent policies and regulation, potentially undermining efforts to address these challenges comprehensively. This competition can result in a "race to the bottom," where cities might lower standards or overlook long-term environmental and social impacts to attract investment.

5. Stakeholders of Decision Making in the L&W Development

In current practice, local governments, urban planners, and city councilmembers are central in the development of logistics and warehousing in the Inland Empire, as they control zoning and land use decisions that determine where and how industrial facilities develop. Regional planning agencies, such as the Southern California Association of Governments (SCAG), coordinate these efforts on a broader scale, ensuring that local projects align with regional growth, sustainability, and infrastructure goals. State and federal environmental agencies, including the California Air Resources Board (CARB) and the Environmental Protection Agency (EPA), significantly influence the industry

by setting and enforcing regulations that companies must follow, often driving the adoption of new operational practices and technologies. Industry leaders and developers, who are the driving force behind economic growth, make critical decisions about investments and the scale of logistics projects, while transportation authorities like Caltrans ensure that the necessary infrastructure is in place to support these operations.

However, a broader range of stakeholders are missing in the decision-making process to ensure that the growth of the logistics and warehousing sector is balanced with community needs and sustainability goals. Local communities and residents, who are directly impacted by these developments, must have a voice to ensure that issues like noise, traffic, and pollution are addressed. Environmental and public health organizations should be involved to advocate for sustainable practices and protect public health. Labor unions and worker representatives are essential to ensure that the rights and safety of the many workers in this sector are considered. Economic development organizations can provide insights into how logistics growth can benefit the broader regional economy.

Additionally, educational institutions should be part of the conversation to align workforce training programs with the needs of the logistics industry, ensuring that local workers are prepared for new job opportunities. Public transportation and infrastructure advocates should also be included to ensure that logistics developments are supported by sustainable infrastructure that benefits the entire community. Finally, in areas where developments may affect Indigenous lands or resources, it is crucial to involve tribal governments and Indigenous communities to address their concerns and respect their rights.

VI. Recommendations & Moving Forward

To effectively move forward in the development of the Logistics and Warehousing (L&W) sector in the Inland Empire (IE) region, a comprehensive strategy that addresses the challenges while enhancing the benefits brought by this critical industry is required. Below are detailed recommendations:

1. Economic Diversification to Reduce Dependency on Logistics and Supporting Innovation & Entrepreneurship

The IE region should focus on diversifying its economy beyond the logistics and warehousing sector to reduce vulnerability to economic fluctuations and ensure long-term sustainability. Encouraging the growth of other industries, such as advanced manufacturing, biotechnology, and green technology, can create a more balanced economic base. This diversification will not only create new job opportunities but also make the regional economy more resilient to changes in global trade patterns that heavily influence the logistics sector. Moreover, local governments and economic development agencies should foster an environment that encourages innovation and entrepreneurship in emerging industries. This can be achieved through targeted incentives, grants, and the

creation of business incubators that support startups in sectors such as tech, renewable energy, and advanced manufacturing.

2. Infrastructure Development to Upgrade Transportation Networks, Improve Energy Infrastructure, & Promote Sustainable Practices

The logistics industry relies heavily on efficient transportation networks, so upgrading and expanding roads, highways, and rail systems is essential. This includes addressing current infrastructure deficiencies and planning for future growth to avoid bottlenecks that could hinder the movement of goods. Investments in smart transportation technologies, such as traffic management systems and real-time data monitoring, can enhance efficiency and reduce congestion. As the logistics industry increasingly adopts automated systems and electric vehicles, the demand for reliable and sustainable energy sources will grow. Upgrading the regional energy grid to support this increased demand is crucial, and poses tremendous challenge. Integrating renewable energy sources, such as solar and wind power, into the grid and ensuring that logistics hubs have access to stable and sufficient power supplies equally remains a challenge.

Infrastructure development should align with sustainability goals. This includes expanding the network of electric vehicle (EV) charging stations to support the transition to zero-emission trucks and other vehicles used in logistics. Additionally, investment in renewable energy sources for powering logistics operations can reduce the carbon footprint of the industry. Building green corridors that integrate nature with transportation networks can also help mitigate environmental impacts.

3. Workforce Development to Address the Skills Gap & Provide Opportunities for Continuous Learning & Upskilling

As logistics operations become more automated and technology-driven, there is a growing need for a workforce skilled in areas such as robotics, data analytics, additive manufacturing, and systems management. Expanding educational programs and vocational training that focus on these skills is essential. Partnerships between industry, local educational institutions, and workforce development agencies can ensure that training programs are aligned with industry needs. Providing opportunities for continuous learning and upskilling for the existing workforce is critical. This can include on-the-job training programs, certifications, and apprenticeships that allow workers to advance their careers within the logistics sector. Encouraging companies to invest in their employees' education can lead to higher productivity and job satisfaction.

4. Community Involvement & Public Engagement to Incorporate Community Input, Promote Environmental Justice, & Enhance Transparency & Accountability

The rapid growth of the logistics sector can have significant impacts on local communities, particularly in terms of noise, traffic, pollution, and public health. It is essential to involve communities in the decision-making process through public consultations, city council meetings, and advisory boards. This ensures that their concerns are voiced, hopefully leading to more equitable and community-friendly development. Particularly, communities that are disproportionately affected by logistics operations, often low-income or minority neighborhoods, should be prioritized in efforts to mitigate negative impacts. These efforts can include stricter enforcement of environmental regulations in these areas, targeted investments in local infrastructure, and ensuring that these communities benefit economically from the logistics industry through job creation and community development initiatives. Transparency in how decisions are made regarding logistics and warehousing developments is necessary to build trust and foster collaboration. This includes clear communication of the potential benefits and drawbacks of proposed projects, as well as mechanisms for holding developers and companies accountable for meeting environmental and community standards.

5. Coordinated Regional Planning & Policy Alignment to Foster Regional Collaboration, Streamline Regulations, & Secure Funding & Investment

The Inland Empire comprises multiple cities and counties, each with its own planning processes and priorities. To ensure cohesive development across the region, there should be greater collaboration among these entities. Establishing a regional logistics council or task force that includes representatives from local governments, industry, and community groups can help align policies and coordinate infrastructure projects.

Additionally, regulatory complexity and inconsistency across different jurisdictions can create barriers to efficient development. Streamlining regulations and ensuring that there is a consistent approach to land use, environmental protection, and labor standards across the region can help attract investment and facilitate smoother project implementation. This might involve harmonizing zoning laws, simplifying permit processes, and creating a more predictable regulatory environment.

To implement the necessary infrastructure and workforce development programs, securing funding from a variety of sources is essential. This includes federal and state grants, public-private partnerships, and leveraging investments from logistics companies that benefit from regional improvements. Innovative financing mechanisms, such as infrastructure bonds or tax increment financing, could also be explored to support large-scale projects.

6. Sustainable & Inclusive Growth to Balance Economic Growth with Environmental Stewardship & Ensuring Equitable Economic Benefits

The Inland Empire's future growth in logistics should be balanced with environmental sustainability. Policies that promote the use of clean energy, reduce emissions, and protect natural resources are critical. Additionally, logistics developments should be planned with an eye toward minimizing sprawl and preserving open spaces, ensuring that economic growth does not come at the expense of the region's environmental health. Efforts should be made to ensure that the economic benefits of logistics growth are widely shared across the region. This includes focusing on job creation in underserved communities, providing pathways for career advancement, and ensuring that new developments contribute to the overall quality of life in the region.

In summary, advancing the development of the logistics and warehousing sector in the Inland Empire requires a comprehensive strategy that addresses infrastructure, workforce development, community involvement, and sustainable growth. By diversifying the economy, investing in modern infrastructure, fostering a skilled workforce, involving the community in decision-making, and ensuring regional collaboration, the Inland Empire can overcome challenges and maximize the benefits of its logistics sector.

VII. Research Needed for Decision Making

All the panels and events have emphasized the need for up-to-date and accurate data to inform decision-making. Because the narratives surrounding the development of the L&W industry are framed differently by stakeholders from various sectors, scientific research is essential for evidence-based decision-making. Based on the discussions, below are the key areas for further research:

Impact of Automation & Technology: There is a strong call for rigorous studies examining the impact of automation and technological advancements on both the reduction of negative environmental impacts and the workforce. (1) There is a need for rigorous studies to assess how advancements in technology, such as sustainable practices, reduce pollution, traffic congestion, and other environment issues. (2) We need to evaluate the health and safety implications of automation within warehouses and logistics, as well as understanding how these changes affect job quality, worker displacement, worker safety, and public health.

Environmental & Health Impacts: Research is needed to analyze the environmental consequences of the growing L&W industry, particularly in relation to air quality and public health. (1) This includes studying the cumulative impacts of truck traffic, warehouse emissions, and the efficacy of current and proposed regulations in mitigating these issues. (2) There is a need to research the fiscal expenditures on public health caused by increased environmental issues.

Infrastructure & Transportation: (1) There is a significant gap in truck traffic and goods movement patterns associated with warehousing and how it has evolved over time. Understanding these patterns is crucial for managing infrastructure demands and mitigating environmental impacts. (2) Research on sustainability of logistics systems: The region needs more research focused on making the logistics industry more sustainable, particularly on how to effectively shift modes of transport (e.g., from truck to rail) and how to integrate electric vehicle infrastructure into logistics networks. (3) Research is needed to better understand the infrastructure requirements for supporting a sustainable logistics industry. This includes examining the challenges and opportunities associated with transitioning to zero-emission vehicles, the necessary investments in charging infrastructure, and the potential role of rail in reducing road traffic and emissions.

Land Use & Urban Planning: The discrepancy between the growth rates of goods passing through ports and the expansion of warehousing in the region suggests a shift in how goods are stored and moved. (1) Research is needed to explore the reasons behind this trend and its implications for land use and regional development. This includes studying the long-term effects of zoning changes, the integration of logistics facilities with existing urban infrastructure, and the balance between industrial growth and community needs. (2) Further research is needed to examine the role of local government and urban planning in the L&W development process. In particular, more research is needed to examine how land use policies are formulated and implemented at various government levels.

Quality of Job & Workforce Development: (1) While anecdotal evidence suggests various outcomes, systematic analysis is required to assess the quality of jobs within the logistics sector, particularly in terms of wages, job security, and working conditions. (2) There is a need for studies focused on workforce development, particularly in terms of upskilling workers to meet the demands of an increasingly automated and technologically advanced logistics industry. This includes examining the effectiveness of current training programs and identifying gaps in workforce readiness.

Economic & Social Equity: There is a demand for studies that explore the economic benefits and drawbacks of the L&W industry, particularly in terms of equitable distribution of those benefits. This includes assessing how economic development in the logistics sector affects local communities, particularly marginalized groups, and ensuring that policy decisions are informed by current, accurate data.

Public Participation & Community Impact: Research should also focus on developing more effective mechanisms for community involvement in the planning and development processes, ensuring that those most affected by L&W developments are voiced and considered. This includes investigating the respective roles of different stakeholders in the current decision-making process, assessing the extent to which local communities are

engaged, identifying gaps in knowledge and barriers to civic participation, and exploring ways to overcome these barriers to ensure public input is meaningfully integrated. Additionally, research should aim to devise actionable plans that facilitate collaboration between stakeholders, enhancing economic efficiency while mitigating social externalities associated with L&W development.

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