

# Transforming The Logistics and Supply Chain Industry in the Inland Empire

An Investment Plan for the Excellence in Logistics and Supply Chain Management Consortium (ELSCMC)

#### AT A GLANCE

The Inland Empire has experienced economic growth, but not shared prosperity. IEGO has decided to invest in a sustainable logistics and supply chain cluster because of the incredible potential for transformation—resulting in quality jobs, environmental sustainability, and inclusive growth for the region. This investment plan outlines a set of funding priorities to achieve these triple bottom line outcomes. NOVEMBER 2020

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### About IEGO and the Inland Empire's Inclusive Economic Development Efforts

For years, efforts have been underway across the Inland Empire to support learners, workers, and the community. That work created pockets of activity that has yielded some progress, yet challenges persist to expand their reach and transform the region. The work to change economic and educational outcomes for the region is seen in the commitment of leaders across educational institutions, public agencies, industry organizations, labor groups and worker rights advocates, housing advocates, and environmental justice groups. This commitment has led to increasing collaboration across the counties and across educational systems where leaders continue to push through the challenges of working across sectors and jurisdictions in order to create more opportunities for Inland Empire residents.

The two-county region has experienced considerable economic growth in the last several years, but this growth has not yet successfully translated into shared prosperity for all. The two-county region ranks as one of the poorest of its size nationally, in terms of economic inclusion, average standard of living, and population living below the poverty line.<sup>1</sup> Faced with this stark regional inequity, a diverse set of community, industry, and public-sector leaders from Riverside County and San Bernardino County have mobilized through the Inland Economic Growth and Opportunity (IEGO) effort to advance inclusive

economic growth and expand opportunity in the region. IEGO partners are taking bold steps to generate more middle-skill, high-quality jobs that pay family-sustaining wages, and to make them accessible to all workers in the region.

A regional planning process facilitated by the Brookings Institution from 2017 to 2019<sup>2</sup> identified four sectors that offered opportunities for the Inland Empire to increase the number of good and promising jobs in the region—defined as jobs that provide middle-class wages and benefits or career pathways to such jobs. These sectors are:

- 1. Logistics
- 2. Advanced Manufacturing
- 3. Cybersecurity/IT
- 4. Green Tech (i.e. solar and clean air emissions)

IEGO has decided to pursue logistics—specifically sustainable logistics—as its first industry cluster play with the goal of driving investment in a world-renowned logistics and supply chain industry cluster.<sup>3</sup>

### A Cluster-Based Approach for Sustainable Logistics

Brookings defines "industry clusters" as "groups of firms that gain a competitive advantage through local proximity and interdependence." A cluster-based approach—to create a geographic concentration of related companies and other organizations in a field—is distinct from sector development, which targets the growth of just one existing industry. As Brookings has observed in other regions, developing an industry cluster generates greater productivity and innovation, higher wages, and more entrepreneurial activity than developing a single industry sector.



Using Georgia Tech's 2019, "California Sustainable Logistics Center of Excellence Concept Proposal," as its basis, this IEGO investment plan was co-created by a Core Team of leaders from CSU San Bernardino, Growing Inland Achievement, Inland Empire/Desert Region Consortium, Inland Empire Economic Partnership, La Sierra University, Norco College, Georgia Tech, and UC Riverside. With input from a number of cross-sector stakeholders throughout the region including industry, labor, and communitybased organizations, Georgia Tech's initial proposal was contextualized for the assets and needs in the Inland Empire's logistics sector.

### The Opportunity: Sustainable Logistics Growth for Shared Prosperity

Globally, the logistics and supply chain industry market is projected to grow significantly over the next decade. According to *Research and Markets*, the post COVID-19 global market is projected to increase 17.6% from \$2.73 billion in 2020 to \$3.22 billion in 2021.<sup>4</sup> Other sources value the industry at \$15.85 billion in 2019, with an expected increase to \$37.41 billion by 2027.<sup>5</sup> The expected increase in market size can be attributed in part to technological innovations such as automation, Internet of Things (IOT), and smart machines in operations as well as a surge in demand for e-commerce. COVID-19 has accelerated the growth in e-commerce through new firms, products, and customers with many of these shifts projected to be long-lasting. The pandemic has highlighted just how important a sustainable, reliable global supply chain is for maintaining resilient regional economies that can respond to unanticipated disruptions.

In the Inland Empire, the region's future has become inextricably linked with this future projected growth in logistics in many ways. The nearly 27,000 square mile region holds significant infrastructure and employment assets for the Southern California logistics corridor. For example, within the Inland Empire, logistics has been one of the foundational sectors driving economic and job growth. The Southern California Logistics Corridor spans from the Ports of Los Angeles and Long Beach to the Inland Empire. In the Americas, it includes the largest concentration of logistics facilities, most with substantial inventories, and has a significant employment base. This Logistics Corridor with a vast transportation infrastructure of rail lines, terminals, and roadways is critical to local, state, national, and global commerce, and presents an incredible opportunity for investment in innovation. The Logistics Corridor region is home to over 34,000 warehouses and distribution centers and multiple air cargo hubs, including Los Angeles International Airport (LAX), Ontario International Airport, San Bernardino International Airport, and John Wayne Airport. Additionally, the Inland Empire is strategically located to support freight flows within the urban core, within the state, across the Western US, and throughout the continental US. Finally, the Corridor has a high availability of comparatively low cost, flat land. The region leads the nation in logistics facility construction -23.7 million square feet is under construction with the majority exceeding 500,000 square feet.

IEGO has decided to invest in a sustainable logistics and supply chain cluster because of the incredible potential for transformation. There is a great potential to create more environmentally sustainable and



efficient supply chains because of the existing concentration of logistics firms and research in the region, the Inland Empire's strategic location within the Southern California logistics corridor, and projected market growth investments in new innovations and technologies. IEGO's industry cluster approach can propel the development of the sectors in the cluster by coordinating and growing those sectors in a way that reduces their ecological footprint while creating new jobs along that industry cluster. A sustainable logistics cluster leverages advances in technology (i.e. green technology, drones, robotics, IOT, automation/machine learning) to develop innovations that can be commercialized to grow the economy, improve the sectors and subsectors in the cluster, improve job quality, and provide more opportunities for Inland Empire residents to receive leading-edge training for the jobs that are developed and grown in the region.

IEGO believes investment in this strategy will drive impact in the following ways:

- Drive wage growth by creating more jobs that require STEM skills and increasing the technology used across the industry to increase the productivity of each individual job to support wage growth
- Improve competitiveness for Inland Empire businesses by increasing their customer base, boosting access to larger markets, providing access to cutting-edge technologies, and developing high-skilled talent
- **Reduce air pollution and congestion** by investing in and commercializing green technologies used by logistics and supply chain companies
- Create wealth-building opportunities for residents by increasing access to capital for small businesses and startups, and providing specialized supports for BIPOC and women entrepreneurs
- **Provide pathways to good jobs** for students and incumbent workers by providing reskilling and upskilling opportunities with targeted supports to ensure equitable access

### The Challenge: Addressing the Current Realities of Logistics

While there is great potential for transforming the industry, to date the sector has also been responsible for generating widespread low-paying jobs that are vulnerable to automation and known to produce negative environmental impacts, affecting quality of life for the region's residents. Transforming the logistics industry in a manner that increases job quality and career growth as well as expands innovation and business growth requires the region to address three main challenges:

- Abundance of low-quality jobs in logistics that are susceptible to external forces such as automation and offshoring: In recent years, regional job growth has been driven in part by the logistics sector. Despite this strong growth, the average annual wage of the sector declined from 2001 to 2016<sup>6</sup> and many occupations fail to provide living wages. For instance, the median hourly wage for some top occupations in the sector include laborers and material movers (\$15.35) and packers and packagers (\$12.42).<sup>7</sup>
- 2. Negative environmental impacts from logistics-related activities: San Bernardino and Riverside Counties rank first and second for counties with the worst air pollution nationally.<sup>8</sup> Toxic



exposure can be attributed primarily to diesel exhaust from trucks and other off-road equipment, much of which can be linked to logistics operations.<sup>9</sup> These environmental impacts are felt disproportionately in lower-income neighborhoods that are proximate to these operations.

3. Coordination on land use, infrastructure, and transportation is needed across counties to prevent competition that limits impact and increases inequities across the region: The Inland Empire is home to approximately 561 million square feet of industrial space, mostly used for distribution, with another 20 million square feet of warehouse space that was under construction at the beginning of 2020.<sup>10</sup> This warehouse boom has not been accompanied by equivalent upgrades and expansions of transportation infrastructure, which has significant effects on mobility. Currently, local governments do not see economic incentives to coordinate land use decisions. As a result, cities and counties are working in competition rather than in coordination. This competition has limited the impact of their individual actions and, in some cases, created further disincentives for collaboration.

These logistics-related challenges cannot be adequately addressed without also investing in a stronger set of enabling conditions that can transform the way logistics operates in the Inland Empire to create long term benefits for residents.

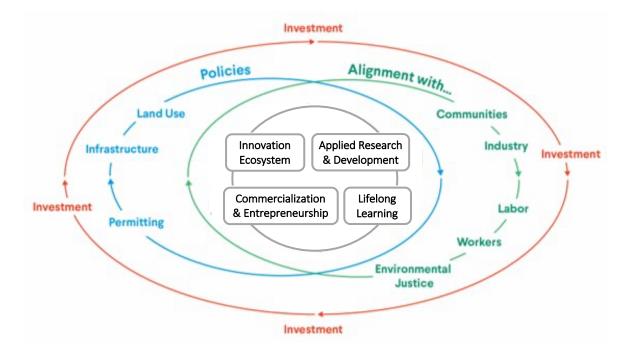
- Need for more collaboration across counties and sectors: The region needs to invest in strengthening relationships, trust, and communication to build the infrastructure needed to more effectively collaborate. Data from the labor market, employers, and education programs are not widely available for all parties to leverage for strategic program planning and there is an opportunity to increase coordination across the region.
- Need for more pathways to good and promising jobs for students and workers: To serve a population of 4.5 million, projected to grow to 7 million in the next two decades, the existing workforce development and education systems need much greater capacity to support worker upskilling, and there is an opportunity to scale and strengthen pathways from K-12 education to postsecondary degree completion in innovation industries.
- Need to address the employment and wealth disparities experienced by Black and Latinx residents, women, and workers without a bachelor's degree: Black and Hispanic residents make up 58% of the Inland Empire's population, but 71% of all residents living in struggling families. BIPOC and women are less likely to hold full-time upwards of \$18 per hour jobs than white or male residents, and these gaps exist even after controlling for differences in average age and educational attainment levels. Educational attainment also affects access to quality employment—only 17.6% of the region's full-time jobs accessible to workers without a bachelor's degree pay above \$18 per hour. <sup>11</sup> There is a critical need to design specific interventions to help close these equity gaps.



## IEGO's Strategy: An Excellence in Logistics and Supply Chain Management Consortium that creates quality jobs, improves environmental sustainability, and improves quality of life for Inland Empire residents

IEGO proposes the coordinated creation of a Sustainable Logistics and Supply Chain Cluster, anchored by a new venture called the Excellence in Logistics and Supply Chain Management Consortium (ELSCMC). *This Consortium will catalyze a globally recognized ecosystem of research, innovation, commercialization, and training activities to transform the logistics and supply chain industry into an economic cluster that advances job quality, environmental sustainability, and inclusive growth.* 

This strategy is rooted in a coordinated ecosystem approach. An ecosystem approach does not focus on only one solution. Rather this approach coordinates numerous parts of the sector's value chain to catalyze investment, coordinate activities, fill gaps, and build long-term partnerships across four key areas: Global Logistics Innovation Ecosystem; Applied Research and Development; Commercialization and Entrepreneurship; and Lifelong Learning (see illustration below) This strategy leverages the Inland Empire's unique competitive advantage as a leader in logistics activities, providing the opportunity to serve as a living laboratory—to act as a testbed for applied research, commercialization, and training innovations that can benefit industry, residents, and the region.



The Inland Empire has many of the qualities that the Brookings Institution has identified as critical to developing a successful cluster initiative.<sup>12</sup> One of the five criteria is having a centralized hub that acts as



an anchor to coordinate the region's activities, and ensures collaboration across stakeholders from industry, education, and government.<sup>13</sup> The ELSCMC will play this important role.

### **Investment Priorities**

This investment plan is designed to create conditions for innovation with an aspirational agenda of programs and activities that will transform the logistics and supply chain industries and advance regional prosperity. Through a collaborative drafting process and with an eye towards thoughtfully building on existing efforts in the region, IEGO is seeking a total of \$xx million investment over the next 10 years in four key areas. While distinct, the intentional integration of these four investment priorities will be critical to propelling transformative change in the region.

1. <u>Sustainable Logistics Innovation Ecosystem</u> that brands the region as a global innovation hub, invests in local capacity building, and supports the strategic coordination of research, commercialization, and training activities. This includes creating a cutting-edge workforce one-stop shop to support industry, educators, workers, and learners, and coordinating regional economic and talent development activities (\$x mil). To drive the investment and partnerships needed to foster an inclusive cluster, the region must establish itself as a global innovation hub and build the conditions for cross-sector collaboration. To gain global recognition, the region must become the trusted source for companies seeking best practices on logistics and supply chain-related technologies. Additionally, these new investments and partnerships must be accessible to residents in the neighborhoods most affected by negative environmental impacts. This can be accomplished through the following fundable activities:

- Build a World Class Logistics Cluster One-Stop Shop to support businesses, education and training providers, economic development practitioners, policymakers, and residents. This one-stop shop will host a labor market dashboard to provide companies and educators with the latest industry insights, an education and training data clearinghouse for education, work-based learning, and training opportunities, and provide technical assistance to companies looking for support with new technologies, import and export advising, and supply chain design.
- Stand up a community development investment fund to invest in infrastructure and place-based strategies such as broadband and electric vehicle charging stations as well as invest in mixed income housing and small businesses.
- Communicate promising cluster-based job opportunities to residents. Labor market data, education, and training information must be communicated to residents in an accessible way, with specialized entry points for residents who lack broadband access or digital literacy. An education campaign will employ a two-generation approach in multiple languages to provide children and families with resources about promising job opportunities in the cluster.
- Stand up a backbone organization to coordinate and catalyze cluster activities, promote a global brand identity, advocate for relevant policy reforms, measure impact, and share knowledge. This organization will be governed by a diverse set of stakeholders from industry, government,

education, labor, environmental justice, and community-based organizations and release an annual cluster report card to ensure investments are leading to the intended outcomes.

2. <u>Applied Research, Development, and Validation</u> of cutting-edge technology and strategies to tackle logistics-related economic, environmental, and social challenges and brand the Inland Empire as the global source and testbed for logistics and supply chain applied innovations (\$x mil). To position the Inland Empire as a global leader in logistics and supply chain innovation, the region must be at the forefront of embracing the new supply chain and logistics concepts and paradigms, such as the Physical Internet, and must invest in leading-edge methodologies and technologies enabling their large-scale implementation and appropriation, building on synergy between disciplines such as operations research (optimization, simulation), artificial intelligence, analytics, automation, intelligent transportation systems, computing, electrification, clean energy and transportation, cybersecurity, urban planning, and natural resource management. This investment will fund new and expand existing research programs at UC Riverside, CSU San Bernardino, and other regional universities in partnership with Georgia Tech, and expand infrastructure by creating living laboratories throughout the Inland Empire. The following priorities will serve as the foundation for this innovative research effort:

- Build capacity in **sustainable logistics technologies** such as distribution and routing software; supply chain management and engineering; advanced cybersecure monitoring platforms, control towers, and digital twins; autonomous, intelligent, and hyperconnected systems; zero-emission vehicles and equipment; and the renewable energy systems to support them.
- Increase the **competitiveness and capacity** for the Inland Empire to serve as a leading logistics hub for the region, continent, and world by deploying cutting-edge sustainable and resilient hyperconnected logistics infrastructure, connected delivery systems, and fulfillment, distribution, and transport options. These living laboratories will serve to validate and accelerate the adoption of emerging technologies, provide test cases to research and understand community impacts from adoption of such technologies, and provide the training ground for educating the workforce on the emerging strategies.
- Conduct **community-driven research** in deeply rooted efforts to boost job quality, sustainability, appropriate land use, resilience, and security by investing in smart clean logistics technologies and technological skills development.

3. <u>Commercialization and Entrepreneurship</u> to incubate, accelerate, and capitalize new technologies and ventures to export out of the region and create wealth-building opportunities for residents (\$x mil). To ensure the new technologies and innovations emerging from the research institutions can be translated into exportable products and services, investments must be made to support a robust commercialization and entrepreneurship ecosystem in the region. Startups have the potential to both create new, high-quality jobs and enhance the region's reputation as a place where industry, education institutions, and labor organizations are working together to spearhead the newest innovations in logistics and supply chain management. Intentional and targeted investments in supports and funding for BIPOC and women is critical to ensure this cluster effort creates wealth-building opportunities for the residents that have



been largely impacted by the logistics sector. This investment will be used to advance the following priorities:

- Raise capital for a Sustainable Logistics Innovation Fund and expanded sector specific programs for early-stage startups and existing businesses in supply chain and logistics.
- Develop a high growth startup pipeline by investing in UC Riverside's OASIS platform to support startups in 1) clean energy and energy storage and 2) smart mobility. The living laboratories developed as part of this initiative will serve as the infrastructure to test and validate startup proof of concepts in an applied setting.
- Support entrepreneurs, especially BIPOC and women, by leveraging UC Riverside's entrepreneurial support infrastructure (EPIC), Small Business Development Centers (SBDCs), and developing commercialization capabilities in other ELSCMC capabilities. Investment is needed to provide a targeted suite of services and build the capacity of technical assistance providers (e.g. bi- or multi-lingual assistance).
- Hire dedicated staff to coordinate with regional entrepreneurship initiatives such as UC Riverside's OASIS program, Small Business Development Centers, and CSUSB's Entrepreneurship Center.

4. <u>Lifelong Learning</u> to develop a world-class ecosystem of training and education to provide residents with supports and opportunities to build a successful career in the region (\$x mil). The Inland Empire seeks to ensure that new jobs created in the logistics cluster can be accessed and retained by residents, especially those from historically disadvantaged communities, by investing in a regional infrastructure for lifelong learning. This ecosystem must support the reskilling and upskilling of incumbent workers, especially those in occupations susceptible to automation, looking to access the good and promising jobs created in this cluster, as well as support new talent development for students at the start of their careers. Strategic investments in lifelong learning will equip students and workers with the skills they need to pursue satisfying careers and provide companies with the skilled talent they need to be competitive. This investment will support the following priorities:

- Pilot new employer-driven solutions to expand work-based learning opportunities for K-16 students and provide companies with a reliable talent pipeline. This includes expanding regional apprenticeship programs supported by the LAUNCH Apprenticeship Network and piloting industry-led acceleration cohorts to use Augmented/Virtual Reality and other immersive technologies in talent development. The programs where possible will use the living laboratories developed in the Inland Empire as a teaching platform to support a continuum of work-based learning activities. These activities can range from early career exploration events for K-12 districts to workforce training and apprenticeships through the community colleges and workforce systems and offer applied research opportunities for graduate students.
- Raise capital for a "full cost of training" fund to advance regional upskilling and reskilling efforts. This fund will provide scholarships for workers in greatest need to cover expenses such as transportation, childcare, textbooks, and equipment to alleviate the financial barriers to participating in training.



- Enhance and coordinate logistics and supply chain career pathways to ensure availability of high quality, integrated academic and technical pathways to good jobs in the cluster.
- **Provide career and training navigation supports** for adult learners. This includes bridge and prebridge programs from adult education and ESL programs to career certification and job placement.
- **Strengthen professional development** for the K-16 educator workforce to equip educators with industry cluster-specific knowledge that aligns education and training to industry needs.

### Measuring Progress: A Triple-Bottom Line Approach to Cluster Evaluation

The sustainable logistics and supply chain cluster effort will be successful if it meets the goals of creating good and promising jobs for Inland Empire (IE) residents, improves environmental sustainability, and promotes inclusive economic growth.

As the Brookings' report highlights, the Inland Empire's logistics sector has the potential to drive inclusive economic growth in the region, generating good and promising jobs for all workers, especially for those without a bachelor's degree.<sup>14</sup> For all residents to benefit from the cluster, however, it is essential that the region take a triple bottom line approach to cluster development focused on job quality, environmental sustainability, and inclusive growth.

### **Job Quality**

Creation of more family-sustaining jobs with upward progression for IE residents, especially those from disadvantaged communities

#### Environmental Sustainability

Improved air quality, reduced traffic congestion and noise pollution, increased energy efficiency for IE residents and businesses

### Inclusive Growth

Economic growth that creates wealth building opportunities for IE residents and businesses

A successful cluster initiative requires a cross-sector set of leaders to hold the effort accountable to these triple bottom line goals. Central to this effort is the creation of a leadership structure to track, report, and act on metrics that evaluate the effect on people and place—ensuring that historically disadvantaged groups and neighborhoods are benefiting from this regional investment. In addition to traditional economic development metrics such as jobs created, wage growth, and company formation and relocation, the following list is an example of the type of "report card" that will be used to track outcomes against the triple bottom line goals:

Triple Bottom Line Goals	Areas of Impact	Overall Progress Score	By Race and Ethnicity	By Neighborhood
Job Quality	<ul> <li>Drive wage growth</li> <li>– Family-sustaining job creation</li> <li>– Job quality improvement for existing positions</li> </ul>			
	Provide pathways to good jobs – Paid WBL opportunities offered and completed in the cluster			
Environmental Sustainability	Reduce air pollution and congestion – Air quality improvements			
Inclusive Growth	Improve competitiveness for Inland Empire businesses – Export activity			
	Create wealth-building opportunities -Capital invested in logistics/ supply chain small businesses and startups			

### The Shared Journey Ahead

While this investment plan represents a milestone, it is only the beginning of a multi-year journey. Crosssector collaboration is needed to ensure that this investment catalyzes an ecosystem and not a siloed program or project. There is a need to scale and align existing programs, build new infrastructure where there are gaps, and invest in strengthening leadership capacity building. This plan has the potential to be transformative, but it also requires the region to continue its efforts to work together differently. As this plan continues to evolve in the coming months, we encourage your feedback, questions, and recommendations. <sup>2</sup> Ibid.

<sup>3</sup> Ryan Donahue, Joseph Parilla, and Brad McDearman, *Rethinking Cluster Initiatives* (Brookings Institution, July 19, 2018), <u>https://www.brookings.edu/research/rethinking-cluster-initiatives</u>.

<sup>4</sup> Global Logistics & Supply Chain Industry Market - Post COVID-19 the Market is Projected to Grow from USD 2,734 Billion in 2020 to USD 3,215 Billion by 2021 (Research and Markets, May 2020), https://www.globenewswire.com/news-release/2020/05/11/2031082/0/en/Global-Logistics-Supply-Chain-Industry-Market-Post-COVID-19-the-Market-is-Projected-to-Grow-from-USD-2-734-Billion-in-2020to-USD-3-215-Billion-by-2021.html#:~:text=Filings%20Media%20Partners-,Global%20Logistics%20%26%20Supply%20Chain%20Industry%20Market%20%2D%20Post%20COVID%2 D19,USD%203%2C215%20Billion%20by%202021.

<sup>5</sup> Supply Chain Management Market Size to Reach USD 37.41 Billion by 2027 (PR Newswire July 2020), https://www.prnewswire.com/in/news-releases/supply-chain-management-market-size-to-reach-usd-37-41-billion-by-2027-valuates-reports-899554470.html.

<sup>6</sup> Chad Shearer and Isha Shah, *Trends in Inclusive Growth & Opportunity* (Brookings Institution, June 2017), <u>https://www.dropbox.com/s/ojq19xg5elb3k5o/2017-06-29 IEGO Prelim Research Review -</u><u>Washington, DC.pdf?dl=0</u>.

<sup>7</sup> Occupational Employment Statistics, (State of California Economic Development Department, Q1 2020), <u>https://data.edd.ca.gov/Wages/Occupational-Employment-Statistics-OES-/pwxn-y2g5/data</u>.

<sup>8</sup> Ken Vincent, *Report: Inland Empire Has The Worst Air Pollution In The Nation... Even Worse Than LA*, (Empire KVCR, April 24, 2019), <u>https://www.kvcrnews.org/post/report-inland-empire-has-worst-air-pollution-nation-even-worse-la</u>.

<sup>9</sup> Overview: Diesel Exhaust & Health (California Air Resources Board), https://ww2.arb.ca.gov/resources/overview-diesel-exhaust-and-health.

<sup>10</sup> Jill Cowan, *Warehouse Workers in a Bind as Virus Spikes in Southern California* (The New York Times, July 9, 2020), <u>https://www.nytimes.com/2020/07/09/us/coronavirus-ca-warehouse-workers.html</u>.

<sup>11</sup> Shearer, Shah, and Gootman, Advancing Opportunity in California's Inland Empire.

<sup>12</sup> Ryan Donahue, Joseph Parilla, and Brad McDearman, *Rethinking Cluster Initiatives*.

<sup>13</sup> Ibid.

<sup>14</sup> Shearer, Shah, and Gootman.

<sup>&</sup>lt;sup>1</sup> Chad Shearer, Isha Shah, and Marek Gootman, "Advancing Opportunity in California's Inland Empire" (Brookings Institution, February 2019), <u>https://www.brookings.edu/wp-content/uploads/2019/02/Full-Report\_Opportunity-Industries\_Inland-California\_Final\_Shearer-Shah-Gootman.pdf</u>.