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KANE COUNTY

Economic Development Strategic Plan

KANE COUNTY, ILLINOIS
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Note: This report has been prepared for Kane County by a team of consultants. A list of contributors is provided in Appendix I.

EXECUTIVE SUMMARY

Kane County has naturally and successfully grown as part of the Chicago metropolitan area, as an agricultural center, bedroom communities and industrial hub. However, in the context of fundamental changes in the dynamics and drivers of the global economy, and of tensions that arise from continued growth along these previously natural trajectories, Kane County finds itself at an economic crossroads.

In the emerging economy,[1] "creative destruction" is disrupting industries, occupations and places; while new products, firms, industries and markets are rapidly arising, leading to enormous opportunities for new wealth creation. Success in this economy does not occur as "naturally:" rather, it requires deliberate investment in concentrations of complementary business, human capital and innovation assets, along with the physical and institutional infrastructure to translate assets into economic growth. Kane's transition along with the global economy presents a key moment to identify the economic assets and opportunities that will guide its future growth and to develop deliberate strategies to succeed in the next economy.[2]

Seizing this opportunity begins with a market analysis exploring the County's industries, human capital, innovation activities, built environment and institutions. Key market analysis findings include:

- **Manufacturing and TDL Strengths.** The County has many industry strengths, including particularly metals manufacturing; food and beverage manufacturing and packaging; and transportation, distribution and logistics. Building on these strengths, it is well positioned to substantially grow its industrial base and compete in major emerging industries. The COVID-19 pandemic fundamentally changed the global economy in ways that may present opportunities for Kane County; for instance, significant federal funding is encouraging reshoring (and Kane County manufacturers have the opportunity to fill local/regional supply chain gaps), and the rise of e-commerce and increasing integration of tech into logistics services presents opportunity for innovation in Kane County's legacy Transportation, Distribution and Logistics sector to meet global demands.
- **Concentration of Business Services.** The County also houses high concentrations of both white collar and blue collar business services firms. These firms support other businesses and headquarters not just in Kane County but across the region. Many are BIPOC (Black, Indigenous, and people of color)-owned.
- **Agricultural Assets.** Reflecting the County's unusually fertile soil, farming is still 50% of the County's land use, although it is no longer the County's main revenue-generator. Global trends are encouraging innovation in agricultural processes and diversification of crops.
- **Labor Market Gaps.** The County's labor force is generally well suited for its economy, training workers in healthcare and manufacturing (for instance) but does not adequately address labor shortages, particularly those in high-growth sectors. While community colleges have increasing

[1] Often referred to as the "knowledge," "innovation," or "next" economy, or the Fourth Industrial Revolution.
[2] This process encompasses opportunities ranging from digitization trends reshaping industries and workforce to emerging industries such as climate centered growth (e.g., EVs, energy storage), to the massive federal investments driving US manufacturing reshoring and growth. The process also allows the County to reconcile tensions between its roles as a bedroom community, farming economy, and industrial economy.

BIPOC enrollment (particularly Hispanic enrollment), this is not enough to address the lower levels of BIPOC educational attainment and wages.[3] Employers are not adequately driving change in labor market systems (e.g., identifying skills needed for future careers, developing on-the-job training programs, changing hiring practices to prioritize skills).

- **Gaps in Innovation and Entrepreneurship System.** With relatively little private-sector or institution-led innovation activity, the County is generally not the place where things are invented. While it currently lacks a substantial innovation ecosystem, some of the building blocks (e.g. Fermilab) are present, and innovation opportunities will expand as industrial activities grow. There is, however, significant start-up and small business activity, many of which are BIPOC (Black, Indigenous, and people of color)-owned. But, there is very limited specialized support and finance for entrepreneurs and early-stage businesses.
- **Unique land use and spatial connectivity considerations.** As Kane County grows its economy, it will be grappling with the balance between its industrial, agricultural and bedroom community functions. The resulting economic growth strategies will entail land use implications: presenting a need and opportunity to better align land use and zoning policy with economic growth goals. As development and land use planning proceed, attention also needs to be paid to improving connectivity to job centers – either by establishing new job centers, addressing traffic, or addressing last-mile public transit challenges.
- **Fragmentation.** Illinois ranks among the worst states in the nation with respect to both vertical and horizontal government fragmentation, and Kane is no exception. The County encompasses multiple municipalities, each with their own economic development goals and plans. Aside from the bureaucratic, cost and tax inefficiencies of multiple governments, there is a need for alignment – on overall economic development strategies, to execute larger-scale deals and deliver programs in priority industries. Continuously developing and executing on a County-wide vision for the economic future of Kane requires not just County-led coordination, but also greater private sector leadership in economic development.

The market analysis leads to a vision and series of strategic directions to address Kane County's challenges and opportunities. Key to managing future growth will be continually refining a strong vision for the County's future and developing the capacity to continually, collaboratively identify emerging opportunities, and decide upon and implement strategies. An initial vision has been proposed for the county:

VISION: Kane County will become a dynamic mix of traditional industries and emerging sectors – a center of innovation. The County's industrial base will grow alongside leading-edge agricultural practices and quality of life for residents.

To execute this vision, a series of strategies are proposed:

- **Provide institutional capacity for economic development coordination.** Implementation of a broader vision for the county's growth can be achieved with both County-led coordination and also greater private sector, cross-sector leadership in economic development. This requires a new development entity that is nimble and responsive, with the ability to impact a wide range of development sectors. An Economic Development Organization (EDO) is needed to direct resources to guide growth and to coordinate deals across municipalities in high-

[3] For instance, 51% of the food and beverage manufacturing and packaging cluster are BIPOC, a sector with particularly low wages.

growth, tradeable sectors. An EDO can also improve employer engagement to better serve existing businesses and conduct more targeted, continuous analyses of market opportunities.

- **Improve support for manufacturers.** Kane County's manufacturers are small firms and lack the networks or resources to address the tremendous opportunities to scale in the next economy. There is a need to support manufacturers by identifying new opportunities and markets, alongside the technical assistance to help manufacturers compete for these opportunities.
- **Improve start-up and scale-up support**, in particular for BIPOC-owned firms – for instance in manufacturing, business services, and logistics.
- **Create employer-driven workforce programs.** To improve labor market efficiency, there is a need for greater employer involvement in modernizing education, training, and hiring practices - in particular to drive creation of workforce programs, targeted to future skills demand in high-growth industries. There is tremendous opportunity to supply regional workforce gaps in industries disrupted by digitization/artificial intelligence (AI), decarbonization and electrification, for instance in clean tech manufacturing (e.g., electric vehicles [EVs], battery storage), digital logistics, and next-generation farming.
- **Support crop diversification**, or connect corn/soybean growers with new markets - in part to respond to climate change and associated changes in production/demand. In addition, improve connectivity between agriculture and food & beverage manufacturing and packaging.
- **Coordinate land use with economic development goals.** The County would benefit from a more coordinated and unified process for determining what land is made available for what types of new development, and for providing the necessary infrastructure for development.

Kane County's diverse assets – its skilled workforce, industrial base, agricultural strength, good quality of life, natural beauty – provide tremendous opportunity for the county's future economic growth. While the county has grown naturally over time, the next economy rewards deliberate, strategic growth planning. Launch of an EDO and focusing on these strategic directions will set Kane County on a path towards a vibrant, prosperous 21st century economy.

ECONOMIC FRAMING

This plan is grounded in a series of key principles drawn from extensive research, analysis and practice identifying changes in the next economy. These changes have implications for economic development practice and inform a methodology for market analysis, strategy development and initiative design. This section summarizes these principles and RW Ventures' approach to driving inclusive economic growth.

I. The Next Economy

The global economy is undergoing a transformation that is fundamentally changing how productivity and growth occur. Knowledge assets embedded in technology and people are redefining how products are made, moved and sold across all sectors (not just "knowledge industries"). With the impact and value of knowledge greater than ever, human capital is solidifying its place as the single most important input for economic growth. The economy is increasingly global and dynamic, rewarding continuous innovation, heightening the importance of rich, flexible cross-sector networks efficiently deploying and connecting human capital, business, technology and other assets. The pace of change in the economy is increasing: "creative destruction" is disrupting industries, occupations and places; while new products, firms, industries and markets are rapidly emerging, leading to enormous opportunities for new wealth creation.[4]

One effect of these changes is that workers and businesses are experiencing ever greater benefits from locating close to each other, and thus are increasingly concentrating – and, more importantly, are more productive – in metropolitan regions.[5] Metropolitan regions are dynamic, flexible and complex systems that nurture unique economies, which arise from an area's distinctive blend of industries, human capital, technologies, institutions and the built environment. Metropolitan areas have thus become the most important unit of geography in the global economy.

Each region's unique combination of assets, markets, institutions and culture creates a "whole greater than the sum of its parts." Each of the key dimensions – industry concentrations, labor pools, infrastructure – succeeds or fails within the context of the whole region. Therefore, strategies to grow an entire regional economy must be tailored to the region's distinct strengths and opportunities and should align across all aspects of the economy. There are no "one-size-fits-all" solutions for economic growth.[6]

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[4] Brophy, Paul, Weissbourd, Robert, and Andy Beideman, *Transformative Economies: Emerging Practices for Aligning Growth and Inclusion*, Federal Reserve Bank of Philadelphia: 2017.

[5] People and firms are more productive and profitable when located near similar people and firms. See: https://www.brookings.edu/wp-content/uploads/2016/06/20060313_Clusters.pdf

[6] Deliberate, tailored strategies are particularly important in the knowledge economy because the growth trajectories of regional economies are diverging. In the past, underperforming regions tended to "catch up" with their higher-performing peers over time. In the new economy, this dynamic has changed. As knowledge assets – such as human capital, information technologies and information sector firms – increasingly concentrate, they build upon themselves and generate increasing rather than diminishing returns. This drives a self-reinforcing growth cycle, and as a result, high-performing regions now tend to pull further ahead of their competitors. See generally: Joseph Cortright, "New Growth Theory, Technology and Learning: A Practitioner's Guide," Reviews of Economic Development Literature and Practice, 4: 2001; Weissbourd, Robert and Christopher Berry, *The Changing Dynamics of Urban America*, Online Publication: 2004.

ECONOMIC GEOGRAPHIES AND KEY TYPES OF INDUSTRIES

Generally (as discussed in the text above), metropolitan regions are considered a key unit of economic analysis. The economy does not follow political boundaries. Instead, the economic growth of regions and their sub-regions is deeply linked because these places are largely parts of the same economy. They share labor pools and housing markets; business-to-business relationships and supply chains; infrastructure and commuting patterns; cultural, recreational, retail, and other amenities; and anchor institutions, such as hospitals and universities.

This Economic Development Strategic Plan, of course, is for Kane County, not the entire metropolitan area. Nevertheless, it identifies key Kane County assets in the context of their role in and synergies with assets throughout the regional economy. The broad goal is to identify key intersections of firms, people and technology that, with the right spatial and institutional connections, will create synergies in place to drive economic growth (by making the place the most productive, and therefore competitive, for certain industries, firms and people).

Developing a plan like this for a sub-part of the metropolitan region presents the challenge that the relevant ”place” – the geography of the economic activity -- will vary depending on the asset or activity. Sub-geographies may contain specializations of major industries – for instance, the Chicagoland region has a highly productive food manufacturing sector, and its packaging industries are concentrated in Kane County. For any particular industry or firm, strategies must determine the optimal combination of developing select industry specializations within Kane and growing Kane’s industries through their connections to metropolitan-wide industrial activity. This combination will be highly case-specific and continually evolving.

A closely related issue concerns what types of industries deserve the most attention as driving economic growth, and the geography of those industries. Generally, economic growth plans focus on *traded* industries: industries that sell goods and services in markets outside the region. Ultimately, a local economy only grows through bringing in dollars from elsewhere.[7] Traded industries tend to concentrate in a few metro areas (e.g. cars in Detroit, finance in NY, film in Hollywood).

In contrast, *local* industries are predominantly consumer-facing (e.g. grocery stores, movie theaters), selling goods and services within the local geography, typically just as spatially dispersed as the population, and generally their growth depends on the wealth and income flowing into the region from traded industries. Local industries may be

[7] The main exception is import substitution – where the local economy starts producing something it was previously buying from elsewhere, but this has major inherent limits as a growth strategy.

important sources of employment and entrepreneurial wealth creation opportunities, but tend to follow, not lead, economic growth, and so are less the focus of growth planning.[8]

Very recent work[9] establishes a third industrial category, which may be particularly relevant for Kane – characterized as *Regional* industries. These industries are not themselves traded, but tend to serve a metropolitan-wide market, and generally serve other businesses (rather than consumers) – for instance, white and blue collar business services companies providing services like payroll, facilities management or warehousing. These often concentrate in sub-regional geographies within a metro, and indirectly drive growth because they serve headquarters and major traded industries.

While most economic growth comes from traded industries (and these firms are also generally larger and associated with higher levels of innovation), regional industries also drive growth – and, importantly, offer more opportunities for inclusion, both in employment and entrepreneurship.[10]

In short, the geographic scale of analysis varies depending on where key industrial assets are concentrated and synergizing in place, and where they are deployed. Ultimately, the Economic Development Strategic Plan develops strategies particular to Kane County, but in the context of the regional economy. It analyzes high-growth traded industries in the Chicago metropolitan area, and their possible sub-concentrations in Kane, as well as analyzing high-growth regional industries, many with concentrate in Kane County.

II. Drivers of Growth

In the next economy, five market levers (listed below and diagrammed in Figure 1) interact to account for the efficiency and productivity of regional economies and drive the extent to which complementary, concentrated assets are achieving synergies.

- **Clusters:** Industry-based concentrations of firms and related institutions that are more efficient and productive when co-located, due to lower transaction costs among buyers, suppliers and customers; shared labor pools and other common inputs; enhanced knowledge exchange; and increased innovative capacity.

[8] Notably, these industries are often important amenities, and so become a focus to the extent Kane pursues a "bedroom community" path of attracting households who come for the quality of life but work elsewhere. This being an economic growth plan, the bedroom community trajectory, while a perfectly reasonable strategy, gets less attention here.

[9] Lynch, Teresa and Robert Manduca (2023). "Beyond Local and Traded: Evidence for a Third Industry Market Area Type and Implications for Regional Economic Development." Draft.

[10] "Jobs in regional industries pay much more than local industries - 53% more for positions held by workers with less than high school and up to 81% more for jobs held by workers with BA/BS+)." And, "due to the ubiquity of regional industries across metropolitan areas and the often-high barriers to entry in traded industries, there are eight times more Black-owned firms in regional than in traded industries." Source: Lynch, Teresa and Robert Manduca (2023). "Beyond Local and Traded: Evidence for a Third Industry Market Area Type and Implications for Regional Economic Development." Draft.

- **Human Capital Development and Deployment:** Human capital is the most important asset in today's knowledge economy, but only if developed, matched with and deployed into abundant job pools through well-functioning labor markets.
- **Innovation and Entrepreneurship:** The ability to innovate is the core driver of increasing productivity. In a more competitive, fast-paced, knowledge-based economy, continual innovation, commercialization and business creation is crucial for economic success.
- **Spatial Efficiency:** The relative location of businesses, suppliers, workers and consumers within a region (and the physical and virtual infrastructure that connects them) greatly influences efficiency and productivity. Co-location and connective infrastructure determine the costs for moving goods, people and ideas, in turn enhancing or diminishing many economic benefits of agglomeration.
- **Governance:** Not to be confused with government, govern*ance* encompasses all of the institutions and systems that foster economic networks, innovation and other activity. The increasingly dynamic economy places a premium on rich formal and informal networks that enable exchange of ideas and facilitate relationships, transactions and coordination across the public, private and civic sectors. While government plays a key role – shaping and enabling market activity and providing the public goods that enhance productivity and efficiency – a broad range of civic, private-sector and cross-sector institutions are central to establishing an environment conducive to economic growth and fostering open, adaptive and flexible cross-sector networks.

FIGURE 1: THE FIVE DRIVERS OF GROWTH, OR FIVE MARKET LEVERS

These market levers influence each other. In essence, the aim is to understand, based on a particular place's assets:

- Key intersections of firms (clusters), people (human capital) and technology (innovation)
- The built and virtual environment (spatial efficiency) and institutional environment (governance) that connects these firms, people and technology.

Together, these will create the synergies needed to make a place like Kane County most productive, and therefore competitive, for certain industries, firms and people.

III. A New Approach to Economic Growth

The transformative nature of the next economy has significant implications for the practice of economic development – both at regional and sub-regional levels. Traditional strategies are no longer well-suited to today's economic opportunities. Regions need a new approach, moving away from consumption-driven growth (e.g., retail, housing) and from deal-by-deal, opportunistic firm attraction efforts based primarily on lowering costs for companies.[11]

Instead, regions must try to create production-driven economies that compete by adding value, building on their unique assets, strengths and opportunities. To do this, regions must concentrate on increasing *productivity*. Successful regions are developing and implementing comprehensive, integrated and inclusive strategies across the five market levers (discussed above) that determine productivity.

At a high-level, the shift is from business development to economic development, from opportunistic deals to systemic change which creates the conditions for enhanced firm and labor productivity (which in turn results in doing strategic, higher-impact deals). New practices for both regions and sub-regions emphasize:

- **Competing on value added, instead of low-cost**, becoming a place where firms and people are more productive because of better human capital, infrastructure, complementary firms, governance, and so forth. This makes the place "sticky," continually attracting more firms and people.
- **Identifying unique strengths and "building from the inside out,"** recognizing that growth starts with *existing* assets: most net growth comes from a region's existing firms, followed by start-ups and only then by firms moving in.[12] Firm attraction is the tail, not the dog, of economic development. Combined with the value-added principle, this means that initiatives should start by strengthening existing firms and industries and the assets which support them.
- **Acting strategically through context-specific, integrated solutions**, rather than having disconnected, siloed programs (or chasing isolated "big deals").
- **Creating collaborations based on economic – not political – geography.** Recognize and collaborate across the true market geography of a given economic activity, rather than competing across jurisdictional borders.

[11] Individual firm attraction instead plays an important role as a tactic employed to implement strategies tailored to the assets and characteristics of the region – e.g., targeting particular types of firms to fill out a strong local cluster. In these circumstances, the case that is made to attract the targeted firm is also different – less focused on direct financial incentives (cost reduction) and more on adding value through infrastructure, human capital and other programs that improve the region for the entire industry and make the attracted firms "stickier" (less likely to leave for the next, lower-cost location).

[12] RW Ventures' analysis of extensive NETS data, looking at associated growth due to existing firms, startups and new firms.

- **Acting through public-private partnerships**. Emphasize a market-based orientation that creates new cross-sector networks and leverages private resources, rather than a top-down, government-driven approach.
- **Focusing on quality growth,** looking for long-term value and wealth creation rather than short-term profit extraction and other unsustainable development models.[13] A fundamental tenet of quality growth – developing and deploying ALL assets – is inclusive growth, discussed below.

A few additional growth planning principles that are specific to the sub-regional level include:

- **Engage a broad, inclusive set of local AND regional stakeholders.** For both planning and implementation, ensure that the work is of, by and for the community. At the same time, since a key goal is to connect community assets with regional economic opportunities – for the benefit of the community and the region – regional stakeholders also must be at the table. Include employers, developers, firms whose suppliers are in the community, regional growth institutions, program partners, government and others who invest in, hire or buy from, or otherwise have – or will have – a stake in the community.
- **Coordinate and integrate programs in place.** Designing for synergies particularly applies and is especially fruitful at the subregional level. Organizations can work together to tailor their respective programs to community conditions and to the mix of other programs present within a local geography.

Regions which build from the inside out, concentrating on their unique strengths, identifying their competitive advantages and then designing and launching market-based, targeted, integrated growth strategies that leverage all of their assets, will be most successful in creating strong, attractive economies and communities, resulting in more sustainable growth.

IV. Inclusive, Climate-Centered Growth

Two other principles inform economic development strategy in the next economy: inclusive growth and climate-centered growth.

Inclusive Growth

The next economy presents a challenging "inclusive growth paradox."[14] In the short term, growth in this economy is disrupting (and in some cases, wiping out) legacy industries and labor markets, contributing to the shrinking of the middle class and creating unprecedented wealth inequality (in large part because returns to capital are increasing much faster than returns to labor). However, in the long term, it is increasingly clear that the regions with less inequity grow more over time. They utilize the talent of more of their workers and companies, are more efficient and productive, and reduce the costs associated with poverty. A central challenge – and opportunity – for economic development practice then, is aligning inclusion and growth. Equity and growth may have

[13] For more information on quality growth, see materials at https://newgrowth.org/, describing The New Growth Innovation Network, a new national organization that brings together economic development leaders committed to building a new field of quality economic growth practice.
[14] Paul C Brophy, Robert Weissbourd, and Andy Beideman, Transformative Economies: Emerging Practices for Aligning Growth and Inclusion, Federal Reserve Bank of Philadelphia, October 2017.

conflicted in the industrial economy, but they can and must be two sides of the same coin in the next economy.

New approaches to inclusive growth emphasize inclusion as a core *driver* of growth. Rather than let growth occur and then ask how the people and places that tend to be left out can get a set-aside, redistribution or limited participation after-the-fact, an inclusive growth approach builds inclusion into all growth strategies from the outset. It seeks to fundamentally reposition historically marginalized people and places, particularly communities of color, as initial participants in and drivers of the enormous growth opportunities in the next economy. As we seize new market and value creation opportunities, how do we do so in ways that successfully use all of our people, firms, and places? Understanding and addressing the barriers to inclusion must become an integral part of every growth opportunity and strategy.

Inclusion generally occurs across four dimensions:

- **Employment** – improving the functioning of labor markets so that workers of all skill levels and backgrounds are efficiently prepared, matched and upskilled for quality jobs with strong career ladders;
- **Ownership** – growing company ownership by people of color to generate wealth creation, especially by finding opportunities in high-growth industries, as well as real estate ownership in residential, commercial and industrial development projects;
- **Location** – siting and supporting firms in places that are readily accessible to historically marginalized populations (through co-location or augmented transportation infrastructure); and
- **Participation** – ensuring diverse representation at the relevant private-, public- and civic-sector "tables" where growth strategies and economic policies are shaped, and deals get done.

Quality, inclusive growth practices that increase the employment, ownership, access and participation of communities of color in emerging economic opportunities are essential to achieving lasting economic growth.[15]

Climate-Centered Growth

An emerging economic growth planning principle focuses on aligning economic growth with climate concerns – in particular, seizing opportunities for growth created by emerging, high-growth industries that are addressing climate change. This is supported by federal funding: the Inflation Reduction Act has allocated $369 billion towards clean energy programs, and the CHIPS and Science Act has set aside $67 billion for research to address climate change.[16]

While achieving growth and equity goals can be almost completely aligned in next economy practice, the practice of aligning growth and climate action is less developed (and, in some

[15] While the inclusive growth approach aligns economic growth with equity goals – assuring that future growth promotes equity rather than exacerbating inequality – it does not address, nor obviate the need for, a wide range of other equity work (e.g., addressing housing discrimination, segregation, unequal resources and public goods, and so forth). For that reason, as mentioned, this economic growth plan addresses equity with respect to growth, but is not a comprehensive equity plan.
[16] https://earth.org/chips-act/

instances, seems to present greater challenges, at least in the shorter term). Addressing climate change occurs through:[17]

- **Mitigation strategies** – preventing further climate change by increasing energy efficiency and reducing the use of fossil-fuel-based power sources, primarily through increasing renewable, zero-carbon energy production and more efficient energy use, reducing the flow of heat-trapping greenhouse gases (GHGs) into the atmosphere.[18]
- **Adaptation strategies** – addressing the impacts of climate change through changes in processes, practices, and structures to reduce and/or eliminate risks and/or to benefit from opportunities associated with climate change (e.g., building sea walls, increasing urban vegetation to reduce heat, developing early warning systems for flooding, planting drought-tolerant crops).[19]

Broadly, mitigation strategies envision fundamentally changing both the demand and supply systems and infrastructure for energy use.[20] This requires production of renewable energy (e.g., wind and solar); next-generation grid technologies, enabling distributed production and storage; and new, more efficient products and services that reduce energy demand across the economy (e.g., buildings, transportation, manufacturing). Adaptation similarly creates demand for new products and services, although may not present as much of a growth opportunity. For instance, adaptation strategies may involve producing new pumps to improve water management or building new structures to prevent flooding.

In the past, climate change mitigation actions were viewed primarily as cost centers (i.e., the opposite of economic growth opportunities and alignment), while climate change adaptation actions were designed to prevent costs of disasters in the future.[21] New practices recognize the economic growth opportunity and potential alignment of both mitigation and adaptation strategies. This includes immediate opportunities to produce the products and services demanded by emerging climate related industries, as well as the acknowledgement that over the long term, "smart action against climate change doesn't only stop bad things happening, it leads to increased efficiency, drives new technology, and lowers risk," which in turn "stimulates investment and generates jobs," creating healthier economies.[22]

There are several potential paths to better aligning climate action with economic growth and developing a more climate-centered growth strategy:

- **Producing new products and services** – whole new emerging industries, and a vast array of associated products and services, are growing in demand in the context of addressing climate change – from advanced batteries to "green" architectural services to hydrogen electrolyzers.[23] Producing the goods and services that will drive the green economy offers one possible alignment of economic growth and climate objectives. Note also the opportunity for related job creation: for instance, to meet a goal of net zero emissions by

[17] https://www.climaterealityproject.org/blog/climate-adaptation-vs-mitigation-why-does-it-matter
[18] Enhancing the carbon sequestration potential of natural carbon sinks (oceans, forests, and soils) is also a valuable mitigation measure that removes GHGs from the atmosphere.
[19] United Nations Framework Convention on Climate Change (UNFCCC) see, https://unfccc.int/topics/adaptation-and-resilience/the-big-picture/introduction
[20] See, e.g., Electrify: https://mitpress.mit.edu/9780262545044/electrify/
[21] See, https://www.imf.org/en/Publications/fandd/issues/2021/09/bezos-earth-fund-climate-change-innovation-levin.
[22] https://www.imf.org/en/Publications/fandd/issues/2021/09/bezos-earth-fund-climate-change-innovation-levin
[23] It will be important to keep the very long term in focus as we invent the new green products of the future, designing and manufacturing with the full product life cycle of development to end of use, then next reuse, top of mind.

2050, another 26 million workers would need to be employed in clean energy and related sectors by 2030.[24]

- **Innovation -** The need for new technologies and related innovations to slow climate change[25] is driving increasing climate-focused investment by businesses and governments around the world.[26] Venture capital (VC) investments in climate tech increased more than five times over the last six years.[27]
- **Reducing energy and related costs for firms –** Economic growth *with* low-carbon energy and technological innovation to reduce the energy input needed in the first place is a way to fuel continued and sustainable growth.[28] A region becomes better for business by developing next-generation energy production, distribution and efficiency technologies, so that it can offer access to more efficient, resilient, and cost-effective energy sources and supports for the built environment and across business operations.
- **Improving spatial efficiency –** Addressing climate change demands greater density of development and greater efficiency in transit connections to decrease average distances traveled and reduce energy consumption. This increased efficiency also serves to reduce the costs of moving goods and people, including better connecting residents with jobs and further enhancing the potential for economic growth.
- **Reducing government costs –** Addressing climate change should reduce its negative impacts, and thus reduce the ensuing costs to government to address them. This in turn can free up additional government resources to invest in economic growth.
- **Improving quality of life –** Reducing climate change impacts that lead to more extreme weather events such as wildfires, extreme heat, and flooding, will reduce the risks and economic impacts associated with these events, a factor in retaining and attracting firms and workforce. Vastly improved health outcomes[29] associated with better indoor and outdoor air quality and more stable temperatures, increased urban vegetation and active transportation options, is also a key quality-of-life benefit.

Note that these opportunities for alignment envision a place that can become both a major producer of the products and services that are increasingly in demand to address climate change – and a leader in addressing climate change, creating the demand conditions for the new products and services, as well as efficiencies for business and government.

"The transition to a low-carbon economy is potentially a powerful, attractive, and sustainable growth story, marked by higher resilience, more innovation, more livable cities, robust agriculture, and stronger ecosystems."[30] "Climate policies, if well designed and implemented, are consistent

[24] https://www.weforum.org/agenda/2022/01/global-clean-energy-economy-how-to-finance/
[25] In particular, to meet the goal of avoiding catastrophic climate impacts by limiting global temperature rise to 1.5 degrees Celsius above pre-industrial levels. See, https://commonslibrary.parliament.uk/what-was-agreed-at-cop27/
[26]Not only do we need to invent the next generation of products that are tackling climate change, but there is also the need for continuous energy (and upgrades to the grid) to support deployment of these products (e.g., advanced batteries for more energy storage, increased automation for outage response, decentralized energy points contributing to power flow). https://worldgbc.org/advancing-net-zero/embodied-carbon/)
[27] "The Future of Climate Tech Report | Silicon Valley Bank," accessed May 27, 2022, https://www.svb.com/trends-insights/reports/future-of-climate-tech.
[28] https://www.lse.ac.uk/granthaminstitute/explainers/can-we-have-economic-growth-and-tackle-climate-change-at-the-same-time/
[29] See, https://www.who.int/news-room/fact-sheets/detail/climate-change-and-health
[30] Joseph Stiglitz Fighting the climate crisis need not mean halting economic growth, December 9, 2019, The Guardian https://www.theguardian.com/business/2019/dec/09/climate-crisis-economic-growth-green-economy

with growth, development, and poverty reduction."[31] The economic growth opportunities are enormous for cities that are forward-looking, aligning growth initiatives with a climate imperative.

Of course, there is also strong alignment between inclusion and climate – both because BIPOC communities have been disproportionately impacted by climate change,[32] and because the enormous economic growth opportunities demanded by climate change present an opportunity for investment in BIPOC-owned clean tech businesses and scaling BIPOC workforce opportunities.[33] These opportunities should be afforded to the very communities that have been most impacted by pollution, flooding, etc.

In short, there are major opportunities to align economic growth with climate action, which need to be translated to economic development practice in the context of particular places.

[31] Joseph Stiglitz Fighting the climate crisis need not mean halting economic growth, December 9, 2019, The Guardian https://www.theguardian.com/business/2019/dec/09/climate-crisis-economic-growth-green-economy
[32] https://www.nrdc.org/stories/environmental-justice-movement;
[33] https://tpinsights.com/investors-see-growth-opportunity-and-returns-in-sustainability-tech-funding/

HISTORY AND ECONOMIC OVERVIEW

I. History of Kane County

Kane County, particularly the Fox River valley, was initially an agricultural economy, which then developed limited manufacturing largely serving agriculture. With the expansion of the Chicago metropolitan area, Kane experienced significant industrialization tied to the region's industrial growth, as well as urbanization as it offered attractive and less expensive residential communities. Its rich history is impossible to recount in a short summary. Rather, a few highlights which help provide background and framing for the economic analysis are summarized below – particularly those that relate to Kane County's economy today.

- **Agriculture.** Early residents were drawn to Kane County for its fertile soil – including the land's first occupants (Sauk, Fox and Potawatomi Native American tribes).[34] As of the 1840 Census, most of the County's residents were engaged in agriculture.[35] Early farmers produced milk and butter to support Chicago's population, and the dairy industry later expanded its reach into national and even global markets.[36] Other crops and livestock included wheat, barley and oats and swine.[37]
- **Manufacturing.** In the early 19th Century, settlements had sprung up around the Fox River in St. Charles, Geneva and Batavia – manufacturing centers that processed lumber (e.g., for windmills, home construction) as well as dairy to serve the agricultural industry.[38] In the mid- to late-1800s, railroads were extended from Chicago to connect to the Fox River region, including Aurora and Elgin.[39] Their arrival accelerated industrial growth, for instance with the growth of metalworking industries and locomotive shops.[40] Further transportation infrastructure and connections, along with growth in Chicagoland's economy, have driven further diversification of Kane's economy.
- **Housing.** Housing subdivisions accelerated with post-WWII population growth.[41] Residential growth continued as the Chicagoland population expanded outwards and collar counties, including Kane, grew bedroom communities often housing residents working elsewhere. Retail establishments grew alongside housing developments.

Over time, Kane County has grown along these three trajectories – as an agricultural economy, industrial economy, and bedroom community – but, the balance has shifted and the economy has become more diversified:

- Since the mid-1900s, the County has seen growth in healthcare, construction, professional services and retail trade, in addition to continued growth in manufacturing.[42] Fermi National Accelerator Laboratory located in Kane County in 1968,[43] selecting its site for its land

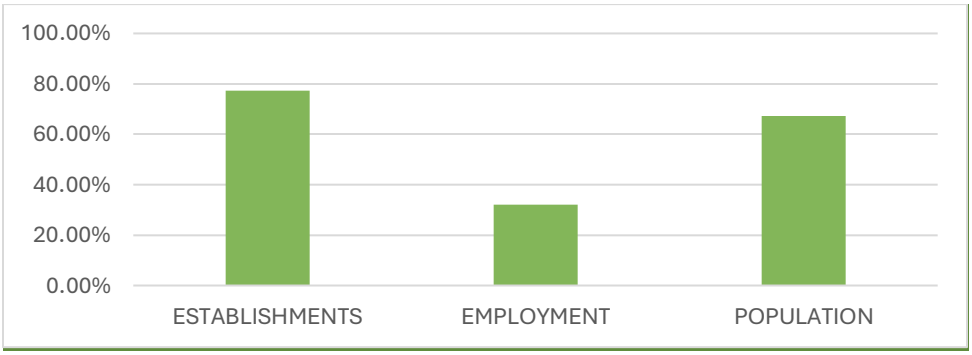
[34] https://www.chicagotribune.com/news/ct-xpm-1986-04-30-8601310941-story.html
[35] Kane County 2040 Plan
[36] Encyclopedia of Chicago: Kane County
[37] Kane County 2040 Plan
[38] https://www.chicagotribune.com/news/ct-xpm-1986-04-30-8601310941-story.html
[39] Encyclopedia of Chicago: Kane County
[40] https://www.chicagotribune.com/news/ct-xpm-1986-04-30-8601310941-story.html
[41] Encyclopedia of Chicago: Kane County
[42] By 1990, manufacturing comprised 28.2% of employment, retail trade – 16%, and health care and social assistance – 10.3%. Looking at establishments: 13.5% were construction, 10.7% manufacturing, 15.8% retail trade – with healthcare, wholesale trade, and professional services all around 8%. RW Ventures analysis of QCEW data.
[43] https://www.chicagotribune.com/news/ct-xpm-1986-04-30-8601310941-story.html

acreage, power capability, and location near distribution networks and residential communities.[44] Businesses continue to cite these reasons for locating in Kane County.

- However, in the last decade, more establishments have been leaving Kane County than entering[45] - suggesting that land acreage, power capability, and access to distribution networks are not enough to keep companies locating and scaling in Kane County.
- While Kane County's workforce was historically concentrated in agriculture, its share has drastically dropped. County employment is now concentrated in manufacturing, retail, administrative and healthcare jobs.

Over the last three decades, Kane County's population has grown (67%), along with establishments (77%) – but employment has grown slower, by 32% (see Figure 2). The County's establishment growth has likely been in low-employment industries. Figure 3 shows this to be true, with most establishment growth in "Transportation and Warehousing" facilities and educational, administrative and professional services. Most employment growth has been in "Management of companies and enterprises."

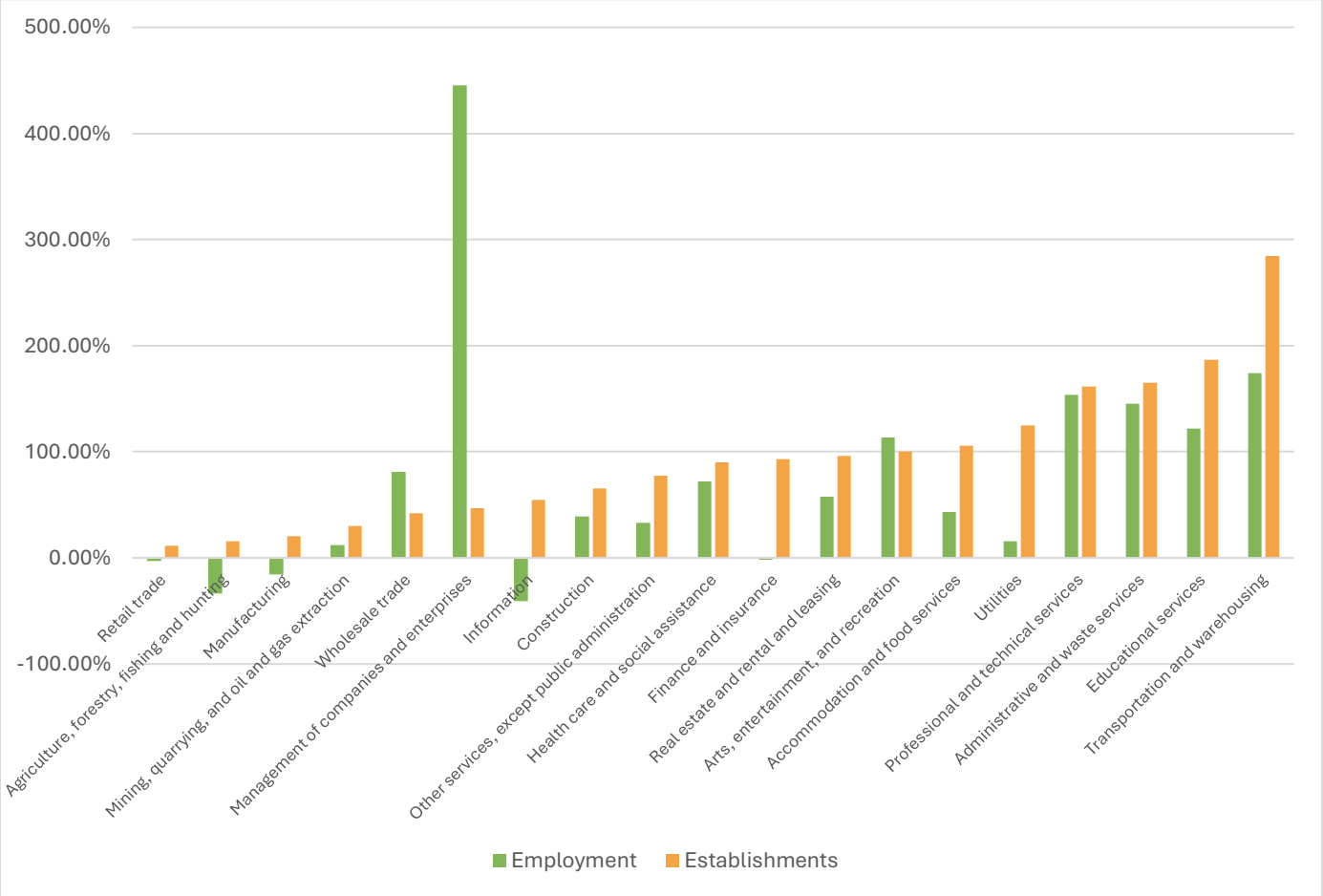
FIGURE 2: KANE COUNTY'S CHANGE IN ESTABLISHMENTS, EMPLOYMENT AND POPULATION (1990-2020)



Source: QCEW, County summary data.

[44] https://history.fnal.gov/this_day_1966_12_16.html
[45] see *Innovation and Entrepreneurship* section for more detail

FIGURE 3: KANE COUNTY'S CHANGE IN EMPLOYMENT AND ESTABLISHMENTS, BY INDUSTRY (1990-2020)



Source: QCEW, Annual 2D NAICS 1990 – 2020.

These shifts make it clear that Kane County's economy has reached a key moment of transition. The balance of its agricultural, industrial and bedroom community functions is shifting, creating development tensions and requiring re-alignment. Its roles, participation and specializations within Chicagoland's economy could take many forms as the regional economy transitions and seizes next economy growth opportunities. Kane has the assets to become an integral participant in and driver of this growth, but without deliberate strategic planning and capacity to execute, its growth could be reactionary. For example, due to its land availability and relatively low taxes (compared to Cook County), the area has become attractive to warehousing and logistics companies.[46] Rather than haphazardly accommodating firms that come to the County for its land availability, this Plan constitutes a first step towards seizing the opportunities for Kane to deliberately invest in high-growth existing industries, retool its legacy manufacturing base to compete in the next economy, and foster innovation to capture new market opportunities.

[46] https://northwestchicagoland.northwestquarterly.com/2023/03/20/kane-county-leverages-its-diverse-economy/

II.Economic Overview

ECONOMIC SNAPSHOT

Currently, the County has proportionately more people than economic activity; it has 5.4% of the Metropolitan Statistical Area (MSA) population, 4.9% of its businesses, 4.5% of its employment, and 4.1% of its GRP (see Table 1).

TABLE 1: POPULATION AND GRP (2021)

County/Region	Population[47]	Real GRP (millions) [48]	Real GRP Per Capita
US	331,893,745	$19,609	$59,085
Illinois	12,671,469	$946	$74,630
Chicago MSA	9,510,390	$630	$66,257
Kane County	515,588	$26	$49,631

As noted in the History section, over the last three decades, population and establishments have grown at similar rates with slower employment growth. But, looking more closely at the data, there seems to be stabilization around 2010: at that point, establishments started to decline, while population and employment stabilized. As the industry breakdown in Figure 3 shows, this may be due to an increase in low-employment industries like warehousing (attracted to Kane County for its land) and small, professional services businesses, rather than the scale-up of mid- and large-sized companies in traded sectors. From 2010-2021, businesses and employment in Kane County have not increased at the same pace as the MSA (see Table 2).

TABLE 2: CHANGE IN ESTABLISHMENTS AND EMPLOYMENT (2010-2021)

	ESTABLISHMENTS			EMPLOYMENT		
County/Region	2010	2021	% change (2010-2021)	2010	2021	% change (2010-2021)
U.S.	8,691,194	10,601,653	22.0%	106,189,763	122,705,445	15.6%
Illinois	369,006	378,165	2.5%	4,686,219	4,947,792	5.6%
Chicago MSA	290,228	308,993	6.5%	3,625,991	3,945,470	8.8%
Kane County	14,484	15,019	3.7%	165,648	177,647	7.2%

Source: data-Fab QCEW; data-Fab QWI

DEMOGRAPHICS

Population has grown faster than the MSA: growing 67% in Kane County from 1990 – 2020 versus 28% growth in the MSA [note: most of this growth occurred from 1990-2010 and then stabilized].[49] Kane County encompasses all or a portion of 29 municipalities, which are collectively home to

[47] Census Table DP05
[48] https://www.bea.gov/sites/default/files/2022-12/lagdp1222.pdf *(Counties)*
https://www.bea.gov/sites/default/files/2023-06/stgdppi1q23.pdf *(Illinois)*
U.S. Bureau of Economic Analysis, "CAGDP1 County and MSA gross domestic product (GDP) summary" (MSA)
[49] QCEW County summary

about 90% of its population.[50] The County's population is over 515,000, larger than just two of the collar counties, Kendall (132,000) and McHenry (310,000).[51] Today, Aurora is the second largest city in Illinois,[52] and it spreads across three additional nearby counties: DuPage, Will and Kendall.

Kane County's population is projected to grow 26% by 2050,[53] although note that population projections tend to be highly speculative (and, economic growth interventions such as those recommended in the *Strategies* section affect rate of growth). Its population is becoming more racially and ethnically diverse.[54] In the 7-County CMAP region, Kane is the second most diverse county (second to Cook): 56.3% White, 32.2% Hispanic or Latino, 5.1% Black, 3.9% Asian.[55] It has the largest percentage Hispanic population of all seven counties, concentrated in Elgin and Aurora (40%+). Aurora also has a higher share of Black and Asian residents (10.5%, 10.2%).[56]

The County, like the MSA and state, has significant socioeconomic disparities by race. Kane County's poverty level, 7.8%, is lower than the region and state (see Table 3); but for its largest two racial/ethnic groups it looks very different: 5.2% white (not Hispanic or Latino); 10.9% Hispanic or Latino origin.[57] The highest poverty rate is for Black or African American – 17.7%.[58] The Hispanic population also underperforms the state and MSA for both High School graduates and Bachelor's degree holders (see *Labor Markets* section for details).

TABLE 3: KANE COUNTY POPULATION CHARACTERISTICS (2022)

County/Region	% Bachelor's + (25 and older) [59]	Unemployment[60]	Poverty Rate[61]	Avg. Wage ($K) 2021[62]	Median HH Income ($K)[63]
US	35.7%	4.3%	12.6%	$68.0	$74.8
Illinois	37.7%	5.8%	11.9%	$71.1	$76.7
Chicago MSA	41.1%	4.9%	11.2%	$75.9	$82.9
Kane County	35.9%	4.9%	7.8%	$56.9	$93.3

Residents report high median household incomes (from jobs they work either within or outside of Kane County[64]) - $93,300 (see Table 3). This likely means there are two (or more) wage earners in the household. However, jobs within Kane County have an average wage 25% lower than the MSA.

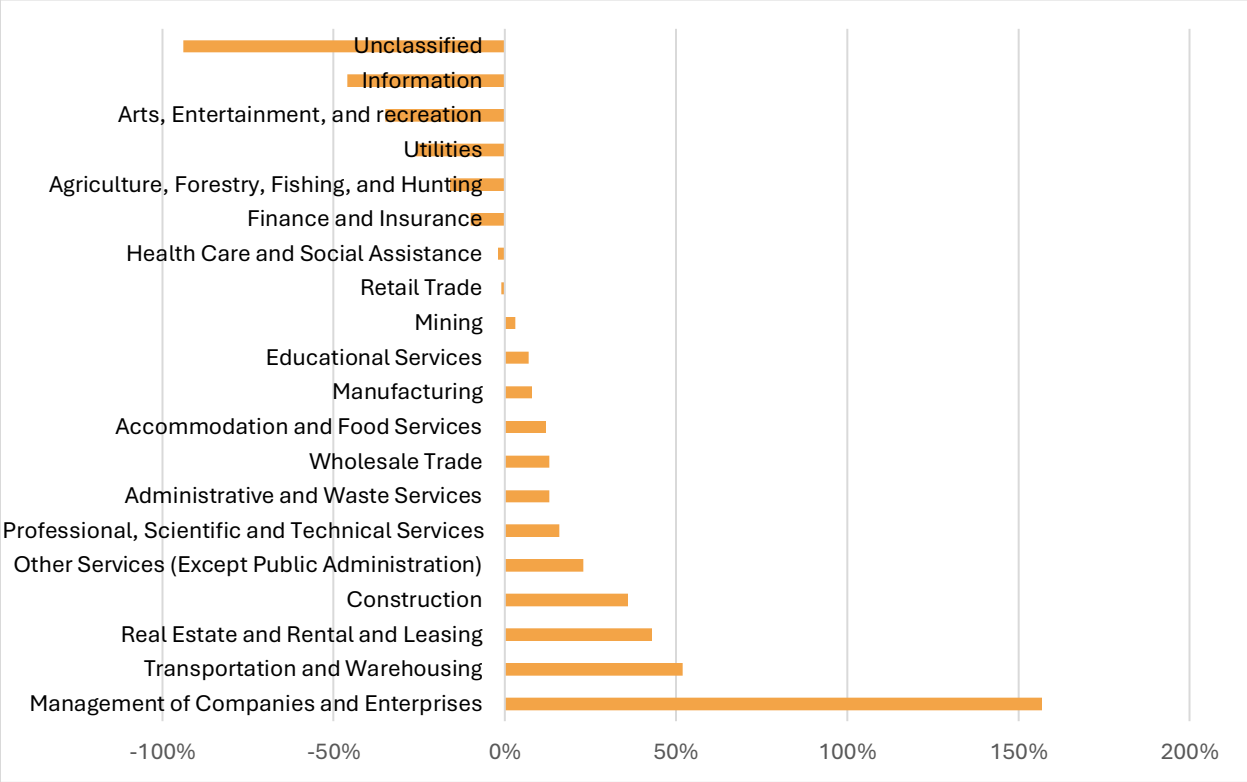
[50] Kane County 2040 Plan. "In Kane County, the number of foreign-born residents increased from 4.0% in 1970 to 15.7% in 2000. From 2000 to 2010, the foreign born population increased to 18.2%. As of 2010 Latin Americans and Asians make up the largest total population of foreign born residents in the County, 13.6% and 2.1% respectively."
[51] *CMAP Socio-Economic Forecast:* https://www.cmap.illinois.gov/onto2050/socioeconomic-forecast#:~:text=The%20forecast%20will%20help%20CMAP,with%208.5%20million%20in%202015.Data source: 2020 Census Redistricting data.
[52] https://www.politico.com/f/?id=0000017b-4b93-d185-a97b-7f9f4ff50000
[53] CMAP Socio-Economic Forecast: *https://www.cmap.illinois.gov/data/data-hub.*
[54] Kane County 2040 Plan. "In Kane County, the number of foreign-born residents increased from 4.0% in 1970 to 15.7% in 2000. From 2000 to 2010, the foreign born population increased to 18.2%. As of 2010 Latin Americans and Asians make up the largest total population of foreign born residents in the County, 13.6% and 2.1% respectively."
[55] RW Ventures analysis of Census data (Table DP05), 2021. Note that white, Black, and Asian percentages are all *not* Hispanic or Latino.
[56] US Census ACS 5-Year Estimates, 2021
[57] Census Table S1701
[58] Census Table S1701
[59] Census Table S1501
[60] Census Table DP03
[61] Census Table S1701
[62] Mass Economics analysis of QCEW data
[63] Census Table DP03. Also see: CMAP (2022), Inclusive Growth Analysis. Available at: https://www.cmap.illinois.gov/documents/10180/10749/2022-10-18+CMAP+Plan+FINAL.pdf/805cc42e-55c9-98eb-758d-3b52a4f52e5b?t=1669828594013
[64] About 67% of Kane County residents work outside the county's borders.

This could be for several reasons – for instance, the high employment concentration in food manufacturing (and associated low average wages) or high concentration of small businesses (which may offer less competitive wages).

INDUSTRY STRENGTHS

Over the past three decades, the County's establishment concentrations have shifted, with retail declining and professional services rising.[65] Looking more closely at the past ten years, employment growth has shifted towards growth in tradeable sectors[66] such as professional services, management, transportation/warehousing, and manufacturing (see Figure 4).

FIGURE 4: EMPLOYMENT GROWTH, BY INDUSTRY (2010-2021)



Source: data-Fab QCEW; data-Fab QWI

About 50% of the County's area is farmland,[67] but farming is not the County's main industry. Sectors like manufacturing generate around $13 billion in sales (see Figure 5), while farm sales are around $280 million.[68]

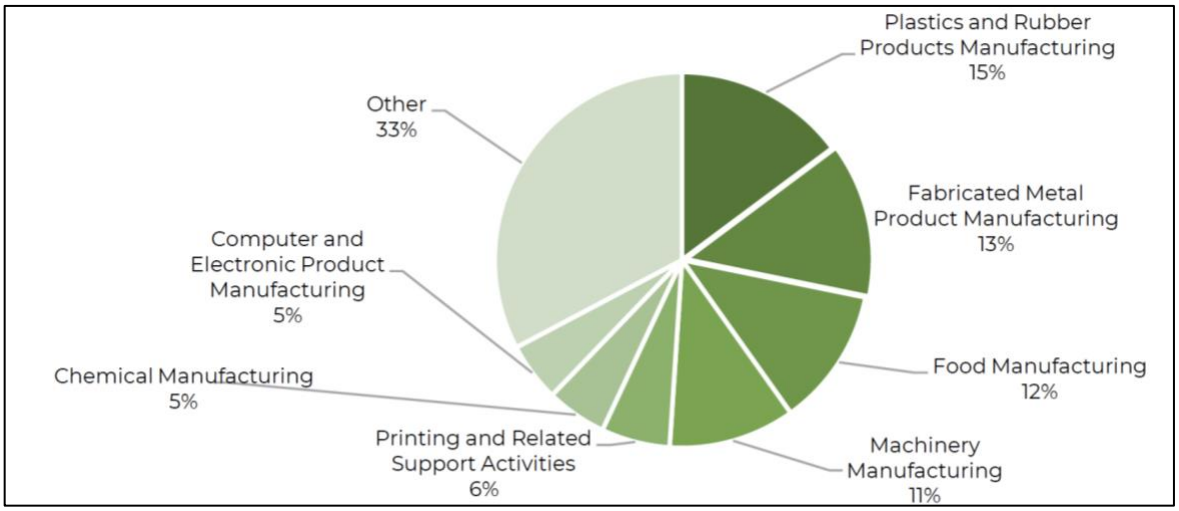
[65] See *History of Kane County* section for more detail.
[66] sectors that sell goods and services in markets outside the region
[67] Census of Agriculture, 2017. County area: 520 square miles (332,800 acres)
[68] The 2017 Census of Agriculture reports around $181 million and 2022 Census of Agriculture reports $284 million. Note that QCEW data reports even less (2D NAICS for "Agriculture, Forestry, Fishing and Hunting" had $16 million in sales in 2017).

FIGURE 5: KANE COUNTY SALES ($M) AND EMPLOYMENT, BY INDUSTRY (2017)

Source: data-Fab, ABS Sales, 2017. Employer Firms Only. Note that the X-axis value for sales is in millions.

Manufacturing is also the largest sector by employment – over 30,000[69] (see Figure 5) – and thus, has the largest earnings of all sectors.[70] The sector's employment is concentrated in plastics and rubber products, fabricated metal products, food, and machinery (see Figure 6).

FIGURE 6: MANUFACTURING SUB-INDUSTRY EMPLOYMENT



Source: GCEP, Economic Profile of Kane County, October 2023.

[69] 34,500 in 2017. 30,776 in 2021. Source: QCEW.
[70] Source: Bureau of Economic Analysis, Earnings by Industry.

Manufacturing employment, nationally, was significantly affected by COVID-19.[71] This was true in Kane County as well, with employment losses in metalworking technology, production technology and heavy machinery, and metal manufacturing (see Figure 7). In addition, COVID impacted employment in traded clusters including financial services, information technology (IT) and analytical instruments, and transportation and logistics.[72] Although employment levels have begun to recover, opportunities and challenges in these clusters have changed. For instance, supply chain disruptions have led to massive federally-driven reshoring investments,[73] and Kane County has an opportunity to strengthen its local and regional supply chains in response (see *Metals and Machinery* section for more detail). Many of these sectors are further impacted by digitization and AI trends that are changing workforce needs and business operations.

[71] https://www.bls.gov/opub/ted/2022/u-s-manufacturing-output-hours-worked-and-productivity-recover-from-covid-19.htm#:~:text=After%20the%20COVID%2D19%20pandemic,declines%20since%20World%20War%20II.

[72] Looking at COVID impacts on employment broadly, from the start of 2019 to end of 2021, Kane County employment levels fell around 0.5%, which is worse than the MSA (+ 0.17%).

[73] For instance: the $1.9 trillion American Rescue Plan Act, the $1.2 trillion Infrastructure Investment and Jobs Act, the $280 billion CHIPS and Science Act, and the $411 billion Inflation Reduction Act

FIGURE 7: EMPLOYMENT CHANGE, BY CLUSTER (Q1 2019 – Q4 2021)

Source: data-Fab QCEW, data-Fab QWI. Note: Not included are clusters with employment < 1,000 (in Kane County in Q4 2021), and e-Commerce (due to its emerging nature and unclear definition).

EXPORTS/FDI

The Chicago metropolitan area is the fourth largest exporter in the United States, behind Houston, New York and Los Angeles.[74] It's primary exports are chemicals, computers and electronics,

[74] 2020 data. Available at: https://blog.trade.gov/2021/08/03/trade-at-the-local-level-2020-metropolitan-export-data-now-available/

transportation equipment, machinery and agricultural products[75] - and, the latter three are Kane County strengths. Kane County has a high concentration of machine shops, which may present an opportunity to scale exports. This will be explored in more detail in the *Strategies* section.

About 5% of Kane County companies are foreign-owned, just below the MSA rate 5.7%.[76] The greatest percentages of foreign owned companies are in manufacturing, retail and professional services.[77] With respect to Foreign Direct Investment (FDI), manufacturing likely presents the most opportunity for FDI growth due to the diversity of products produced in Kane County as well as the opportunity for ownership transition for many of the County's small and locally owned manufacturers. Growing FDI will be related to building the County's efforts to support existing businesses, particularly those that are foreign-owned.

LOOKING AHEAD

Kane County has opportunities to strengthen this industrial base, responding to challenges and opportunities created by COVID, digitization, reshoring, and emerging industries like the energy economy – while also nurturing its roles as a bedroom community and agricultural economy. The County also has an opportunity to drive more sustainable, longer-term growth by developing strategies that expand wealth creation opportunities to populations that typically have not had access to them – in addition to prioritizing climate-centered growth interventions. The market analysis that follows assesses Kane County's assets and challenges, in order to then develop strategies to inclusively and sustainably grow its economy.

[75] 2020 data. Available at: https://blog.trade.gov/2021/08/03/trade-at-the-local-level-2020-metropolitan-export-data-now-available/
[76] Note there is a decent amount of variation in foreign-owned estimates depending on the data source and definition of foreign-owned. The most recent BEA data (2012) reports 5.1% foreign ownership in Kane County, defined as companies with at least 10% ownership outside of the US. Other sources (e.g., Pitchbook) strictly look at companies that have a headquarters in a foreign country but an office in Kane County, and then the result is closer to 1% for Kane County.
[77] NETS 2022

MARKET ANALYSIS

Developing an asset- and market-based business plan for inclusively and sustainably growing Kane County's economy requires in-depth analysis of County assets and of the market levers which influence how well they are being developed and deployed. The sections below provide that deeper analysis across:

1. Clusters
2. Human Capital
3. Innovation & Entrepreneurship
4. Governance
5. Spatial Efficiency

The analysis is informed by an extensive data review, interviews with local and regional stakeholders, and literature review. See *Appendix* for a more detailed list of data and interviewees.

I. Clusters

Clusters are industry-based concentrations of firms and related economic actors and institutions that, because of their proximity and close interactions, experience greater efficiency and productivity. This is due to reduced transaction costs, shared labor pools and other inputs, knowledge exchange and similar benefits. Even if not explicitly organized, clusters exist naturally in the economy: certain firms and related actors co-locate because of these benefits. Formally identifying and analyzing clusters enables targeting the most promising ones and designing initiatives to deliberately strengthen them through addressing cluster-specific challenges and seizing opportunities.

The cluster assessment first started with a broad scan of clusters across both the Chicago MSA and Kane County economy. An overall picture of the region's and County's existing strengths is shown in Figure 8 and Figure 9:

- Clusters that are both strong (Location Quotient [LQ][78] greater than 1) and growing, as compared to the nation, are in the upper right quadrant ("strong and competitive")
- Those that are weaker (LQ less than 1) but experiencing growth are in the lower right quadrant ("emerging")
- Those that have been experiencing declining growth are either in the upper left quadrant ("strong but slipping") or lower left ("deteriorating").

[78] Location Quotient (LQ) measures a region's industry specialization relative to the US. For example, an LQ of 1.0 in Metals Manufacturing means that the region and the nation are equally specialized in Metals Manufacturing; while an LQ of 1.8 means that the region has a higher concentration in Metals Manufacturing than the nation. See: https://www.bea.gov/help/faq/478#:~:text=A%20location%20quotient%20(LQ)%20is,area%2C%20employment%2C%20etc

FIGURE 8: CHICAGO MSA CLUSTER STRENGTHS

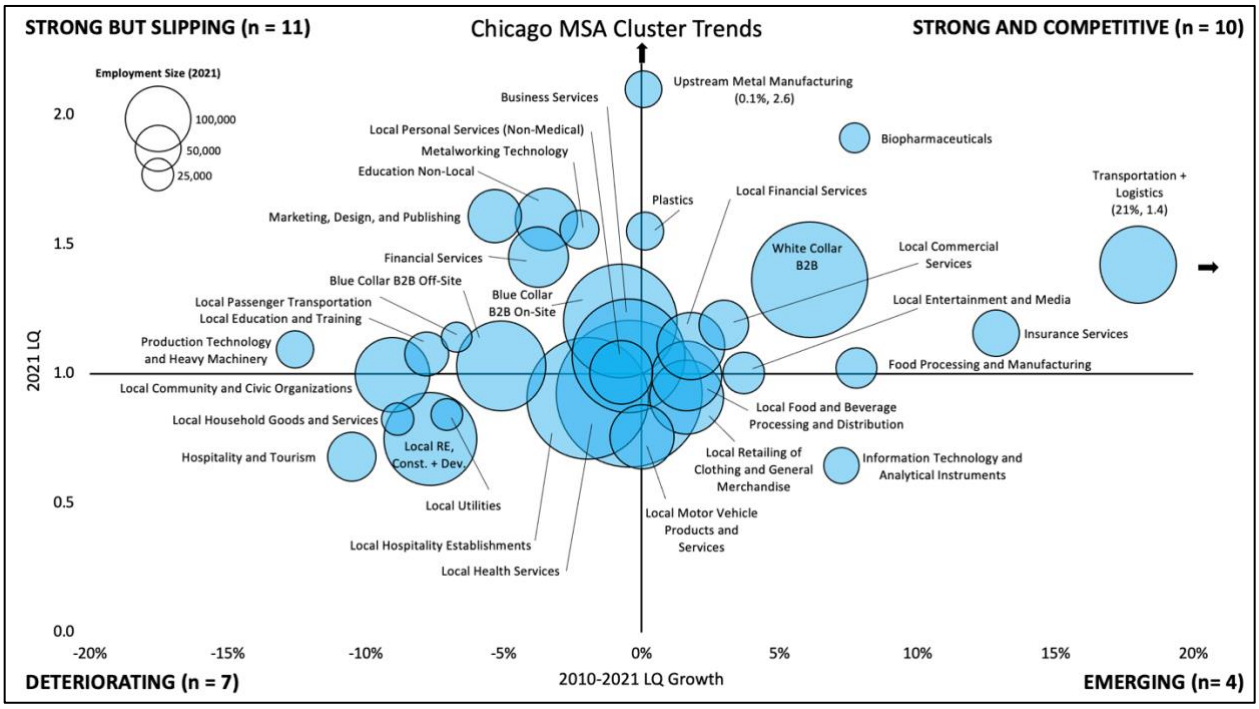
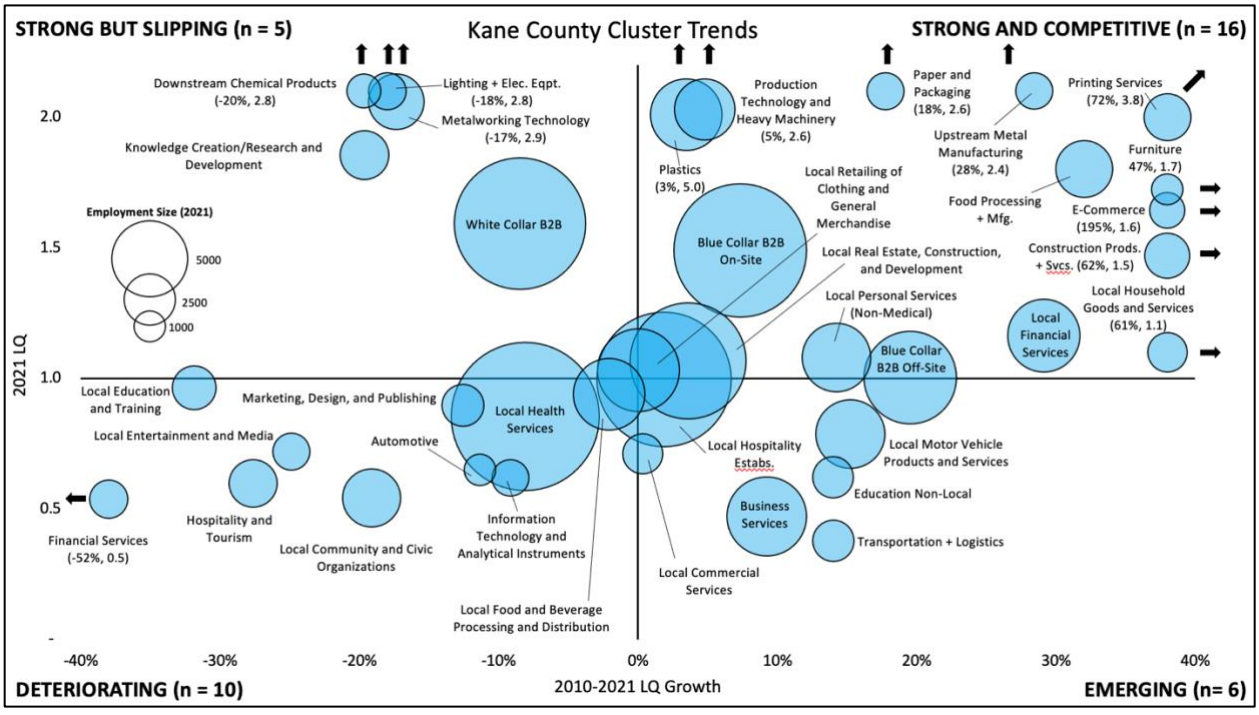


FIGURE 9: KANE COUNTY CLUSTER STRENGTHS



The cluster assessment then distinguished between local, regional and traded industries/clusters:

- *Local industries* – industries that sell goods and services within the local area
- *Regional industries* – industries that serve the metropolitan region[79]
- *Traded industries* – industries that sell goods and services in markets outside the metropolitan region

Traded industries primarily drive economic growth, though regional industries can play a key role as well, particular in growth of sub-regional geographies where they concentrate, as in Kane (see "Economic Geographies and Key Industries" call-out box). Of the clusters plotted above, those assessed in more detail are traded and regional clusters that meet key criteria to provide an inclusive economic growth opportunity (see Table 4).

[79] Lynch, Teresa and Robert Manduca (2023). "Beyond Local and Traded: Evidence for a Third Industry Market Area Type and Implications for Regional Economic Development." Draft.

TABLE 4: KEY CRITERIA THAT AID IN THE SELECTION OF CLUSTERS

Impact Type	Key Criteria
Economic Growth Opportunity: Cluster Strength & Growth Potential	Builds from strong, underlying regional assets • Exhibits a large employment and firm base • Exhibits above-average concentration of employment or gross product • Preferably already growing/concentrating • Leverages institutional and other assets Exhibits potential for economic growth: • Market expectations to grow nationally or globally • Export potential • High employment multiplier
Inclusion Impact: Alignment of Cluster with Inclusion Opportunities	Presents opportunities for BIPOC firms & entrepreneurs • Existing BIPOC presence in the cluster (and its institutions); • BIPOC presence in related businesses that could transition to cluster • Opportunities lend themselves to participation by BIPOC entrepreneurs: lower barriers to entry, etc. Presents opportunities for BIPOC employment: • Jobs for which BIPOC labor force are qualified or can be upskilled; good career ladders • Provide living wages and other benefits • Accessible (nearby or by reasonable transit) Other Community and Economic Development Impacts: • Facilities locations • Product impacts
Other Criteria:	• Addresses climate change, for instance by producing goods/services that contribute to climate change mitigation and adaptation, operations of firms within the cluster are “greening”, etc. • Exhibits a high degree of existing organization and leadership • Exhibits opportunities for and challenges to growth that are amenable to strategic intervention • Has unusual externalities justifying philanthropic and public investment

High-growth-potential, tradeable clusters that meet key criteria include:

- Metals & machinery
- Food & beverage manufacturing & packaging
- Transportation, distribution & logistics (TDL)
- Business services

A snapshot of these four clusters is provided in Table 5, and each is assessed in more detail in the sections that follow. In addition, given the legacy strengths of Kane County's farms and their future opportunities, the Agriculture industry is assessed in more detail.

TABLE 5: KEY CRITERIA ACROSS EACH OF THE HIGH-GROWTH-POTENTIAL CLUSTERS

		Economic Growth Opportunity				Inclusion Impact		
Sector	Establishments	Est. LQ, MSA green = high concentration	Est. LQ, County green = high concentration	Emp. LQ, MSA (10 yr growth) green = strong growth	Emp. LQ, County (10 yr growth) green = strong growth	Wages ($) green = > $70 (MSA avg is $75.9)	% BIPOC green = > MSA avg 42%	% < Bachelor's green = >= 60% (lower barrier to entry)
Agriculture	See Census of Agriculture data (which is provided in a different format than the values below). This industry was assessed for its legacy strengths in Kane County and the fact that farmland accounts for 50% of Kane County land.							
TDL	1,907	1.4	1.5	1.3 (25%)	1.3 (22%)	$74.5	37%	73%
Food & Beverage Manufacturing & Packaging	281	1.1	1.3	1.2 (14%)	2.2 (13%)	$64.8	51%	79%
Business Services	4,349	1.1	1.1	1.2 (20%)	1.0 (18%)	$57	43%	73%
Metals & Machinery	375	1.4	2.4	1.0 (-4%)	1.5 (-1%)	$72.7	43%	78%

Source: data-Fab QCEW; data-Fab QWI

Each cluster/industry analysis is organized into four parts:

- **Cluster Definition** - A high-level description of what companies and activities constitute the cluster. See *Appendix* for the specific North American Industry Classification System (NAICS) codes used for quantitative analysis.
- **Market Observations** – Global and national trends, opportunities and challenges.
- **Kane County's Assets and Market Position** – Kane County's unique assets that can be leveraged to grow the cluster or sub-cluster(s) into a globally competitive sector.
- **Assessment** – The potential products, services, programs and initiatives relevant to the cluster's opportunities in Kane County.

As the clusters are assessed, a few considerations that impact the analysis include:

- Within each of these clusters/industries, there are significant opportunities to address the challenges and opportunities that are resulting from reshoring, digitization, and climate change – and these will be key considerations in order to build globally competitive, high-growth clusters.
- These clusters are contributors to the region's high volume of exports – particularly Metals & Machinery, Transportation & Logistics, and Agriculture. In evaluating opportunities in these clusters, there is also opportunity more broadly to connect with new markets in new geographies. This will be explored in the *Strategies* section.

- Developing a plan like this for a sub-part of the metropolitan region presents the challenge that the relevant ”place” – the geography of the economic activity -- will vary depending on the asset or activity. Sub-geographies may contain specializations of major industries – for instance, the Chicagoland region has a highly productive food manufacturing sector, and its packaging industries are concentrated in Kane County. For any particular industry or firm, strategies must determine the optimal combination of developing select industry specializations within Kane and growing Kane’s industries through their connections to metropolitan-wide industrial activity. This combination will be highly case-specific and continually evolving.

Metals & Machinery

CLUSTER "DEFINITION"

Metals – both ferrous or nonferrous (based on their iron makeup) – are cut, shaped and molded into finished products by metals and machinery companies. Metals and machinery clusters typically include primary metals, fabricated metals and machinery companies. These industries, together, form a supply chain that begins with raw metal, transforms it into fabricated parts, and further makes those parts into machinery – serving a variety of industries including agricultural, construction, building equipment, power transmission equipment, and more.

The metals and machinery cluster analysis is subdivided into the following sub-clusters:

- **Primary metals** - the refining of metal ore or scrap metal
- **Fabricated metals** - shaping, welding and assembling metal into a finished product
- **Machinery** - products that apply force, e.g., industrial or commercial machinery
- **Transportation Equipment Manufacturing -** a subset of machinery; transportation equipment for road, rail, air, and water

Industry codes can be found in the Appendix.

GLOBAL MARKET OBSERVATIONS: MANUFACTURING

Manufacturing trends, broadly, significantly impact the metals and machinery cluster (as well as food and beverage manufacturing and packaging, and transportation and logistics – which are explored in the next two sections).

Massive federal investments, reflecting next economy opportunities and imperatives, are currently driving US manufacturing growth - including the $1.9 trillion American Rescue Plan Act, the $1.2 trillion Infrastructure Investment and Jobs Act, the $280 billion CHIPS and Science Act, the $411 billion Inflation Reduction Act, and substantially increased defense spending.[80] These investments are encouraging reshoring,[81] which has been accelerated in the wake of COVID-19 supply chain disruptions.[82] This has resulted in significant increases in manufacturing-related construction – as of late 2023, the rate of construction had tripled the average rate from the 2010s.[83]

These investments, and digitization trends, have also encouraged advanced manufacturing growth.[84] Technological change is moving the future of manufacturing towards real-time decision making, real-time modifications and smart factory lines.[85] Digitization in manufacturing ranges from computing process improvements to increase efficiencies,[86] to integration of Computer Numerical Control (CNC) machining (a pre-programmed manufacturing process that creates

[80] Katz, Bruce. "How Cities Can Thrive in the New Industrial Era." January 18 2024. The New Localism.
[81] Katz, Bruce. "How Cities Can Thrive in the New Industrial Era." January 18 2024. The New Localism.
[82] https://www.alliedmarketresearch.com/metal-and-metal-manufactured-products-market#:~:text=The%20global%20metal%20%26%20metal%20manufactured,a%20collapse%20in%20metals%20demand, https://www.areadevelopment.com/manufacturing-industrial/q1-2024/manufacturing-momentum-is-building.shtml
[83] https://www.areadevelopment.com/manufacturing-industrial/q1-2024/manufacturing-momentum-is-building.shtml
[84] Katz, Bruce. "How Cities Can Thrive in the New Industrial Era." January 18 2024. The New Localism.
[85] https://www.automation.com/en-us/articles/february-2024/advanced-technologies-transforming-manufacturing
[86] https://www.automationworld.com/factory/iiot/article/21206436/digitization-a-case-for-manufacturing

shapes/products through subtraction),[87] to smart factories that provide communication with automated guided vehicles and mobile robots.[88] Digitization trends also impact the skills needed for future careers – not just in welding, forging and repair[89] but also for technicians, analysts,[90] and cybersecurity professionals.[91]

Climate change is also driving growth, particularly demand for (and federal investment in) electric vehicles and electric batteries, renewable energy, innovations in the electric grid, energy storage, consumer products and green building components.[92] In addition, ESG goals increasingly drive investments that reduce energy consumption and make environmental commitments in product design, sourcing, production, distribution, and after-market.[93] This has resulted in many manufacturers retooling their operations for efficiency improvements.[94]

Given these trends, manufacturing is poised to grow – and this translates to broader economic growth: manufacturing has one of the highest multiplier effects of any sector and drives much of the rest of the economy: for every $1.00 spent in manufacturing, there is an impact of $2.68 to the overall economy.[95] It also is the nation's largest source of commercial innovation.[96] But, to allow for the re-industrialization of the US, systems-change is needed – not just growing an advanced manufacturing initiative but also upskilling the workforce with advanced manufacturing skillsets, providing entrepreneurial support, building supply chains, growing corporate and academic innovation, and enabling the efficient movement of goods.[97]

GLOBAL MARKET OBSERVATIONS: METALS AND MACHINERY

Globally, the metals manufacturing market size is projected to reach $4.5 trillion by 2026, at a Compound Annual Growth Rate (CAGR) of 7.3% from 2022 – 2026.[98] Looking at other reports and approximations of the sub-markets:

- **Primary Metals Manufacturing**: $222 billion (CAGR 3%, 2022-2026) [**Note: US only*][99]
- **Metal Fabrication**: $29.5 billion by 2029 (CAGR 4.7%, 2022-2029)[100]
- **Machinery**: $5 trillion by 2026 (CAGR 9.2%, 2022 – 2026)[101]
- **Transportation Manufacturing**: $7.6 trillion (CAGR 10.9%, 2020 – 2022)[102]

[87] https://interestingengineering.com/innovation/how-is-cnc-machining-changing-the-manufacturing-industry
[88] Deloitte 2022 Manufacturing Review & national trend summary document
[89] https://www.cedefop.europa.eu/en/data-insights/metal-machinery-workers-skills-opportunities-and-challenges-2019-update
[90] e.g., technicians to troubleshoot CNC machining processes, analysts to assess manufacturing process data and make quality or efficiency adjustments
[91] Deloitte 2022 Manufacturing Review & national trend summary document
[92] Katz, Bruce. "How Cities Can Thrive in the New Industrial Era." January 18 2024. The New Localism.
[93] Deloitte 2022 Manufacturing Review & national trend summary document
[94] For example, using recycled metals to fabricate parts. https://www.tfgusa.com/innovations-in-parts-fabrication/
[95] National Association of Manufacturers (NAM) calculations using 2020 IMPLAN data
[96] https://www.brookings.edu/wp-content/uploads/2016/06/0222_manufacturing_helper_krueger_wial.pdf
[97] Katz, Bruce. "How Cities Can Thrive in the New Industrial Era." January 18 2024. The New Localism.
[98] https://www.einnews.com/pr_news/579339160/global-metal-manufacturing-market-size-and-market-growth-opportunities
[99] https://www.marketresearch.com/First-Research-Inc-v3470/Primary-Metals-Manufacturing-32048662/
[100] https://www.databridgemarketresearch.com/reports/global-metal-fabrication-market
[101] https://www.einnews.com/pr_news/574528102/global-machinery-market-size-and-market-growth-opportunities
[102] https://www.thebusinessresearchcompany.com/report/transportation-manufacturing-global-market-report

Machinery and Transportation Equipment Manufacturing have the largest share of the Metals and Machinery market value as well as the highest projected growth. Machinery manufacturing growth may be accelerated even further with demand from increased defense spending.[103]

In addition to the trends affecting manufacturing broadly – digitization trends, climate change, and reshoring – materials innovation is impacting the metals and machinery sector. To respond to shortages in raw materials, as well as the need for lightweight products (that still maintain their structural qualities), innovation in materials is resulting in new metal alloys or new composites,[104] such as magnesium and aluminum alloys, polymer composites, and carbon fiber.[105] Processes like 3D printing provide manufacturing options for new material composites that can result in high-strength, complex, lightweight structures[106] – in addition to just-in-time production.

Many legacy metals manufacturers need to retool to capture future growth opportunities – ranging from integrating process improvements to advanced manufacturing techniques to product innovation to serve new markets. For instance, many machinery manufacturers are in need of new business models to build low-carbon product offerings that meet customers' needs.[107]

The tremendous growth opportunities in manufacturing also present wealth creation opportunities for populations that have typically been left out. In the metals and machinery sector, women and BIPOC employment levels are low (see Table 6). There is opportunity to improve diversity of this sector's employment base – and in addition, improve diversity of ownership (either through company acquisition or increased entrepreneurship in high-growth sectors).

TABLE 6: METALS & MACHINERY: GENDER AND RACE BREAKDOWN OF EMPLOYMENT BY INDUSTRY

	Total employed (in thousands)	2021, Percent of total employed				
		Women	White	Black or African American	Asian	Hispanic or Latino
Primary metals and fabricated metal products manufacturing	1,539	16.6	87.9	6.7	2.8	15.4
Machinery manufacturing	1,170	23.1	81.8	10.3	5.0	10.8
Transportation equipment manufacturing	2,466	25.4	77.4	13.6	6.2	13.8

Source: https://www.bls.gov/cps/cpsaat18.htm. Note: This data is provided by 2D NAICS, whereas this chapter's cluster definition of Metals & Machinery – and its subclusters - is based on groups of 6D NAICS, as outlined in the Appendix. These categories loosely align but not fully.

[103] IBISWorld
[104] https://link.springer.com/article/10.1007/s11837-018-3224-2
[105] https://www.tfgusa.com/innovations-in-parts-fabrication/
[106] https://www.tritool.com/blog/reaching-new-heights-how-new-trends-are-accelerating-innovation-in-the-aerospace-manufacturing-industry
[107] https://www.bain.com/insights/great-retooling-for-sustainability-is-a-huge-opportunity-global-machinery-and-equipment-report-2022/

KANE COUNTY'S ASSETS AND MARKET POSITION

Firm presence and sector strengths

The Metals and Machinery cluster employs over 130,000 people in the MSA with 7% of the workforce in Kane County. However, the Kane County Metals and Machinery workforce is more concentrated than the MSA, with an LQ of 1.5 (and even higher when looking at establishments, with an LQ of 2.4). It also is slightly more stable in the County than the MSA, with employment losses over an 11-year period at just 1% (see Table 7).

TABLE 7: METALS AND MACHINERY – CLUSTER SNAPSHOT

	US	Chicago MSA	Kane County
Establishments	112,572	4,731	375
Employment	4,427,869	135,857	9,519
Emp. % Change (2010-21)	12%	-4%	-1%
LQ (establishments)		1.4	2.4
LQ (employment)		1.0	1.5
LQ Emp. % Change (2010-21)		-8%	-4%
Average wage ($000)	$74.0	$78.6	$72.7
% BIPOC employment		43%	43%
% Female employment		24%	25%
% <= Assoc. Degree (25+)		78%	78%

Source: data-Fab QCEW; data-Fab QWI.

Most manufacturers in the County are small Tier 2 or 3 suppliers to a variety of markets and do not necessarily do business with one another.[108] They produce widgets and components such as switches, gears, screws, controls, and motors – for industries such as heating, ventilation and air conditioning (HVAC), automotive, agricultural, and appliances. [109]

The County has a particularly high concentration of machine shops and miscellaneous manufacturing.[110] The largest machine shops (with sales over $3M) do custom engineering/machining of steel, as well as other materials, including plastics and composites. They can make custom components for a large variety of markets - with many serving the automotive market. For instance, the largest companies do:

- Custom engineered forged steel components for several markets, many auto-related (including tractors)

[108] interviews

[109] Examples of companies producing these items include:

- Otto Engineering – manufactures control switches and two-way communications products.
- Revcor, Inc. – advanced airflow technology to manufacture metal and plastic wheels, fans, and blowers for use in the heating and air conditioning, automotive, agricultural, ventilation, appliance, and off-road original equipment manufacturer market. (Big Ass fans is one of their customers)
- Flender Corporation – gear boxes for wind turbines, etc.
- Bison Gear – motors
- Scot Industries – specialty tubing manufacturer

[110] ESRI manufacturer list; the highest NAICS concentrations are Machine Shops (with 61 establishments) and "miscellaneous manufacturing" with 58 establishments.

- Contract manufacturing for markets such as aerospace & defense, heavy equipment, commercial energy
- Designing/manufacturing of tube, pipe, and roll form tooling – serving markets such as automotive, home appliance, building products

The County's firms are responding to digitization trends across manufacturing, with specialties in CNC machining[111] and 3D printing.[112] The County doesn't have a niche or specialty, as it also has concentrations of tool, die and mold companies (e.g., Wauconda Tool & Engineering, Lion Tool); fabricators (e.g., Custom Aluminum Products); and machinery manufacturers (e.g., Haumiller Engineering). Related industries include chemical companies (e.g., United Laboratories, Hexion Specialty Chemicals) and electronics manufacturers (e.g., Grayhill), as well as packaging companies.

Interviews commented on the potential to scale the manufacture of clean tech products to supply high-growth markets such as EVs or energy storage. Many distribution and logistics companies are electrifying their fleets (e.g., FedEx, UPS) and demand for energy infrastructure is increasing to support this change. The Chicagoland region could support growth in the manufacture of EVs and associated infrastructure.[113]

Rates of female and BIPOC ownership are low across the County as they are across the MSA and nation.

The Chicagoland region's advanced manufacturing strengths intersect with: aerospace, chemical, metal, electrical equipment, medical devices, metalworking technology, plastics, and production and heavy machinery – and, reshoring presents enormous opportunity to grow manufacturing sectors in the US.[114]

Human Capital

Kane County has a strong manufacturing workforce, which will need continuous upskilling. In particular, there is a need for upskilling to meet demand for increased digitization in manufacturing and clean-economy-related growth. About 25% of jobs within the clean economy are in manufacturing.[115] Future digital manufacturing careers will require mechanical, electrical, automation and software skills (which will create jobs to replace those at risk of automation).[116]

Community colleges in Kane County have several programs to upskill manufacturers, and many are responding to employer-stated workforce shortages like welders and technicians.[117] Elgin Community College's planned advanced manufacturing center will focus on CNC machining HVAC-R, energy management, industrial maintenance and mechatronics, welding, and 3D printing.

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[111] e.g., Stanley Machining and Tool Corporation
[112] For example, companies include Met-L-Flo, UnionTech, 3D Resin Solutions, Beckatt Solutions. Met-L-Flo prints with metals.
[113] CMAP (2022), Inclusive Growth Analysis. Available at: https://www.cmap.illinois.gov/documents/10180/10749/2022-10-18+CMAP+Plan+FINAL.pdf/805cc42e-55c9-98eb-758d-3b52a4f52e5b?t=1669828594013
[114] CMAP (2022), Inclusive Growth Analysis. Available at: https://www.cmap.illinois.gov/documents/10180/10749/2022-10-18+CMAP+Plan+FINAL.pdf/805cc42e-55c9-98eb-758d-3b52a4f52e5b?t=1669828594013
[115] Muro, Mark, Rothwell, Jonathan, and Devashree Saha, Sizing the Clean Economy: A National and Regional Green Jobs Assessment, Online Publication: The Brookings Institution, 2011.
[116] CEDS; https://blog.wearedrew.co/en/industry-4-0-the-smart-future-of-metalworking
[117] interviews

In addition, Wabaunsee Community College's planned Technical Education Center (TEC) will have similar capabilities. At either facility, there is opportunity to continue curriculum updates to produce many of the skills that will be in demand regionally and nationally (e.g., robotics; technicians and analysts with mechanical, electrical, automation and software skills). More broadly, across the region, there is a need to better align the work of educators, training providers and employers to develop the advanced manufacturing talent pipeline – as well as grow the use of apprenticeships, assist with succession planning, etc. [118]

Manufacturing typically has lower barriers to entry for employment and often provides on-the-job training, or relies on credentialing for hiring rather than two- or four-year degrees. Skills-based training presents opportunities to upskill the region's BIPOC and female workforce to enter this sector. Wages in this sector are generally high, with an average greater than $70,000, and these will likely increase as the cluster continues to digitize and innovate.

Innovation and Entrepreneurship

While there is no notable employer-led research and development in this sector, there is opportunity to improve collaborative innovation – perhaps through college partnerships (see above), partnerships with regional and state organizations (see "other assets" below), or Fermilab partnerships (see *Innovation and Entrepreneurship* section).

Spatial Efficiency

Many metals and machinery firms locate in Kane County because of the transportation and logistics assets – good access to transportation networks as well as land availability.[119] There are several industrial parks in Kane County (e.g., Algonquin Makers Park – includes tool, die, and mold industries), and given the national rise in manufacturing-related construction, there is opportunity for expansion of manufacturing facilities to respond to reshoring trends. See *Spatial Efficiency* section for additional considerations in thinking about industrial expansion and land use in the County.

In addition, Kane County is well-positioned to strengthen its manufacturing partnerships with Mexico (given their potential to become a stronger manufacturing partner with the United States[120]). The CPKC Mexico Midwest Express is the only single-line service connecting Mexico and the Midwest - and passes through Kane County.

Other Assets

Regionally, several organizations are at work to scale manufacturing, including metals and machinery, in Kane County. For instance, they include:

- **Valley Industrial Association –** a membership organization that provides companies with access to local resources to scale their business

[118] CMAP (2022), Inclusive Growth Analysis. Available at: https://www.cmap.illinois.gov/documents/10180/10749/2022-10-18+CMAP+Plan+FINAL.pdf/805cc42e-55c9-98eb-758d-3b52a4f52e5b?t=1669828594013
[119] interviews
[120] https://barberd.substack.com/p/americas-renewed-and-time-tested?utm_campaign=post&utm_medium=web

- **Illinois Manufacturing Excellence Center (IMEC)** – the Illinois representative of the Manufacturing Extension Partnership (MEP) program; IMEC recently launched two Kane-County-specific programs, one to improve Diversity, Equity and Inclusion (DEI) at manufacturers and one to help manufacturers with productivity improvements (e.g., automation, up skilling / career pathways, and operational efficiency solutions).
- **Illinois Defense Network**[121] **–** Given the rise in defense spending and subsequent opportunities for metals and machinery companies, there is opportunity to work with the IDN to connect Kane County manufacturers to defense manufacturing sector supply chains.
- **mHUB –** a hard-tech innovation hub that provides resources for innovators to commercialize new physical products and companies undertaking product development.

There are opportunities to scale production of clean tech products by connecting with regional manufacturers' supply chains, for instance automotive companies working on fleet conversion such as Rivian, Stellantis, Ford, and Lion.[122] There are also federal contracting opportunities; both Elgin and Aurora are home to qualified HUBZones,[123] and companies located here may qualify for preferential consideration in federal contracts.

ASSESSMENT – KANE COUNTY'S OPPORTUNITIES

Kane County's strong manufacturing base serves an incredibly diverse range of markets. Most manufacturers are Tier 2 or 3 suppliers that produce widgets and components for legacy industries including automotive, agricultural, and aerospace. They are not well connected to one another; most metals and machinery firms locate within Kane County for its transportation, distribution and logistics strengths – rather than to access the benefits of clustering near similar firms.

The County's metals and machinery firms have the potential to serve major emerging markets (e.g., EVs, energy storage). However, interventions are needed to grow the cluster, continue its modernization and capitalize on these opportunities. These include acceleration of advanced manufacturing practices, product development and access to new supply chains and emerging "green" and other markets, and a nimbler workforce, with opportunities to continually upskill. To launch programs, there is opportunity to leverage work already underway (e.g., technical assistance and resources provided by IMEC or VIA; Advanced Manufacturing Center being built at Elgin Community College), strengthen connections between manufacturers/entrepreneurs and regional resources (e.g., IMEC, mHUB), or create a new organization (e.g., MAGNET) or center to enhance connectivity of this cluster and scale its presence.

Identifying common needs and opportunities shared by regional metals and machinery firms may be a first step in developing programs (which will help build the shared benefits of the cluster, thus attracting more firms to the area). Programming could include, for instance:

- Providing technical assistance to help manufacturers enter green markets
- Building an innovation center to scale advanced manufacturing practices

[121] CMAP (2022), Inclusive Growth Analysis. Available at: https://www.cmap.illinois.gov/documents/10180/10749/2022-10-18+CMAP+Plan+FINAL.pdf/805cc42e-55c9-98eb-758d-3b52a4f52e5b?t=1669828594013
[122] CMAP (2022), Inclusive Growth Analysis. Available at: https://www.cmap.illinois.gov/documents/10180/10749/2022-10-18+CMAP+Plan+FINAL.pdf/805cc42e-55c9-98eb-758d-3b52a4f52e5b?t=1669828594013
[123] https://maps.certify.sba.gov/hubzone/map#center=41.955298,-88.522611&zoom=10

- Providing consulting services to identify opportunities for manufacturers to jointly bid on projects

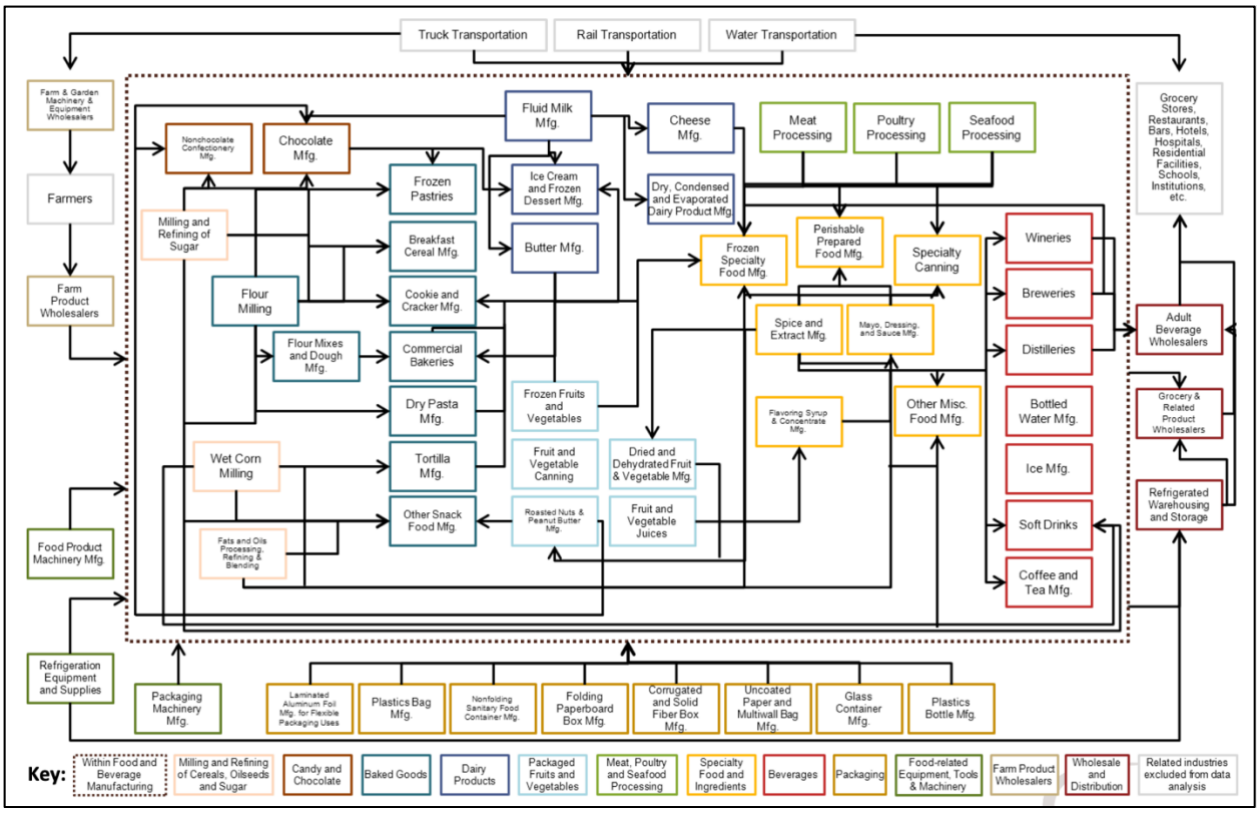
Finally, Kane County is well positioned to address COVID-19's impacts on manufacturing, particularly as reshoring trends are accelerating manufacturing developments across the US. Kane County has the land availability to accommodate manufacturing-related construction expansion, and is located next to strong distribution networks. This provides an opportunity to respond to the need for more domestic supply chains.

Food & Beverage Manufacturing & Packaging

CLUSTER "DEFINITION"

The food and beverage manufacturing cluster occupies the middle section of the value chain that provides consumers with the products they eat and drink. A conceptual diagram of the entire value chain is shown in Figure 10; this demonstrates the complex interrelationships of the agriculture, food and beverage manufacturing, packaging, distribution and retail industries.

FIGURE 10: FOOD CLUSTER MAP



Source: http://rw-ventures.com/wp-content/uploads/2017/01/Chicagoland-FOOD-Report_Final.pdf

This system begins with agriculture production – farms and ranches as well as their inputs (seeds, fertilizers, equipment). The raw agricultural outputs funnel into the **food and beverage manufacturing and packaging cluster**, which creates and packages processed products. Finally, the finished goods reach consumers through food retail and restaurants. The cluster examined here excludes agriculture production (for this analysis: see *Agriculture* section) and retail/restaurants, focusing on the traded cluster within this system that provides the most opportunities for innovation and productivity growth and the highest paying and quality jobs.

Food and beverage manufacturing and packaging can be broken down further into sub-clusters that group common products and activities.[124] The main subclusters are 1) food manufacturing, 2) beverage manufacturing, 3) packaging, 4) wholesaling, and 5) equipment and machinery. Food and beverage manufacturing is further subdivided into its primary product types: dairy products, meat, frozen foods, alcoholic beverages, etc.

GLOBAL MARKET OBSERVATIONS

Industry analysts predict the food and beverages global market will experience between 9 and 10% CAGR over the next several years, growing to $8.9 trillion by 2026. In the U.S., those projections are closer to 5%,[125] with certain subsectors predicted to experience more significant expansion, as discussed below.

Overall, the industry, like many others, went through rapid adjustments during the COVID-19 pandemic. For food and beverage production, the resurgence in grocery and retail purchases motivated renewed investment in new production facilities and products, infusing capital into an industry that had been focused primarily on consolidation and cost-cutting in the prior decade.[126] Those investments will ripple through the industry even as spending patterns have begun to regress to their traditional patterns and are now close to the pre-pandemic projected sales trend lines for both on- and off-premises consumption.[127]

Climate change is further impacting the industry, disrupting growing seasons[128] and causing reduced yields and higher prices, globally.[129] For example, water shortages and increased heat may push fruit/veggie production away from California,[130] which currently grows 70% of it[131] – causing other regions to explore their capacity to grow fruits and vegetables.

For several years, consumers' interest in and demand for food and beverage products have been changing dramatically and rapidly. Some of those trends have been accelerated by the pandemic and have produced growing markets such as:

- **Reshoring and building local supply chains –** Consumers are growing more aware of how far certain products and ingredients must travel to reach factories, and many are seeking options with smaller carbon footprints. These effects are combining to push companies to re-shore and make supply chains as local as possible.[132] This trend is accelerated by the impacts of COVID-19 on global supply, prompting producers to adjust their ingredient sourcing and manage risk. For instance, four large corporations

[124] See *Appendix* for the cluster definition used in this section; this definition was developed through a multi-year analysis of the food and beverage manufacturing and packaging cluster in the Chicago region (see Chicagoland FOOD Report: http://rw-ventures.com/wp-content/uploads/2017/01/Chicagoland-FOOD-Report_Final.pdf).
[125] https://www.grandviewresearch.com/industry-analysis/us-packaged-food-market, https://www.reportlinker.com/p06284446/Food-And-Beverages-Global-Market-Report.html.
[126] https://www.fooddive.com/news/construction-food-and-beverage-2021/607331/
[127] https://rsmus.com/insights/industries/food-beverage/food-beverage-outlook.html
[128] Oborne, A., Buck, M., & Gwin, L. (2015). *Oregon Food Infrastructure Gap Analysis* (Where Could Investment Catalyze Regional Food System Growth and Development). https://ecotrust.org/wp-content/uploads/Food-Infrastructure-Gap-Report1.pdf
[129] Brown, M.E., J.M. Antle, P. Backlund, E.R. Carr, W.E. Easterling, M.K. Walsh, C. Ammann, W. Attavanich, C.B. Barrett, M.F. Bellemare, V. Dancheck, C. Funk, K. Grace, J.S.I. Ingram, H. Jiang, H. Maletta, T. Mata, A. Murray, M. Ngugi, D. Ojima, B. O'Neill, and C. Tebaldi. 2015. Climate Change, Global Food Security, and the U.S. Food System. 146 pages. Available online at http://www.usda.gov/oce/climatechange/FoodSecurity2015Assessment/FullAssessment.pdf.
[130] https://www.climatehubs.usda.gov/hubs/california/topic/climate-vulnerabilities-california-specialty-crops
[131] https://www.globaltrademag.com/states-producing-the-most-fruits-vegetables/
[132] https://www.fooddive.com/news/6-trends-shaping-food-and-beverage-growth-in-2022/616457/.

control more than half the market in beef, pork, and poultry – and if one of their processing plants goes offline, it will cause massive supply chain disruptions.[133]

- **Plant-Based Foods –** Food and agriculture have a tremendous environmental impact; global meat and dairy production alone generates as much GHG as the entire U.S. economy.[134] With consumers' increased awareness of these impacts, there is a move toward plant-based foods and away from meat or dairy. Sales of plant-based food alternatives are projected to increase more than 5x from 2020 to 2030, up to $162B in annual sales.[135] This trend is driving considerable innovation in meat replacements in particular.[136]
- **Free-from Products –** The increased awareness of food allergies and the resulting dietary restrictions have greatly expanded markets for options that do not contain gluten, dairy, or other allergens. This portion of the industry is projected to have 9% CAGR from 2020 to 2030, keeping pace with the overall expansion of the global market noted above.[137]
- **Functional Foods –** Products that promise or provide benefits beyond pure sustenance are experiencing increased demand. Much of this growing demand is among younger consumers, who want food to provide distinct physical benefits (energy, mood, focus) on top of nutrition.[138]
- **Greening agriculture –** Investors are increasingly interested in green agriculture solutions, particularly important given that agriculture generates 19-29% of GHG emissions.[139] Examples include soil quality improvement and alternatives to dairy and animal-based products (e.g., fungi-based proteins).[140]
- **Specialty foods** – In addition to plant-based foods and free-from products (mentioned above), the market for other specialty foods – those that are made from high-quality ingredients in small quantities – is growing. This is partially due to rising demand for nutritious, healthy meals and accelerated by COVID-19's increase of at-home meals.[141]

There is still much room for innovation in food and beverage products as well as processing technology and equipment. This industry tends to lag others in incorporating more advanced and automated manufacturing options but certain trends, like the labor pressures mentioned above, are prompting companies to become more aggressive in their efforts to automate and innovate.

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[133] November 2, 2023 – Heather Cox Richardson

[134] https://www.mckinsey.com/industries/agriculture/our-insights/agriculture-plays-a-critical-role-in-limiting-the-impact-of-climate-change

[135] https://www.foodmanufacturing.com/consumer-trends/blog/22081182/the-top-food-industry-trends-to-expect-in-2022.

[136] See 'Climate Change Risks, Vulnerabilities, and Opportunities by Cluster' memo by Estolano Advisors for more detail. Demand for meat alternatives spiked during the pandemic, reaching 200 percent growth during spring 2020. Though growth rates in retail sales are slowing down (33% increase in 2020 overall compared to a 17% increase in 2021), forecasts still show significant future growth, with one 2020 estimate as high as 140 billion by 2030. See: Sorvino, C. (2022, June 18). Lifeless Market For Meatless Meat. *Forbes*. https://www.forbes.com/sites/chloesorvino/2022/06/18/lifeless-market-for-meatless-meat/?sh=75084ff08f24; Yu, D. (2020, January 19). Plant-Based Foods Are Hot, And They're Only Getting Hotter. Forbes. https://www.forbes.com/sites/douglasyu/2020/01/19/plant-based-foods-are-hot-now-they-just-got-hotter/?sh=5e1c013a214c

[137] https://www.prnewswire.com/news-releases/demand-for-plant-based--allergen-free-foods-are-expected-to-rise-as-consumers-seek-healthier-alternatives-301494678.html

[138] https://www.fooddive.com/news/6-trends-shaping-food-and-beverage-growth-in-2022/616457/

[139] https://www.worldbank.org/en/topic/climate-smart-agriculture#:~:text=Agriculture%20is%20a%20major%20part,is%20either%20lost%20or%20wasted.

[140] "These Are the Biggest Trends in Clean Tech in 2021, Investors Say," Fortune, accessed May 27, 2022, https://fortune.com/2021/02/16/clean-tech-trends-investing-venture-capital-green-investment-trends-climate-change-electric-vehicles-hydrogen-agriculture/.

[141] https://www.thebusinessresearchcompany.com/report/specialty-foods-global-market-report

Digitization trends like use of prescriptive analytics and AI are changing the industry,[142] along with digital innovations like 3D printing food.[143] Several technologies are emerging that improve processing results; for example, individual quick freezing (IQF), which freezes each piece of food by itself, rather than in bulk, increases yields by up to 3%, improves nutritional value, and wastes fewer inputs. Packaging innovations can improve shelf life of products[144] and reduce single-use plastics – for instance, with bio-based or edible packaging.[145] Companies are also working to improve efficiency, especially given the nature of their equipment; packaging machinery has higher likelihoods of failure than other machinery types, prompting food companies to increase attention on predictive maintenance that reduces downtime.[146]

Further advances could address unique challenges of the industry; for instance, there is a common need for machinery that is more flexible than that in other manufacturing sectors, as companies need equipment that can accommodate multiple product sizes and formulations.[147]

Manufacturers are also coping with workforce challenges - an aging workforce is beginning to enter retirement age, without a sufficient pipeline of new employees.[148] With many plants designed around near-constant production over three shifts, staffing disruptions are limiting product supply and companies' ability to increase productivity.[149] That said, sizeable industry investments spurred by COVID-19 impacts have created new job opportunities as new facilities begin to come online.[150] As the industry modernizes, jobs are requiring more training/skillsets, which is translating into better job ladders and better pay. The industry is shifting not just to higher salaries but also better benefits, including deeper support for on- and off-site training.[151]

Finally, there is also room for improvements in diversity within this sector, particularly in executive level and board level positions. The percentage of women and historically marginalized populations in board-level positions within the food industry grew 4% between 2018-2020 as compared to 11% for nonfood companies - and, most food retailers and product suppliers acknowledge that their leadership is not representative of national demographics.[152] However, this sector does provide lower-barrier opportunities in entry-level positions, as many are open to individuals without college degrees and the employment structure provides good job ladders.[153]

KANE COUNTY'S ASSETS AND MARKET POSITION

Firm presence and sector strengths

[142] https://www.plm.automation.siemens.com/media/global/en/DE4FB-Industry-Briefing-Digitalization-In-Food-And-Beverage-66023_tcm27-17780.pdf
[143] https://www.crbgroup.com/insights/food-beverage/6-innovative-food-processing-technologies
[144] https://www.crbgroup.com/insights/food-beverage/6-innovative-food-processing-technologies
[145] https://www.foodnavigator.com/Article/2023/12/21/edible-packaging-which-innovations-are-whetting-consumers-appetites
[146] https://foodindustryexecutive.com/2021/09/packaging-equipment-trends-at-pack-expo-flexibility-robotics-predictive-maintenance/
[147] https://www.globenewswire.com/news-release/2022/06/09/2459384/0/en/Food-And-Beverages-Global-Market-Report-2022.html
[148] https://blog.aibinternational.com/how-to-improve-food-manufacturing-recruitment-amid-the-labor-shortage
[149] https://rsmus.com/insights/industries/food-beverage/food-beverage-outlook.html
[150] https://www.fooddive.com/news/construction-food-and-beverage-2021/607331/
[151] https://www.fooddive.com/news/food-manufacturing-employment-leaps-in-february-as-labor-market-heats-up/619848/
[152] https://www.fooddive.com/news/food-and-beverage-companies-have-room-to-grow-on-diversity-goals-study-fin/605665/; https://www2.deloitte.com/us/en/insights/industry/retail-distribution/diversity-in-the-food-industry.html
[153] RW Ventures, LLC and IMEC, Chicagoland FOOD: Seizing the Opportunity to Grow Chicagoland's Food Industry

The Chicago region's food and beverage manufacturing and packaging cluster is one of the largest among metro areas nationally, with $10.43 billion GRP.[154] It also has the largest food manufacturing workforce nationally. [155] This Chicago MSA workforce has a strong concentration in Kane County (employment LQ 2.2) and has grown in employment over the last 10 years (13%) – see Table 8. Wages, however, are lower in Kane County than the MSA.

TABLE 8: FOOD & BEVERAGE MANUFACTURING AND PACKAGING – CLUSTER SNAPSHOT

	US	Chicago MSA	Kane County
Establishments	155,272	5,018	281
Employment	4,116,384	157,210	13,026
Emp. % Change (2010-21)	14%	14%	13%
LQ (establishments)		1.1	1.3
LQ (employment)		1.2	2.2
LQ Emp. % Change (2010-21)		6%	7%
Average wage ($000)	$62.3	$80.8	$64.8
% BIPOC employment		52%	51%
% Female employment		36%	35%
% <= Assoc. Degree (25+)		77%	79%

Source: data-Fab QCEW; data-Fab QWI.

The cluster contains mostly mid-sized firms, about 300 firms with an average size of 45 employees. These firms range from ingredient/mixing companies (e.g., McCormick) to processors (e.g., Smithfield Food) to distributors (e.g., Sanfilippo & Sons) to food packagers (e.g., Pactiv, Hoffer Plastics[156]). Interviews implied that these firms are not necessarily interconnected; they serve markets across the country and are not part of strong local/regional supply chains.

The subcluster with the strongest concentration in both establishments and employment is "other food related manufacturing" (see Table 9) which includes industries like: manufacture of food packaging, fertilizer manufacturing, plastic/glass/metal container and bottle manufacturing, and food product machinery manufacturing.

TABLE 9: FOOD & BEVERAGE MANUFACTURING AND PACKAGING – SUBCLUSTER DATA

subcluster	Establishments 2021	Establishments LQ 2021	Employment 2021	Emp. share 2021	Employment LQ 2021	Emp. growth 2010-2021
Food-Related Distribution	92	0.7	3,699	2%	1.9	23%
Food & Beverage Manufacturing	84	1.2	4,124	2%	1.5	18%
Other Food Related Manufacturing	105	4.2	5,203	3%	4.1	5%

Source: data-Fab QCEW; data-Fab QWI.

[154] 2023. Source: WBC, https://infograph.venngage.com/pl/yitsgw0kK0
[155] 2023. Source: WBC, https://infograph.venngage.com/pl/yitsgw0kK0
[156] Hoffer Plastics does in-house R&D; for instance, it recently entered its "P15 Tamper Evident Cap and Spout for Flexible Pouch Packaging" in a product competition hosted by Illinois Manufacturers Association.

The cluster has strong related and supporting industries in Kane County:
Plastics Manufacturing cluster – Although this cluster is less than half the size of the food and beverage cluster, it has a strong concentration in Kane County, with LQ (employment) of 5.0. For example, it includes Hoffer Plastics, which has around 400 employees and manufactures packaging for the food and beverage industry, among others.
Paper & Packaging cluster – This cluster is even smaller, with just 1,300 employees – but, like Plastics Manufacturing, it has a strong concentration in Kane County (establishment LQ of 4.3). For instance, York Container produces corrugated packaging (and has a sustainability focus).

In addition, the **Agriculture** cluster has tremendous opportunity to better link to nearby food and beverage manufacturers. At the moment, the cluster predominantly produces corn and soybeans, but should farmland be converted to higher-value and more diversified crops – for instance, fruits and vegetables – these can serve as inputs to Kane County's food and beverage manufacturing cluster. Proximity between growers and manufacturers/packagers will help reduce time-to-market for new crops, and will also help scale the food and beverage manufacturing cluster by connecting it with suppliers (see *Agriculture* section).

Human Capital

Addressing labor shortages in this sector is critical to keeping food and beverage manufacturing plants running. While automation is helping with some labor shortages, there will instead be demand for higher-skilled workers that require more frequent upskilling.

Entry level jobs in the cluster are fairly accessible – 79% of jobs can be accessed with an Associate's degree or less. However, wages in Kane County are low in this sector ($64.8k annually, as compared to $80.8k at the MSA level). There may be opportunity to change this, particularly as the sector modernizes with increased technologies (which is leading to better job ladders and better pay).

The industry is starting to provide more support for on- and off-site training.[157] Creating new targeted training programs could help upskill the County's food and beverage manufacturing and packaging workforce, while also preparing them for higher-skilled jobs. This would also create new wealth creation opportunities for the 51% of this sector that is BIPOC.

Innovation and Entrepreneurship

While there is not much collaborative innovation within this sector in Kane County, there may be opportunities to partner with organizations outside of the County that are driving innovation. For instance, Chicagoland Food and Beverage Network, which is growing the food cluster across the region, or NIU's Center for Community Sustainability, which is working on food systems innovation. Kane County's presence of both food and beverage manufactures as well as farmers makes it a promising test-bed for new products and practices.

[157] https://www.fooddive.com/news/food-manufacturing-employment-leaps-in-february-as-labor-market-heats-up/619848/

Spatial Efficiency

As explored in the Transportation, Distribution and Logistics chapter, Kane County has great access to distribution channels, and space for trucking facilities and warehousing for storage or wholesale. This supports growth of the food and beverage manufacturing and packaging cluster; for instance, US Foods is building new $103M truck fleet facility near Aurora.

Other Assets

Organizations across the region may assist the growth of this cluster, for instance:

- Chicagoland Food and Beverage Network (CFBN)
- NIU Center for Community Sustainability
- Illinois Extension programs

ASSESSMENT – KANE COUNTY'S OPPORTUNITIES

The food and beverage manufacturing and packaging cluster is central to the regional economy, and its workforce has a significant presence in Kane County. However, firms in this cluster are somewhat disconnected and do not share resources or supply chains. There is opportunity to improve connectivity of this cluster, which will help to accelerate its growth.

There is also opportunity to improve the cluster's intersections with the County's farms. While there is very little interaction right now, future agriculture strategies may involve converting farmland to fruit and vegetable farms. If this happens, farmers will need access to manufacturers, distributors and packagers for these products.

The County may be able to improve the center of gravity for both food and beverage manufacturing as well as agriculture – facilitating connections between growers, manufacturers, packagers and end-users – and even building a local farm-to-table cluster. This can be done through existing organizations like the Chicagoland Food and Beverage Network, or a new Kane-County-centric organization.

Across the industry, global trends are increasingly responding to climate change (creating new plant-based foods and sustainability initiatives) and digitization (integrating real-time decision making and process improvements, AI and 3D printing). Kane County has an opportunity to lead the way in digital process improvements and the manufacture of sustainable foods and beverages, provided it can assemble an employer group or university to anchor an initiative, for instance:

- Sustainable food-related packaging innovation
- Creating the market for local sustainable food products – and then scaling nationally
- Integrating automation and precision analytics into manufacturing processes

Transportation, Distribution and Logistics

CLUSTER "DEFINITION"

The Transportation, Distribution and Logistics (TDL) cluster includes:

- **Freight** – air, railroads, sea, trucking, and also local messengers and delivery
- **Freight suppliers** – manufacturing of packaging and machinery to support freight,
- **Freight support** – operations for air, road, and water travel, as well as packaging, warehousing and storage
- **Freight wholesale** – establishments engaged in wholesaling merchandise, often operating in a warehouse

GLOBAL MARKET OBSERVATIONS

Industry analysts predict the transportation and logistics global market will experience a 5.11% CAGR over the next several years, growing to USD 1.8 trillion by 2029.[158] The logistics sector is expected to more than double in revenue in 10 years,[159] resulting in many new jobs created and impacts like lower emissions (as delivery is optimized).

COVID-19 impacted the pace of growth of the TDL sector[160] but also has significantly changed it. [161] The sector's growth is largely due to rise of e-commerce and increasing integration of tech into logistics services, including automation.[162] New technologies like drones, blockchain and 3D printing are rapidly disrupting the sector.[163] This has put increased pressure on online retailers, and has accelerated adoption of new technologies, last-mile delivery solutions and just-in-time warehousing processes.[164]

Workforce demands are changing, with demand increasing for supply chain management, warehouse distribution, and delivery jobs.

KANE COUNTY'S ASSETS AND MARKET POSITION

Firm presence and sector strengths

Transportation, distribution, and logistics (TDL) is one of Illinois' largest traded sectors,[165] and is a legacy industry in the Chicago MSA in part due to its access to distribution networks.

Transportation & warehousing (2D NAICS) had 78% employment growth in Kane County from 2013 to 2023.[166] This may be, in part, because of the County's land area to accommodate warehousing.

[158] https://www.fortunebusinessinsights.com/transportation-and-logistics-services-market-107357
[159] https://www.sobelnet.com/study-forecasts-global-logistics-market-surpassing-16-trillion-by-2032/
[160] https://www.fortunebusinessinsights.com/transportation-and-logistics-services-market-107357
[161] https://www.linkedin.com/pulse/impact-covid-19-transportation-logistics-ankit-kumar/
[162] https://www.sobelnet.com/study-forecasts-global-logistics-market-surpassing-16-trillion-by-2032/
[163] https://www.pwc.com/sg/en/publications/assets/future-of-the-logistics-industry.pdf
[164] CMAP (2022), Inclusive Growth Analysis. Available at: https://www.cmap.illinois.gov/documents/10180/10749/2022-10-18+CMAP+Plan+FINAL.pdf/805cc42e-55c9-98eb-758d-3b52a4f52e5b?t=1669828594013
[165] https://www.intersectillinois.org/key-industries/transportation-logistics/
[166] GCEP, Economic Profile of Kane County, October 2023

Looking more narrowly at the TDL cluster, Kane County again is faring well – with 22% employment growth from 2010-2021 and an LQ of 1.5 (establishments) and 1.3 (employment) – see Table 10. This is on par with the MSA's performance. TDL offers relatively high wages and employment opportunities across the MSA. [167]

TABLE 10: TRANSPORTATION, DISTRIBUTION & LOGISTICS – CLUSTER SNAPSHOT

	US	Chicago MSA	Kane County
Establishments	869,748	36,234	1,907
Employment	10,970,218	441,709	20,209
Emp. % Change (2010-21)	27%	25%	22%
LQ (establishments)		1.4	1.5
LQ (employment)		1.3	1.3
LQ Emp. % Change (2010-21)		4%	3%
Average wage ($000)	$73.5	$82.4	$74.5
% BIPOC employment		42%	37%
% Female employment		33%	32%
% <= Assoc. Degree (25+)		73%	73%

Source: data-Fab QCEW; data-Fab QWI.

Human Capital

The TDL sector is experiencing increased demand for jobs in supply chain management, warehouse distribution, and delivery. [168] The County's community colleges have programs training for TDL careers (see *Human Capital* section). Global trends in this sector are moving towards a more tech-driven workforce, with skills new technologies that are disrupting the TDL sector (e.g., drones, robotics, blockchain, 3D printing). There is opportunity to grow these skillsets not just within Kane County but across the region.

Innovation and Entrepreneurship

Disruption in the TDL sector is creating tremendous opportunity – both to commercialize new technologies and to grow entrepreneurship. The increasing pressure faced by online retailers has increased demand for cloud-based software to manage logistics, in addition to last-mile delivery solutions and just-in-time warehousing processes. Each of these areas present opportunities for new businesses to launch and scale.

[167] CMAP (2022), Inclusive Growth Analysis. Available at: https://www.cmap.illinois.gov/documents/10180/10749/2022-10-18+CMAP+Plan+FINAL.pdf/805cc42e-55c9-98eb-758d-3b52a4f52e5b?t=1669828594013

[168] https://youthbuild.workforcegps.org/-/media/Communities/youthbuild/Files/Post-Program-Placement/Sector-Strategy/Transportation-Distribution-and-Logistics-Industry-Spotlight_Final.ashx

Spatial Efficiency

The Chicago MSA has great access to transportation networks and Kane County in particular has excellent access to distribution networks along I-90 and I-88. TDL companies led in Illinois locations/expansions in 2023.[169] There were 40 business expansions/relocations into Kane County in 2022-23, and many were in warehousing/logistics.[170] Interviewees expressed concern about the traffic and pollution impacts of building large-scale warehouses in the County. See *Spatial Efficiency* section for more considerations.

Other assets

TDL supports growth of other sectors in Kane County – in particular, manufacturing. In the growing Business Services sector, many firms are in Kane County for its TDL strengths. It is a related industry that will enable growth of other segments of Kane County's economy.

ASSESSMENT – KANE COUNTY'S OPPORTUNITIES

The TDL sector is strong and stable in the MSA and has been in Kane County as well. The County's land area and access to distribution networks has made it an attractive location for warehouse construction and expansion, particularly in the wake of COVID-19 and the increased pressure for delivery from online retailers.

Growth of the "freight wholesale" segment of the TDL sector will likely continue in Kane County without much intervention. The County, however, must decide whether warehousing growth is a trend it would like to continue. Growth will continue to happen here unless there is deliberate intervention to focus on other segments of the County's economy.

There may be opportunity for the County to get ahead of the disruptions in the TDL sector. With increased tech innovation creating demand for new modes of operation and new skillsets in the workforce, Kane County has an opportunity to:

- Train the region's future advanced logistics workforce, preparing workers for high-growth careers. To do this, it will be critical to have employers drive the creation of new training programs and curriculums (particularly given the emerging nature of advanced logistics and lack of clear career pathways).
- Create an innovation hub to drive integration of new technologies into TDL operations. The Chicagoland region has noted that there may be opportunity to "establish living laboratories concentrated on emerging technology, such as warehouse and delivery automation, 3D printing, blockchain, and drones to test their applicability in real-world scenarios."[171] Kane County could be the right location for such a lab.

[169] https://www.ibjonline.com/2023/11/07/advanced-manufacturing-tdl-industries-lead-in-analysis-of-companies-that-located-or-expanded-in-illinois/
[170] GCEP, Economic Profile of Kane County, October 2023
[171] CMAP (2022), Inclusive Growth Analysis. Available at: https://www.cmap.illinois.gov/documents/10180/10749/2022-10-18+CMAP+Plan+FINAL.pdf/805cc42e-55c9-98eb-758d-3b52a4f52e5b?t=1669828594013

Business Services

The Business Services cluster includes headquarters and the functions that serve them, from finance to commercial real estate. Business Services constitutes a different kind of cluster, known as a functional cluster (see callout box).[172]

Being in proximity to other headquarters is itself attractive to corporations, as the headquarters benefit from exchanging information on market conditions, industry developments, international trade and so forth.[173] Where there are headquarters, there are supporting business services. Headquarters outsource many operational services, generating demand that supports extensive supply chains of business services firms. At the same time, having a large existing base of high-quality business services firms will continue to strengthen a region as an attractive location for additional headquarters and institutions.[174] Essentially: a larger presence of headquarters in turn attracts and is attracted by mutually reinforcing concentrations of business services, resulting in the emergence of this functional cluster.

FUNCTIONAL CLUSTERS

In contrast to more traditional clusters, where the complementary economic activities which benefit from concentrating tend to be centered within an industry's supply chains – such as auto in Detroit or film in Hollywood – functional clusters reap benefits from concentrating complementary economic functions. In the increasingly global and knowledge-based economy, transportation costs for goods and the costs of managing remotely have decreased, while the value of face-to-face interactions has increased. This has led many corporations to separate functions that previously needed to be in the same place, resulting in urban regions specializing in different parts of the production process.[175] For example, Boeing's manufacturing, headquarters and back-office functions are each in different cities.

Workers are disproportionately attracted to places that offer employment in knowledge intensive industries and occupations such as those in the Business Services cluster (e.g., financial industries, managerial occupations).[176] This means as regional firms become more specialized in different subsectors of the Business Services cluster, their workforce increasingly specializes in skillsets needed to grow these niches.

[172] See: Duranton, Gilles and Diego Puga, "From Sectoral to Functional Urban Specialization," Working Paper. National Bureau of Economic Research: August 2002, https://doi.org/10.3386/w9112.
[173] Lovely, Mary E., Rosenthal, Stuart S. and Shalini Sharma, "Information, Agglomeration, and the Headquarters of US Exporters," Regional Science and Urban Economics 35(2), 167-91:2005.
[174] These businesses benefit from exchanging information on market conditions, industry developments, international trade, etc.
[175] Stuart Rosenfeld, "Industry Clusters: Business Choice, Policy Outcomes, or Branding Strategy?," Journal of New Business Ideas and Trends, 3(2): 2005.
[176] Grads and Fads: The Dynamics of Human Capital Location, available at: http://rw-ventures.com/wp-content/uploads/2017/01/Grads-and-Fads-Paper-Final.pdf

CLUSTER DEFINITION

The Business Services cluster is comprised of the centralized administrative and managerial offices of businesses and the array of services that support them.[177] It includes headquarters, as well as advanced business services like legal, finance, accounting and advertising, and less advanced white-collar business-to-business (B2B) services like payroll processing, call centers and other administrative functions. In addition, it includes blue-collar B2B services (i.e., security, landscaping, building maintenance, distribution).

Business Services subclusters are categorized as primarily being composed of traded, regional or local activities (or a combination).[178] While not all components of Business Services are equally traded, many of the regional or local sub-clusters support traded industries – or support headquarters.

TABLE 11: BUSINESS SERVICES – SUBCLUSTERS BY PRIMARY ECONOMIC ACTIVITY TYPE

TRADED	REGIONAL	LOCAL
Headquarters	Advertising Services	Accounting Services
	Business Services	Advertising Services
	Business Support Services	Facilities Management
	Education/Training/Networking	Local Trucking
	IT Services	Real Estate
	Local Transportation and Logistics	
	Management Services	
	Other Professional Services	
	Real Estate	
	Repair and Servicing	
	Specialized Design Services	

Source (categorization): Lynch, Teresa and Robert Manduca (2023). "Beyond Local and Traded: Evidence for a Third Industry Market Area Type and Implications for Regional Economic Development." Draft.

The Headquarters subcluster[179] is measured as corporate, subsidiary or regional managing offices and the offices of holding companies. This subcluster is the bellwether of economic activity, and operates almost exclusively in traded economic activities. The other subclusters (e.g. Facilities Management, Advertising Services, etc.) are groupings of services that support the Headquarters subcluster and business operations (traded, regional and local) more generally.

- Business Services and Business Support Services are particularly broad categories that include industries associated with administrative business operations (e.g. printing, packaging, employment agencies, etc.).
- Local Transportation & Logistics is primarily composed of industries concerned with local ground passenger transportation (e.g. limousine services, taxi services, etc.).

[177] Just some examples of these varied supportive services include tax preparation services, commercial printing, and public relations management.

[178] Lynch, Teresa and Robert Manduca (2023). "Beyond Local and Traded: Evidence for a Third Industry Market Area Type and Implications for Regional Economic Development." Draft.

[179] For the purposes of this analysis this subcluster is defined as:

- 551111 - Offices of Bank Holding Companies
- 551112 - Offices of Other Holding Companies
- 551114 - Corporate, Subsidiary, and Regional Managing Offices

Note that it likely undercounts headquarters (excluding those that are classified within the industry they operate in).

- Specialized design services mostly include services related to construction (e.g. engineering services, surveying, interior design, etc.).
- Other Professional Services is the broadest subcluster and includes activities which typically have some overlap with other subclusters but are not as easy to directly define (e.g. marketing research and polling, environmental consulting, etc.).

Detailed industry codes for each subcluster can be found in the *Appendix*.

GLOBAL MARKET OBSERVATIONS

Although various market reports use different definitions for Business Services, in general the market is projected to significantly grow globally – partially in response to increased demand for specialized business solutions and technological advancements.[180] Various reports project its size and growth:

- Business Services - $1380.6 billion by 2032 (CAGR 21%, 2023-2032)[181]
- Business Support Services - $747.94 billion by 2024 (CAGR 9.4%, 2023 to 2024)[182]
- Professional Services - $88.03 billion by 2028 (CAGR 6.35%, 2024-2028)[183]

Technological advancement – in particular, AI – is transforming the way business and professional service firms operate. They are collecting large amounts of data, are interpreting this data to improve services delivered to clients, and are automating tasks to make operations more efficient.[184] As technological change rapidly disrupts this sector, the pace of entrepreneurship in this cluster has also increased.[185] The shift to remote work has increased demand for services like remote team management, cybersecurity and virtual collaboration tools.[186] However, it may have the less predictable effects on blue collar services like security (which is dependent on office occupancy rates) and landscaping (which is often dependent on rise of nonresidential construction).[187]

Looking more specifically at headquarters – they have historically been closely associated with city centers, and were used as one of the prime illustrations of agglomeration benefits and city growth. This model broke down in the latter-20th Century with the rise of the suburban business campuses that followed their workforces away from central cities to the more affordable, and decentralized suburbs. In recent years, the paradigm has shifted yet again with attention given to corporations moving away from large suburban campuses and back into central cities. The move away from suburban campuses reflects a move away from in-house product development done in secrecy towards cross-fertilization and collaborative innovation, which in turn prioritizes a highly skilled, highly educated workforce. Corporate suburban-to-urban relocations in the last decade include

[180] https://www.custommarketinsights.com/press-releases/business-services-market-size/
[181] https://www.custommarketinsights.com/press-releases/business-services-market-size/
[182] https://www.researchandmarkets.com/report/business-support-service
[183] https://www.statista.com/outlook/tmo/cybersecurity/security-services/professional-services/worldwide
[184] https://www.saviom.com/blog/5-professional-services-trends-watch/
[185] https://www.statista.com/markets/406/topic/430/business-services/#overview
[186] https://www.custommarketinsights.com/press-releases/business-services-market-size/
[187] https://blog.marketresearch.com/opportunities-in-the-business-services-sector

central office shifts for General Electric, Walgreens, Motorola Solutions, McDonalds and Kraft Heinz.[188]

At the same time, suburban offices have sought to remain competitive – improving their connectedness in the regional economy and attracting knowledge workers (which in turn, increases amenities to support the workforce).[189] Recent changes in how work is done may also have a significant impact on where headquarters choose to locate. The wide-spread adoption of hybrid and remote work reflect a reprioritization of time at home versus time spent at the office. Workers increasingly care more about minimizing commutes, and demographic reports show workers, particularly millennials, are increasingly moving to the suburbs. Experts predict these changes will significantly benefit suburban offices over the coming years, making suburban headquarters more common than before. But, given the importance of collaboration and connectedness in the next economy, it is likely that suburban headquarters will concentrate around particular industries (making it all the more important that Kane County to be deliberate in the industries it wants to grow and become known for – see *Governance* section). The rise in workers in suburban locations may in turn increase amenities – for instance with mixed-use, transit-oriented development policies. These policies seek to encourage highly active, dense and well-connected places.

KANE COUNTY'S ASSETS AND MARKET POSITION

Firm presence and sector strengths

The Chicago MSA is home to a strong functional cluster of Business Services, including headquarters and anchor institutions like hospitals, universities and government. In Kane County, Business Services comprises 22% of County employment (see Table 12) – and, over the past three decades, the County's proportion of professional services[190] establishments (which includes Business Services) has been rising.

The cluster is made up of local, regional and traded industries – and the presence of local industries means its LQ across the region will be closer to 1.0 (as most locations across the country have similar concentrations of Business Services to support their local economy).[191] For this cluster in particular, it is therefore important to dive deeper into its sub-clusters[192] to determine Kane County's specializations within the traded and regional industries of this cluster.

[188] General Electric moved from Fairfield, CT to Boston, MA in 2016 (see; https://www.urban.org/urban-wire/massachusetts-gave-ge-mega-deal-move-did-it-matter); Kraft Heinz moved from suburban Illinois to downtown Chicago (see: https://www.chicagotribune.com/2015/07/16/kraft-heinz-headquarters-to-move-to-chicago/)

[189] The hallmark example of this kind of transformation is the reimagining of the former Bell Labs in Holmdel, New Jersey into the thriving "metro burb" of Bell Works. This former suburban business campus now boasts Class A offices along with an entertainment venue, retail shopping, exercise classes, dental offices and a weekly farmer's market. The amenity-rich campus is an attractive alternative for workers that live outside of the central city, but want to engage in a diverse, multi-use built-environment. The success of the development has launched similar ventures across the country including the former AT&T campus in Hoffman Estates, Illinois, and is becoming a key model for ambitious office redevelopment strategies.

[190] 2-digit (2D) NAICS codes

[191] Lynch, Teresa and Robert Manduca (2023). "Beyond Local and Traded: Evidence for a Third Industry Market Area Type and Implications for Regional Economic Development." Draft.

[192] In particular, looking at the 6-digit industry NAICS codes that comprise the cluster

TABLE 12: BUSINESS SERVICES – CLUSTER SNAPSHOT

	US	Chicago MSA	Kane County
Establishments	2,772,672	91,642	4,349
Employment	25,911,347	996,347	36,149
Emp. % Change (2010-21)	20.1%	16.5%	15.5%
LQ (establishments)		1.1	1.1
LQ (employment)		1.2	1.0
LQ Emp. % Change (2010-21)		1%	1%
Average wage ($000)	$88.3	$90.7	$57.0
% BIPOC employment		41%	43%
% Female employment		44%	43%
% <= Assoc. Degree (25+)		65%	73%

Source: data-Fab QCEW; data-Fab QWI.

Traded or regional sub-clusters that currently have high concentrations in Kane County (although, low growth) include Business Services and Business Support Services. The Business Services subcluster has a location quotient of 2.0 and 8% of the County's overall employment share, but is made up almost entirely (89.8% of employment in subcluster) by the Temporary Help Services (NAICS 561320) industry. Nearly 90% of all employment in the subcluster comes from this single industry. The **Business Support Services** subcluster (LQ 1.3; 3.5k employees) is composed of varied industries which often rely on sizable on-site facilities for storage, or which have close ties to the Manufacturing and/or TD&L sectors. Leading industries in the subcluster include Commercial Printing (LQ 4.8; 1,846 employees) and Packaging & Labeling Services (LQ 2.6; 239 employees).

Traded or regional sub-clusters that are growing – both in employment and in employment LQ - include Headquarters, Repair and Servicing, Other Professional Services, and Advertising Services (see Table 13).[193] In particular:

- The **Headquarter**s cluster, while it currently has a low concentration of establishments and employment, has been growing rapidly in Kane County. Given trends in Headquarters to move back to suburban areas to co-locate with a skilled workforce, there may be opportunity to continue to grow this cluster. (see next section for a more detailed look)
- **Repair and Servicing**, while currently reflecting low levels of employment (less than 1,000), has a strong concentration and growth rate in Kane County. There is high projected demand for a Repair and Servicing workforce and firms across the metro area, particularly to scale growth of clean economy sectors such as EVs and battery storage. Both are in need of repair technicians that have nimble, tech-driven skillsets (see *Human Capital* section for more detail).
- In **Advertising Services,** also composed of both local and regional industries, average annual growth has outpaced overall growth in the U.S. by 4.1%. This suggests the subcluster is growing and may soon be an established concentration with the County. The subcluster is primarily driven by the Direct Mail Advertising industry (LQ 8.3; 432 employees), which, like Commercial Printing and Packaging & Labeling Services, relies heavily on sizable on-site facilities.

[193] In addition, Real Estate - comprised primarily of lessors, property managers and appraisers – is growing. But, given its low LQs for both establishments and employment, it likely has little potential for growth as a regional cluster (and low wage growth).

- A similar growth trend is also occurring in the **Other Professional Services** subcluster, driven partially by industries that are closely related to Advertising Services (e.g. Commercial Photography).

TABLE 13: BUSINESS SERVICES SUBCLUSTERS – TRADED OR REGIONAL

Traded or Regional Subclusters *All data: 2021*	Estab.	Estab. LQ	Emp.	Emp. LQ	Emp. Growth 2010-21	Emp. LQ Growth 2010-21	Avg. Wage ($K)	% BIPOC
Business Services	290	0.8	14,231	2.0	7%	-8%	33.2	56%
Business Support Services	270	1.3	3,452	1.3	8%	5%	73.8	36%
Specialized Design Services	299	1.2	1,898	0.8	21%	9%	81.1	20%
Headquarters	30	0.3	1,782	0.5	157%	119%	83.7	36%
Real Estate	399	0.7	1,586	0.5	34%	15%	92.0	27%
IT Services	516	1.1	1,356	0.4	28%	-13%	141.5	30%
Management Services	418	1.1	1,011	0.5	13%	-30%	84.6	20%
Local Transportation and Logistics	65	0.9	921	0.4	40%	-5%	30.2	55%
Repair and Servicing	136	1.4	870	1.2	11%	24%	65.4	32%
Legal Services	254	0.9	823	0.5	-9%	-5%	80.8	21%
Other Professional Services	241	1.2	786	0.8	40%	21%	69.5	21%
Advertising Services	98	1.1	735	1.1	55%	51%	77.3	33%
Education / Training / Networking	79	1.0	256	0.5	-43%	-42%	64.9	23%

Source: data-Fab QCEW; data-Fab QWI.

Looking a level deeper at industries within each sub-cluster, those that have a concentration, or a growing concentration (i.e., outpacing the region in specialization) are related industries that may support growth of manufacturing – in particular, food and beverage packaging and manufacturing. These include:

- Packaging & Labeling Services (Regional)
- General Freight Trucking, Local (Local)
- Office Machinery and Equipment Rentals and Leasing (Traded)
- Commercial and Industrial Machinery and Equipment (Local)
- Commercial Printing (Except Screen and Books) (Regional)

This analysis does not focus on the sub-clusters that are strictly local: Facilities Management, Local Trucking, and Accounting Services. [194] However, note that **Facilities Management** – which includes commercial security, landscaping and cleaning services – *may* have potential to grow as a regional cluster, concentrating these services in Kane County but serving the greater metro area. It also has a high proportion of BIPOC employment (48%) and wage growth.

[194] Local industries may be important sources of employment and entrepreneurial wealth creation opportunities, but tend to follow, not lead, economic growth, and so are less the focus of growth planning. That being said, note that both Facilities Management and Local Trucking have a stable employment base (over 1,000 employed), high concentration of establishments (LQ 1.7, LQ3.0 respectively), high employment growth over the past decade (40% and 38% respectively) as well as high rates of BIPOC participation.

Headquarters

The Headquarters sub-cluster data reported above is based off of firms classified under three different 6D NAICS.[195] Of the 30 Headquarters recorded in the data, most (22) fall under "551114 corporate, subsidiary and regional managing offices" (see Table 14) - 1,782 persons employed.

TABLE 14: CORPORATE, SUBSIDIARY AND REGIONAL MANAGING OFFICES – INDUSTRY DATA

Corporate, Subsidiary and Regional Managing Offices 2010 to 2021			
	Cook County, IL	Kane County, IL	Other Suburban Counties (MSA)
2010	463	20	368
2021	517 (+11.7%)	22 (+10%)	478 (+29.9%)

Source: data-Fab QCEW; data-Fab QWI.

The Headquarters sub-cluster continues to grow in the metropolitan region with over 150 establishments in the Corporate, Subsidiary and Regional Managing Offices industry added in the past decade – for instance, McDonald's (1.9M), ConAgra (19k), Kraft Heinz (37k), OSI Group (20k), Aldi (15k), Middleby (11k).

Looking more broadly at any firm that is recorded as a headquarters (HQ) in 2022 National Establishment Time-Series (NETS) data, there are over 300 in Kane County (see Table 15). These headquarters are generally small, averaging 4.1 employees per firm. In general, Kane County's small firms tend to be larger than the region's, and its large firms tend to be smaller – implying they may be more specialized and entrepreneurial.

TABLE 15: HEADQUARTERS, BY COUNTY

County	HQs (est.)	HQs (est.) per 1k Employed Persons	HQs (est.) per 1k Establishments
DuPage	1,007	7.4	3.7
Kane	312	8.5	3.1
Lake	489	6.7	2.9
Cook	3,681	7.0	2.9
Will	313	9.8	2.3
McHenry	146	9.3	2.2
Kendall	25	11.0	1.2

Source: NETS (2022).

Human Capital

Skill requirements for the Business Services cluster are exceptionally varied given the diversity of services and functions incorporated in the cluster. Approximately 73% of employees in the cluster do not have a Bachelor's degree, meaning there are low relative barriers to entry compared to other clusters discussed in this report. Specialized Design Services and Advertising Services have the

[195] 551111 Offices of Bank Holding Companies ; 551112 Offices of Other Holding Companies ; 551114 Corporate, Subsidiary, and Regional Managing Offices

greatest proportion of college-educated employees. Occupations in these subclusters often require a four-year or professional degree in a specialized field (e.g. graphic design, engineering, etc.). Almost all other business services subclusters identified as established or developing have occupations that are certificate-based and rely heavily on vocational training or apprenticeships.

Average wages in Business Services tend to be lower than other clusters investigated, particularly in sub-clusters that rely on certifications (e.g. local trucking, facilities management) over college degrees (see Table 16). Regional wage growth paired with lower barriers to entry are particularly attractive in the Repair & Servicing, Business Support Services and Real Estate subclusters.

TABLE 16: BUSINESS SERVICES SUB-CLUSTERS – EDUCATION LEVELS AND WAGES (2021)

	% <= Associate's Degree (25+) (MSA)	Average Wage (MSA) ($k)	Annual Average Wage Growth 2010 – 2021 (MSA)
Local Trucking	81%	58.6	2.5%
Repair & Servicing	76%	64.7	5.3%
Business Services	73%	56.8	6.0%
Business Support Services	64%	114.1	7.4%
Facilities Management	81%	41.6	4.4%
Real Estate	70%	101.2	6.3%
Advertising Services	59%	97.4	2.9%
Specialized Design Services	53%	95.4	2.8%

Source: data-Fab QCEW; data-Fab QWI.

The cluster also relies heavily on vocational training programs, apprenticeships and on-the-job training and career progression. In particular, Elgin Community College and Waubonsee Community College are providing pathways to upskilling within Business Services sub-clusters. See the *Human Capital* section for a summary of training programs available.

These existing networks can easily be leveraged to support formal and informal mentorships and organized professional development programming. Lower barriers to entry can encourage greater workforce participation for Kane County residents that have been excluded from economic opportunities, in addition to encouraging entrepreneurship, particularly BIPOC-owned businesses in this cluster.

Innovation and Entrepreneurship

The Business Services cluster is particularly well-suited for entrepreneurial activity due to a relatively low firm size compared to other clusters investigated. 12 of the 16 subclusters have an average firm size of less than 10 employees. This is significantly lower than almost all of the clusters investigated which had on average an average employee per firm count of 20.1. Established and developing subclusters that standout in this characteristic include: (1) Local Trucking (3.3 employees per firm); (2) Real Estate (4.0); (3) Specialized Design Services (6.4); (4) Facilities Management (6.4); Repair and Servicing (6.4) and Advertising Services (7.5).

In fact, a significant number of existing startups within Kane County are in Business Services – and, many are BIPOC-owned (see *Innovation & Entrepreneurship* section). There is opportunity to continue to scale this cluster by providing targeted, sector-specific scale-up support to these businesses.

MARKET ASSESSMENT

Business Services has a significant, established size within the regional economy and within Kane County. The types of businesses that comprise the cluster are extremely varied, but Kane County has an opportunity to further develop its specializations within the cluster – some to serve global markets but others to serve the Chicago MSA. These opportunities include:

- **Provide facilities management services to regional headquarters** – As the region continues to grow its concentration of headquarters, or as some headquarters move to more suburban locations such as Kane County, there will be increase opportunities for Kane County to develop regional specializations to serve these businesses. The biggest opportunities to do so is within Facilities Management.
- **Support growth of Food and Beverage Manufacturing and Packaging** – Growth of related industries like packaging and printing services, or local trucking, support growth of the Food and Beverage Manufacturing and Packaging cluster, which has a strong concentration both within Kane County and the Chicago MSA. In addition, supporting growth of on-site facilities for storage may aid growth of manufacturing and TDL more broadly (but will require Kane County to determine how its land use policies align with its economic growth goals – see *Spatial Efficiency* section).
- **Train the clean tech Repair and Servicing workforce** – Kane County already has a concentration and strong growth in its Repair and Servicing workforce, and demand is growing regionally for a workforce that can conduct repairs to support clean tech growth. For instance, there is a need for charging station technicians and EV technicians as the advanced mobility sector grows regionally. There is a need for increasingly tech-driven skillsets that can be continuously upskilled to keep pace with the rate of growth within clean tech. Kane County has an opportunity to train the future "green economy" Repair and Servicing workforce.
- **Support BIPOC entrepreneurship and employment growth in Business Services** – In particular, as AI and other technologies disrupt the Business Services sector, there is an opportunity to expand access to entrepreneurship in this sector (which typically has small firm sizes) as well as employment in high-growth sub-clusters.

Agriculture

CLUSTER "DEFINITION"

Kane County's land is 50% agriculture. The County's agricultural area has particularly fertile soil, which takes thousands of years to develop.[196] However, these farms do not comprise a substantial amount of County revenue. This sector is important to address due to its legacy strengths in Kane County, the amount of the County's land area it occupies, and the fact that Kane County sits at the urban/rural fringe of the MSA (meaning, its agricultural land faces industrial and residential development pressures).

The analysis focuses on farms and the crops/livestock/products they produce. Rather than evaluate the agricultural *cluster* - including its inputs and related industries (e.g., fertilizer manufacturing)[197] – this analysis focuses on the agriculture *industry*, measured with data pulled from the Census of Agriculture. The Census of Agriculture counts all US farms and ranches provided more than $1,000 worth of products was produced and sold annually.[198] This chapter looks at the current state of farm sales in Kane County and future economic opportunities for this land.

GLOBAL MARKET OBSERVATIONS

The agricultural market is projected to reach $343 billion by 2028 (CAGR 2.81% from 2023-2028).[199] Over the last decade, imports have risen faster than exports, in part due to consumer preferences for year-round produce.[200] Looking at crops commonly found in the Midwest; over the next year:[201]

- **Corn** acreage is expected to increase, by about 3%
- **Soybean** acreage is expected to remain the same (with demand increasingly coming from soybean oil for biofuel)
- **Wheat** acreage is expected to increase the most, in response to high global prices

Agriculture continues to be a growing and essential industry, supplying food to a growing global population. However, farm operations are significantly changing, in response to technological disruption alongside the need for increased food production with less environmental impact.[202] These changes have land use implications: globally, farms are becoming more efficient or more innovative (e.g., vertical farming),[203] meaning less acreage is needed to support the population's nutritional needs.[204]

In general the agricultural market has a high degree of near-term uncertainty, caused by markets adjusting to geopolitical, macroeconomic, and weather stresses.[205]

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[196] https://sustainable-farming.rutgers.edu/wp-content/uploads/2017/10/Why-Save-Farmland.pdf
[197] e.g., US Cluster Mapping Project
[198] https://www.nass.usda.gov/AgCensus/
[199] https://www.statista.com/outlook/io/agriculture/united-states
[200] https://www.ers.usda.gov/data-products/ag-and-food-statistics-charting-the-essentials/agricultural-trade/
[201] https://www.usda.gov/sites/default/files/documents/2023AOF-agricultural-economic-foreign-trade-outlook.pdf
[202] https://www.foodbusinessnews.net/articles/23514-thirteen-trends-driving-change-in-food-and-agriculture-production
[203] https://www.cargill.com/story/food-and-agriculture-trends
[204] https://royalsocietypublishing.org/doi/10.1098/rstb.2010.0136. Conservation and growth are not necessarily at odds; for instance, increasing population density often increases agricultural productivity at the rural-urban fringe. https://academic.oup.com/joeg/article-abstract/19/1/225/4833570?redirectedFrom=fulltext
[205] https://www.usda.gov/sites/default/files/documents/2023AOF-agricultural-economic-foreign-trade-outlook.pdf

Technology in Agriculture

The use of advanced technologies is increasingly affecting agricultural practices. Innovations in agricultural technology include drones/robots to look for symptoms of nutritional deficiencies,[206] pests, and other issues – and spectral imaging to aid in crop management.[207] Over the last five decades, agricultural productivity has greatly improved, largely due to technological advancement, but is starting to slow due to decreased research and development (R&D), in spite of how much innovation is needed to meet future food needs.[208] Addressing these challenges requires:[209]

- Greater investment to grow agricultural innovation; although it has risen, VC devoted to agricultural technology is still less than 1%
- Better commercialization of technologies from academic settings (e.g., better understanding of which technologies fit the market)
- Better connections between federal programs, universities, and entrepreneurs
- Improved broadband access (one of the biggest barriers to adopting new technologies in farms)[210]

As farmers employ more digital technologies in their fields, more data will be produced – which will increase demand for workers with technical skills to analyze the data and make process adjustments.[211] More broadly, employment opportunities in food, agriculture, renewable natural resources and the environment (FARNRE) are expected to grow[212] - and demand for workers is expected to exceed the number of appropriately skilled graduates. There is a need for increased training for roles ranging from plant breeding and genetics to precision management of agriculture to process engineers.[213]

Crop Diversification & New Markets

Additional trends in agriculture include managing risks of supply/demand or weather events, interfacing with food and beverage manufacturing innovation (e.g., lab-grown foods, plant-based meats – or, even 3D printing foods),[214] and crop diversification and entry into new markets.[215] These new opportunities include:

- **Energy Production** - The global sustainable aviation fuel market was $433 million in 2022 and is expected to reach $14.8 billion by 2032.[216] Many farms growing corn and soy are turning these crops into ethanol (from corn) and biodiesel (from soy), which presents an alternative fuel for industries that are not yet electric (e.g., air travel).[217] In addition,

[206] https://extension.sdstate.edu/monitoring-corn-nutrient-deficiencies-traditional-and-precision-ag-approach
[207] https://www.chicagofed.org/publications/chicago-fed-letter/2019/411
[208] https://www.chicagofed.org/publications/chicago-fed-letter/2019/411
[209] https://www.chicagofed.org/publications/chicago-fed-letter/2019/411
[210] https://www.chicagofed.org/publications/chicago-fed-letter/2019/411
[211] https://www.chicagofed.org/publications/chicago-fed-letter/2019/411
[212] 2020-2025 compared to the previous 5 years. https://www.purdue.edu/usda/employment/wp-content/uploads/2020/12/USDA-2020-25-Employment-Report-Summary.pdf
[213] https://www.purdue.edu/usda/employment/wp-content/uploads/2020/12/USDA-2020-25-Employment-Report-Summary.pdf
[214] https://www.forbes.com/sites/insights-teradata/2023/10/12/the-5-hallmarks-of-harmonized-data-find-out-what-a-unified-data-ecosystem-can-do-for-your-enterprise/?sh=19722355b864
[215] https://www.agriculturedive.com/news/agriculture-trends-2023-farm-bill-food-climate-change/653806/
[216] Precedence Research, Sustainable Aviation Fuel Market Size Report, February 2023.
[217] See Marquise Energy in Illinois, working with LanzaJet.

livestock farms are beginning to convert organic waste to methane for power plants or transportation fuel with the use of Biodigesters.[218]

- **Commodity Crop Diversification for Food Inputs** – Growing commodity crops like rye, oats and barley (in addition to the main crops of soy and corn) is better for soil health, erosion control, wildlife habitat and mitigating climate shocks. These crops can be sold as part of a feed mix for livestock or as food grains. The Inflation Reduction Act includes $20 billion to assist farmers in changing cover crops and encouraging diversification.[219]
- **High-Value Specialty Crop Diversification** – Specialty crops include "fruits and vegetables, tree nuts, dried fruits and horticulture and nursery crops, including floriculture."[220] These crops acquire higher prices at market and can be grown on farms of various acreages, but do require more maintenance and hence more labor (and are often tied to cover cropping – see above – to successfully grow specialty crops).[221] Demand for these products and access to markets is a driver of farm diversification.[222]
- **Biobased products** – Bioplastics and Biochemicals - both of which can be produced from Midwestern crops like corn and soybeans - are projected to grow over the next ten years. [223] Bioplastics are biodegradable and are being adopted for a number of applications in the packaging, cutlery, gardening and pharmaceutical industries.

KANE COUNTY'S ASSETS AND MARKET POSITION

Firm presence and sector strengths

Agriculture is the predominant land use in Kane County (about 50% of the County's land area, including 74% of unincorporated acreage).[224] The 2022 Census of Agriculture reported 509 farms in 2022. In general, Kane County tends to have smaller than average farms[225] but has higher sales per acre than the MSA, state, and country (see Table 17).

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[218] By 2030, the world is expected to produce nearly five billion tons of manure each year. It is estimated that small anaerobic digesters make economic sense for farms with 100 cattle or more. "Building Food and Agriculture Businesses for a Green Future", McKinsey & Company, September 19. 2023.

[219] November 2, 2023 – Heather Cox Richardson. In addition, financial assistance is available from the USDA Environmental Quality Incentives Program (EQIP) to support these changes.

[220] https://www.nal.usda.gov/farms-and-agricultural-production-systems/raising-specialty-crops

[221] https://attra.ncat.org/topics/specialty-crops-2/; Despite the higher labor costs, specialty farms can retain 40 to 50 percent of the net returns versus the conventional farm's 15 to 20 percent. Robert Heuer, 2003,"Leveraging Purchase of Development Rights to build a strong farm economy." Organic produce yields even greater revenue. But, farmers would have to have the storage facilities needed to attract organic buyers.

[222] https://www.fdrsinc.org/wp-content/uploads/2021/12/JFDR52.3_1_Torres.pdf

[223] Bioplastics are produced from starch crops (e.g., corn, potatoes, wheat) and vegetable oils (e.g., canola or soybeans). Biochemicals are produced from plant sources including oils from corn and soybeans. End products include solvents, lubricants, waxes and adhesives.

The global bioplastics market was estimated at $11.6 billion in 2022 and is expected to grow at a compound annual rate of 18.8% through 2030. Bioplastics Market Size, Share & Trends Analysis Report By Product (Biodegradable, Non-biodegradable), By Application, By Region, And Segment Forecasts, 2023 – 2030, Grand View Research 2021. https://www.grandviewresearch.com/industry-analysis/bioplastics-industry. The global biochemical market was estimated at $65.9 billion in 2022 and is projected to grow 10.6% compound annual rate through 2032. Global Industry Analysis, Size, Share, Growth, Trends, Regional Outlook, and Forecast 2023-2032. Precedence Research August 2023.

[224] https://www.countyofkane.org/FDER/Pages/2030/issues/agriculture.pdf. A 2001 land use survey indicates that 74% or 180,576.52 acres of unincorporated Kane County is in agriculture. Most of these agricultural uses are concentrated in the western and central townships. Within the townships, the percentage of unincorporated land in agriculture in 2001 was: western townships, 88%; central townships, 73%; and river townships, 41%.

[225] About a fifth of Kane's farms (21%) are less than 10 acres, more than the MSA (18%), state (8.5%) and country (12.3%).

Since 2017, Kane County has lost 16% of its farms, a higher rate than nationally (loss of 7%), but sales per acre have risen by 82%. This could mean that low-sales-volume farms went out of business (or sold less than $1,000 annually and were not counted in the Census), while other farms became more profitable.

TABLE 17: FARM OPERATIONS, SIZE, AND SALES

	U.S.	IL	Chicago MSA	Kane County, IL
Number of Farm Operations	1,900,487	71,123	6,420	509
Average Farm Size Acreage	463	370	328	288
Average Sales / Farm ($)	$285,762	$371,429	$471,751	$557,962
Sales / Farmed Acre ($)	$617	$1,004	$1,440	$1,937
Percent Of Farms With Hired Labor		25%	34%	30%
Average Number Of Workers (At Farms With Hired Labor)		3.0	4.8	6.6

Source: Census of Agriculture (2022)

Over the last ten years, farm sales have increased across the country (see Table 18), which again could mean that only highly profitable farms are surviving or could reflect a shift to higher-value crops or entry into new markets (e.g., fuel).

TABLE 18: AGRICULTURAL OUTPUTS, CHANGE FROM 2012 TO 2022

	U.S.	IL	Chicago MSA	Kane County, IL
Commodity Sales	37.6%	53.7%	38.5%	44.8%
Sales/Farmed Acre	43.0%	57.3%	47.0%	66.5%

Source: Census of Agriculture (2012, 2022)

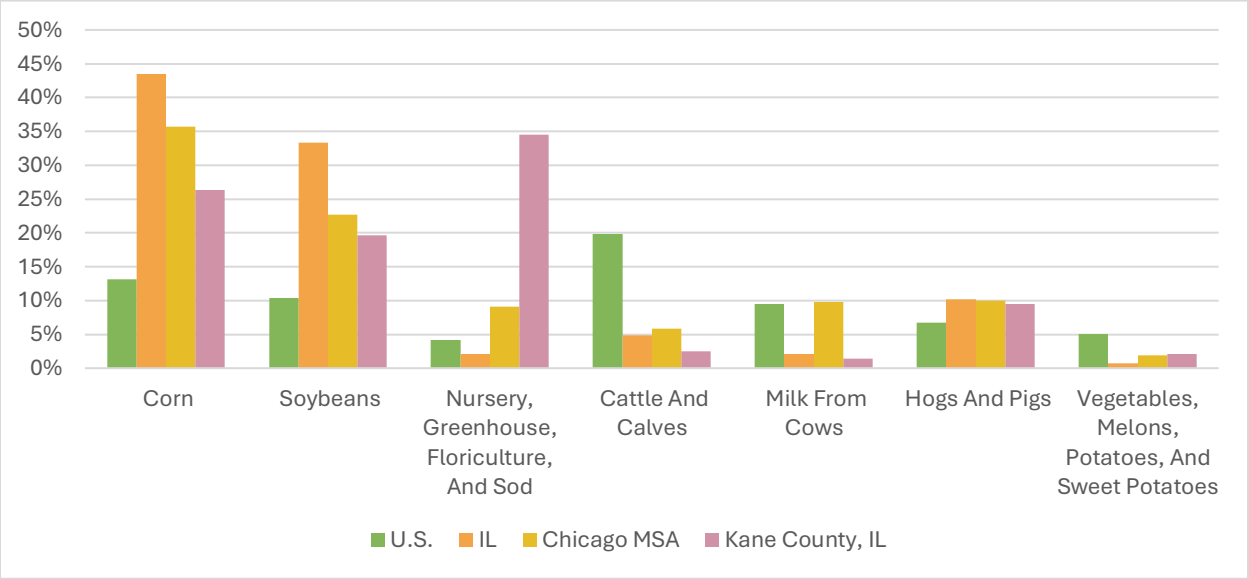
Most of Kane County's farm sales are generated from corn; soybeans; nursery, greenhouse, floriculture, and sod; hogs and pigs (see Figure 11). These remain important to the County and its economy – corn and soybeans are grown for feed and fuel, while hay and other products supply the equestrian sector.

There may be potential to scale production of vegetables (e.g., asparagus, cauliflower, peas, lima beans), melons and potatoes (which generally return a higher profit than corn and soybeans),[226] particularly as climate change is affecting productivity of regions that grow these crops (e.g., California). Midwestern farms present an opportunity to grow crops in a more resilient environment, with access to a central distribution network and food processing and manufacturing support. Existing initiatives like the Growing for Kane Program can be scaled to support local food production.[227]

[226] As compared to the MSA, a greater share of Kane County's farm sales are from "Vegetables, Melons, Potatoes, And Sweet Potatoes." Illinois currently produces about $500 million in annual sales of specialty crops. "Nationally, Illinois ranks first for its pumpkin and horseradish production and in the top 10 for the production of asparagus, cauliflower, fresh-cut herbs, peas, mustard greens and lima beans." https://www.illinois.gov/news/press-release.29609.html#:~:text=USDA's%20Agricultural%20Marketing%20Service%20defines,production%2C%20creating%20nearly%20%24500%20million

[227] https://www.kanecountyil.gov/FDER/Pages/GrowingForKane.aspx#:~:text=The%20Growing%20for%20Kane%20Program%20(Ordinance%20No.,healthy%2C%20and%20locally%20grown%20foods.

FIGURE 11: PERCENT OF FARM SALES, BY CROP OR PRODUCT



Source: data-Fab USDA (2017). Note: This only displays crops/products that comprise 2% or more of Kane County farm sales. As compared to the MSA, a greater percent of Kane County's farm sales come from: Nursery, Greenhouse, Floriculture and Sod; Vegetables, Melons, Potatoes, And Sweet Potatoes.

As Kane County farms are in transition – number of farms are decreasing while profitability is increasing – there are opportunities to capitalize on these trends and further explore higher value crops and new markets for farmers. Several considerations will be important:

- Challenges exist in crop diversification. Conversations with farmers indicate that they are happy with the status quo (large soy or corn farms); there are not enough financial incentives to cover the costs of transitioning land to other uses; and often more labor is required for growing specialty crops such as vegetables (and finding it can be a challenge).[228]
- Technical and financial support will be needed to diversify crops or enter new markets. The more funding/incentives, the more willing farmers are to adopt new practices.[229]
- There is a need for greater support to facilitate connections between growers and markets, in addition to filling gaps in processing and transportation of goods.[230]

A few companies/initiatives exist in the region that have begun to enter growing markets with existing crops, presenting the opportunity for partnerships to scale these initiatives. For instance, Marquis Energy (75 miles southwest of Kane County) purchases grains from local farms to produce ethanol. Plans are underway to build a sustainable fuels plant in Hennepin, Illinois, in partnership with LanzaJet.[231]

[228] Interviewee; in addition, there is no crop insurance for vegetable growers and in bad years, farmers experience all of the loss
[229] Interviewee. For instance, the Illinois Food and Farm Act provides some support: http://www.ilga.gov/legislation/publicacts/fulltext.asp?Name=095-0145
[230] The Growing for Kane Program has started to do this.
[231] https://www.lanzajet.com/news-insights/lanzajet-and-marquis-sustainable-aviation-fuel-saf-partner-to-build-an-integrated-sustainable-fuels-plant-in-illinois

Human Capital

Transitioning to alternative crops, particularly specialty crops, requires more and higher skilled labor than corn and soybeans. Interviewees have noted a need for workers in farm-related careers such as: sustainability careers in growing and packaging; agricultural equipment technicians (including heaters, irrigation); and agriculture/food science (e.g., plant breeding, genetics, precision management, process engineers).

This workforce could be developed by connecting with strong agricultural-focused programs in the region; for instance, with the recently created Northern Illinois Center for Community Sustainability or Illinois Extension's College of Agricultural, Consumer & Environmental Sciences. Kane County is currently exploring a partnership with Illinois Extension to pilot a new farmer training program.

Innovation and Entrepreneurship

There are several challenges in scaling traditional or next-generation farming. These include the difficulty of entrepreneurship in farming; most new farms last less than 4 years.[232] But, the rise in technology use on farms and the increasing move to diversify crops expands opportunities for new farmers to enter the agricultural business – by piloting alternative crops and new farming practices on small farms. In addition, given that the average age of a farmer is 57,[233] succession planning will be critical to continue to grow/scale farms.

The innovation affecting farm operations nationally – for instance, the increasing use of technology in crop management and associated demand for workers (e.g., precision management careers, process engineers, in addition to increased demand for bio-based products – may present an opportunity to build a regional innovation center to lead the Midwest into next-generation farming practices.

Regionally, there are organizations that help new farmers with training, business resources, or access to land, including: Angelics Organic Learning Center, The Land Connection, or Iroquois Valley and Liberty Prairie Foundation.

Spatial Efficiency

Currently, the County's goal is to preserve 50% of its land as open space/farmland, and legal protections assist in this goal, for instance the Farmland Protection Program (2001), which protects farmland through purchase or donation of development rights.[234] Land in Kane County is also zoned to allow for three different farming districts: F Farming; F1 Rural Residential; F2 Ag-Related Sales, Service, Processing, Research, Warehouse and Marketing.

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[232] https://www.ers.usda.gov/amber-waves/2007/april/experience-counts-farm-business-survival-in-the-us/

[233] https://www.usda.gov/media/blog/2023/02/22/2022-census-agriculture-impacts-next-generations-farmers

[234] https://kanecountyconnects.com/article/KaneCounty-Farmers. The County was the first to approve a Farmland Protection Ordinance, permanently protecting over 40 farms and 6,000 acres from development. It has also provided assistance to new farms and farmers in their entry into agricultural production. The program is driven by farmland owners voluntarily applying to sell future development rights to the county. Applications are reviewed and recommended to the County Board by the Kane County Agricultural Conservation Easement and Farmland Protection Commission. Once the county purchases the development rights, a conservation easement is placed on the property in perpetuity, restricting the land to farming uses. Other policies include: Farmland Preservation Policy (1991); Agricultural Protection Area (APA) (1991); Agricultural Conservation Easement (2001).

Kane County's location at the urban-rural fringe puts development pressure on agricultural land – not just to convert to higher value crops but to be developed for industrial and residential uses. But, development on agricultural lands is sometimes cost-prohibitive – due to the amount of infrastructure (e.g., roadways, sewer, power) that must be added. The *Spatial Efficiency* section explores this dynamic in more detail, as will the *Strategies* section.

Other Assets

Kane County has a strong presence of food and beverage manufacturers and packagers (see *Food and Beverage* section) – but this sector is, at the moment, not connected to its agricultural economy. Exploring the opportunities for connections could support growth in both the agricultural sector and the food and beverage manufacturing and packaging sector.

Organizations/institutions that support the growth of the agricultural sector can be leveraged to grow the industry. These include:

- Kane County Farm Bureau, which has over 15,000 members and supports profitability of the agricultural sector and fills resource gaps that exist (e.g., insurance for farmers)
- Illinois Extension programs
- Illinois Corn Growers Association
- Illinois Soybean Growers Association
- Illinois Farm Bureau
- Illinois Department of Agriculture
- Illinois AgTech Accelerator[235]

ASSESSMENT – KANE COUNTY'S OPPORTUNITIES

Kane County farming is a legacy industry – and is still integral to the region's economy, supplying corn and soybeans to a variety of markets, while also important to the County's culture and quality of life. As the metropolitan region has urbanized, less and less land within the County is devoted to farmland – and as a result, farming makes up much less of the County's revenue than it did in the past. Looking ahead, Kane County can respond to global trends in food production and farm operations, working with farmers and agricultural organizations across the region to make Midwest farms more economically productive. For instance:

- **Enter new markets with existing crops** – e.g., soybeans for tofu, soy-based packaging, ethanol (from corn) and biodiesel (from soy)
- **Diversify farms with higher-value crops** – e.g., scale vegetable production

To pursue either of these options, a more detailed study is needed to assess the specific market opportunities for regional farmers and implement a plan to address barriers to entering these markets. Alongside economic opportunities for particular crops, the study may also want to consider complex climate change implications (e.g., our region's water supply may create an opportunity to scale production of specialty crops, but these crops are also more difficult to grow with extreme temperatures caused by climate change), as well as land use implications for growing higher value crops while also balancing the County's other industrial growth goals.

[235] https://researchpark.illinois.edu/tenant_directory/gener8tor/

No matter which opportunity is pursued, farmers will likely need deep technical and financial assistance to implement changes.[236] The process of changing farming practices requires substantial investment – it may require new labor and machinery - and may need sizeable government subsidies at the start to offset some of the risk. In addition, a strategy for high-value crops and/or new markets can leverage the region's food manufacturing and packaging strengths – relying on local/regional manufacturers and packagers to help bring new crops to market. In particular, regional packagers may help Illinois farmers meet in-state demand for specialty crops (fruits and vegetables).[237]

[236] For instance, creation of a direct marketing association or forum to help farmers market products (the State of Illinois currently does not have a direct marketing association yet there are demands for high-value products in the Chicago metropolitan region)
[237] Ready to Grow: A Plan for Increasing Illinois Fruit and Vegetable Production

Other Cluster Opportunities

HEALTHCARE

"Healthcare and social assistance" makes up 13% of County employment (greater than all but manufacturing, at 17%).[238] This workforce is largely employed by Kane County's hospitals and their supporting services. Healthcare is important to Kane County's local economy, but note that it is predominantly a consumer-facing industry ("local industry") that sells goods and services within the local area. While healthcare is an important source of employment, it follows, not leads, economic growth.

Looking more narrowly at the Local Health Services cluster, Kane County has remained relatively stable (as would be expected for a local cluster – where services are distributed similarly to population across the metropolitan region). Regionally, there was not much growth (the MSA LQ grew at 0% from 2010-2021), and Kane County's LQ change over the same period was -8%. Job loss was concentrated in hospital staff (similar to national trends), physician offices, and nursing care facilities - while job gains were concentrated in medical labs, mental health services, and outpatient care centers.

Should Kane County decide to pursue a future as predominantly a "bedroom community," excellent healthcare access may be one of the strategies used to attract households. Kane County does well at maintaining its healthcare workforce; even though nurses were cited as one of the labor shortages in the region,[239] Kane County has programming is in place to continuously train healthcare workers to keep up with demand (e.g., Certified Nurse Assistant apprenticeship at Elgin Community College).

HOSPITALITY AND TOURISM

Kane County's natural beauty, historic sites, and recreational opportunities have contributed to its economy over time. In addition, hospitality- and tourism-related businesses, such as hotels, restaurants, and outdoor recreation facilities, cater to visitors and residents alike, boosting local revenue and employment.

Despite this, Hospitality and Tourism is not a major source of economic growth for the county (as compared to other traded clusters); the cluster has just 2,100 employees and an LQ of 0.6 (employment).
In addition, like all hospitality and tourism industries in regions across the country, COVID had a significant impact. From 2010-2021, Hospitality and Tourism employment became less concentrated across the entire MSA (-11% LQ change). Kane County followed this trend, although more severely (LQ change -28%). Kane County lost almost 1,400 jobs from 2010-21 due to casino and hotel employment declines.

But, opportunities to grow Kane County's hospitality and tourism cluster are emerging once again. Tourists are attracted to thriving places, and many of the amenities that cater to residents and tourists arise from a growing economy (see callout box). So, one strategy to grow the county's

[238] 2021 QCEW, 2D NAICS
[239] interviewees

hospitality and tourism cluster will be investing in its high-growth traded clusters, as detailed in the above sections of the report.

Other strategies to grow the cluster include augmenting efforts already underway – which have the added benefit of keeping/attracting residents to grow Kane County's bedroom community function. The Fox River's recent designation as a National Water Trail will increase access to activities anchored around the trail (e.g., hiking, biking, boating, fishing, dining). In addition, farms are exploring agri-tourism, selling products to residents across the MSA. Three visitors' bureaus help promote the County - Aurora Area Convention and Visitors Bureau, Elgin Area Convention & Visitors Bureau, and St. Charles Business Alliance – and all can help continued efforts to market Kane County to the region. These efforts can be further augmented by an Economic Development Organization – see *Strategies* section.

ROLE OF AMENITIES IN ECONOMIC GROWTH

A healthy debate exists about the causal relationship between the development of a region's quality of life amenities and the growth of its industries and jobs. One school of thought argues that improved retail, cultural, recreational and other quality of life amenities will attract a stronger talent pool, which in turn will attract companies. An alternative view is that strong industries, firms and jobs attract talent and generate income and wealth, which in turn provide demand for quality of life amenities.

The reality is that both are important, and iterate, as people seek jobs, firms seek talent and both care about quality of life. However, most often firms and people move to places where they can be most productive, seeking concentrations of similar labor pools and jobs, and this economic growth drives improvement in quality of life amenities.[240]

[240] Berry, Christopher, Bodini, Riccardo and Robert Weissbourd, *Grads and Fads: The Dynamics of Human Capital Location*, Online Publication: 2005, available at http://rw-ventures.com/wp-content/uploads/2017/01/Grads-and-Fads-Paper-Final.pdf

II.Labor Markets

Labor is one of the primary inputs to economic production, but it is only as productive when it is well deployed through labor markets.[241] The dynamics of the next economy dramatically impact labor markets. Employers' demands for skills are evolving rapidly. They are increasingly seeking workers who both are nimble and flexible, and have specialized skills and credentials tailored to specific industries and jobs. As labor markets are undergoing this transition, the existing systems to match employers and workers are not keeping up. Employers tend to rely on legacy hiring processes – although this is starting to change[242] – and procedures that are more oriented around formal educational attainment and traditional credentials, which often no longer indicate or align as well with the shifting skills and capacities required, or adequately assess candidates. Shifting demand for skills and lack of transparency about skills required makes it harder for incumbent and prospective employees to know what skills they need to be qualified for current or emerging opportunities. Even when they are aware of the required skills, it can be difficult to identify the programs where they can be properly trained.

These conditions are aggravated by a workforce system largely driven by third-party providers. These providers are critical because the private sector underinvests in developing their workers.[243] As a result, workforce training at many levels (from basic K-12 to professional) is largely a public good provided through public agencies or subsidized non-profits. While this is to some degree necessary, legacy workforce training and education systems are outdated and insufficiently nimble, struggling to quickly design and launch programming that is responsive to in-demand skills in a rapidly changing environment. Though many of these systems are working to become more employer- and demand-driven, it is easier said than done.[244]

The net effect: complex, inefficient labor markets where employers are unable to find the talent they need, workers struggle to identify or understand the skill requirements for job opportunities, and trainers and educators struggle to keep their courses up to date. Major structural change to re-align employers, job seekers, and workforce program practices is needed to foster new labor market systems that work for the next economy.

HUMAN CAPITAL

"Human capital" is the collective knowledge and skills of an area's workers. The most common measure of it is education, but that is a rough proxy, as it does not adequately reflect the skills and experience workers gain in less formal ways.

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[241] Berry, Christopher, Bodini, Riccardo and Robert Weissbourd, *Grads and Fads: The Dynamics of Human Capital Location*, Online Publication: 2005, available at http://rw-ventures.com/wp-content/uploads/2017/01/Grads-and-Fads-Paper-Final.pdf; see also – Implementing Regionalism: Connecting Emerging Theory and Practice to Inform Economic Development, Chapter 3 (Developing and Deploying Human Capital, available at: http://rw-ventures.com/wp-content/uploads/2017/01/Surdna-Final-Paper-Combined-112111.pdf

[242] For example, see JPMorgan Chase's Second Chance hiring program: https://www.jpmorganchase.com/impact/our-approach/policy-center/second-chance-agenda, and explained in more detail in: http://rw-ventures.com/wp-content/uploads/2024/04/Ntl-Corp-Convening-SUMMARY-of-Proceedings_FINAL.pdf

[243] Since employees can leave at any time, employers are reluctant to spend on training when workers may take those skills elsewhere. Robert Weissbourd, *Into the Economic Mainstream*, Opportunity Finance Network: 2006 http://rw-ventures.com/wp-content/uploads/2017/01/Distribution-Draft-IEM-Paper-8-6-06-rw.pdf

[244] Employers are generally hard to engage on efforts outside of their day-to-day business activities, and they themselves need to change their systems first to genuinely enable flexible and responsive training delivery.

From an economic development point of view, simply having lots of human capital is not sufficient: the goal is high levels of well-deployed human capital. This means that, in order to maximize development and deployment of human capital, practitioners have to focus on the complex relationships between (1) production, attraction and retention of human capital; (2) job creation through firm births, growth, attraction and retention; and (3) the structure and efficiency of labor markets.[245]

Economies with larger total stocks of deployed human capital experience more and faster gains in productivity and, by extension, greater economic growth. To create these conditions, three main labor market functions must work well together:

1. The **supply** of skills in the region must be robust and high-quality, generated by a combination of "producing" the skills locally (i.e., educating residents), retaining existing talent, and recruiting new talent.
2. The current and projected **demand** for skills from companies, particularly those in the region's highest-growth sectors must be well-defined and transparent; and
3. The systems that match these two elements – labor supply and demand – must be nimble and responsive to employer and employee needs and make connections between workers and jobs as efficiently as possible.[246]

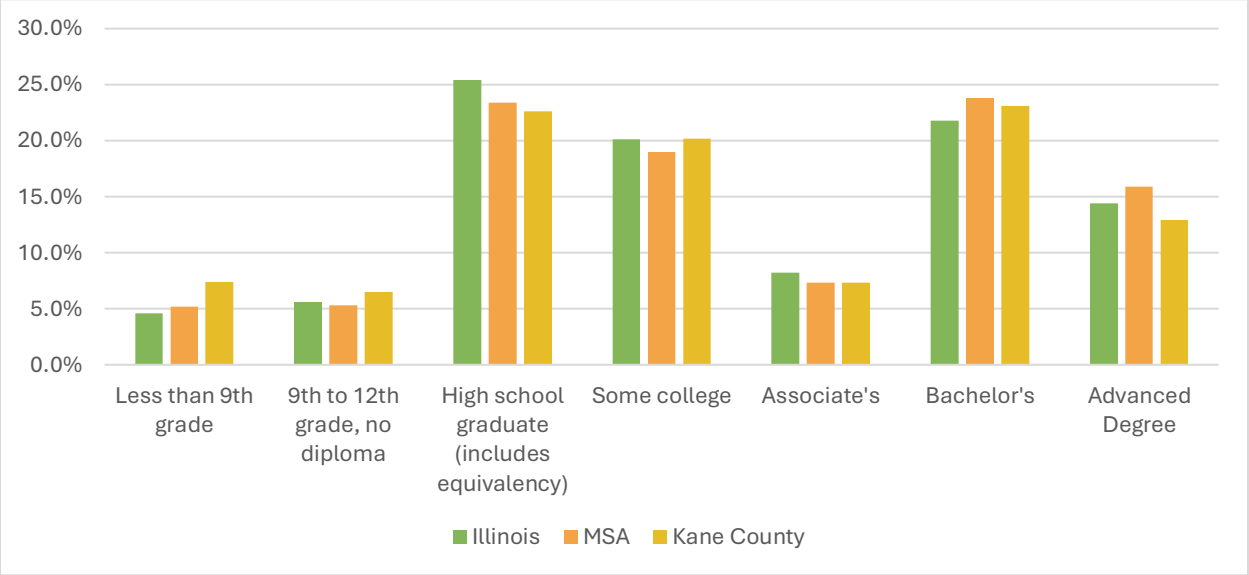
Labor Supply

EDUCATIONAL ATTAINMENT

In the aggregate, Kane County's residents' educational attainment is mixed. Across most education levels, the County's population underperforms relative to the state and MSA (see Figure 12). Compared to the MSA, Kane County residents have less Bachelor's and advanced degrees[247] – and, more residents without a completion (at the high school or college level). This could present an opportunity to increase skills-based training programs or stackable credentials to upskill residents for future jobs.

[245] http://rw-ventures.com/wp-content/uploads/2017/01/Surdna-Final-Paper-Combined-112111.pdf
[246] For much fuller discussion and literature review, see George Washington Institute of Public Policy and RW Ventures, LLC, Implementing Regionalism: Connecting Emerging Theory and Practice to Inform Economic Development.
[247] There were 33,000 completions in certificate and degree programs at Kane County community colleges and higher education institutions from 2017 to 2021. Completions of all programs 2017-2021, Illinois Department of Economic Security.

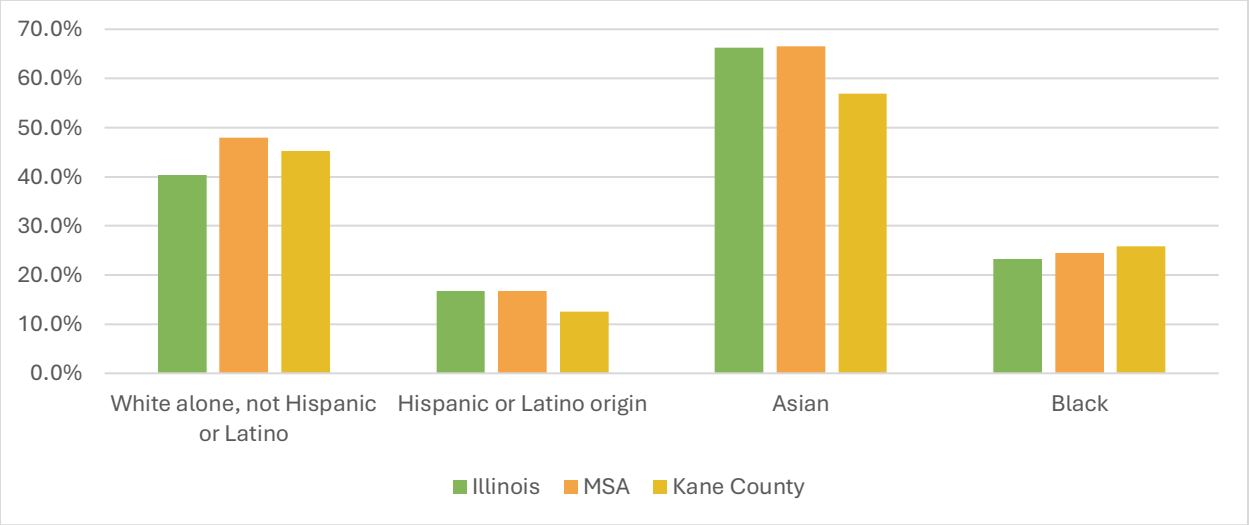
FIGURE 12: EDUCATIONAL ATTAINMENT



Source: American Community Survey (2021)

Educational attainment disparities exist by race (see Figure 13).[248] Of the largest four racial groups in Kane County, all (except Black) are less educated than the MSA. Hispanic/Latino educational levels are particularly low; just 12.5% have a Bachelor's Degree or higher.

FIGURE 13: PERCENTAGE OF POPULATION WITH BACHELOR'S DEGREE OR HIGHER, BY RACE AND ETHNICITY (2021)



Source: American Community Survey (2021). Data is displayed for the largest four racial groups in Kane County.

However, there has been some progress in addressing educational disparities. Black and Hispanic populations saw the largest changes in the percentage of Bachelor's degree or higher attainment (8.6 and 5.3 percentage point increases, respectively, from 2015 to 2021) – compared to 4.6

[248] Asian and white populations have the highest percentage of bachelor's degrees or higher – 45.2 percent and 56.9 percent respectively. The County outperforms the state and metropolitan area for the percentage of the Black population with a bachelor's degree or higher (25.8 percent). American Community Survey data show similar disparities for other levels of education (e.g., high school graduates (includes equivalency.))

percent for the non-Hispanic white population.[249] Hispanic enrollment is rising at community colleges in particular,[250] perhaps explaining the rise in educational attainment of this group. One of the barriers to further improving educational attainment or credentials for the Hispanic population is the lack of Spanish-language program availability (combined with literacy issues – translation is not always enough).[251]

The educational gaps for people of color demand attention, and are even more pressing given the increasing degree of diversity of the region's population, especially its Hispanic or Latino origin population (33.1 percent of population).[252] The composition and trajectory of the region's workforce heightens the urgency of addressing the existing education gaps and making sure all residents, regardless of race and ethnicity, are acquiring the skills that the region's employers are seeking.

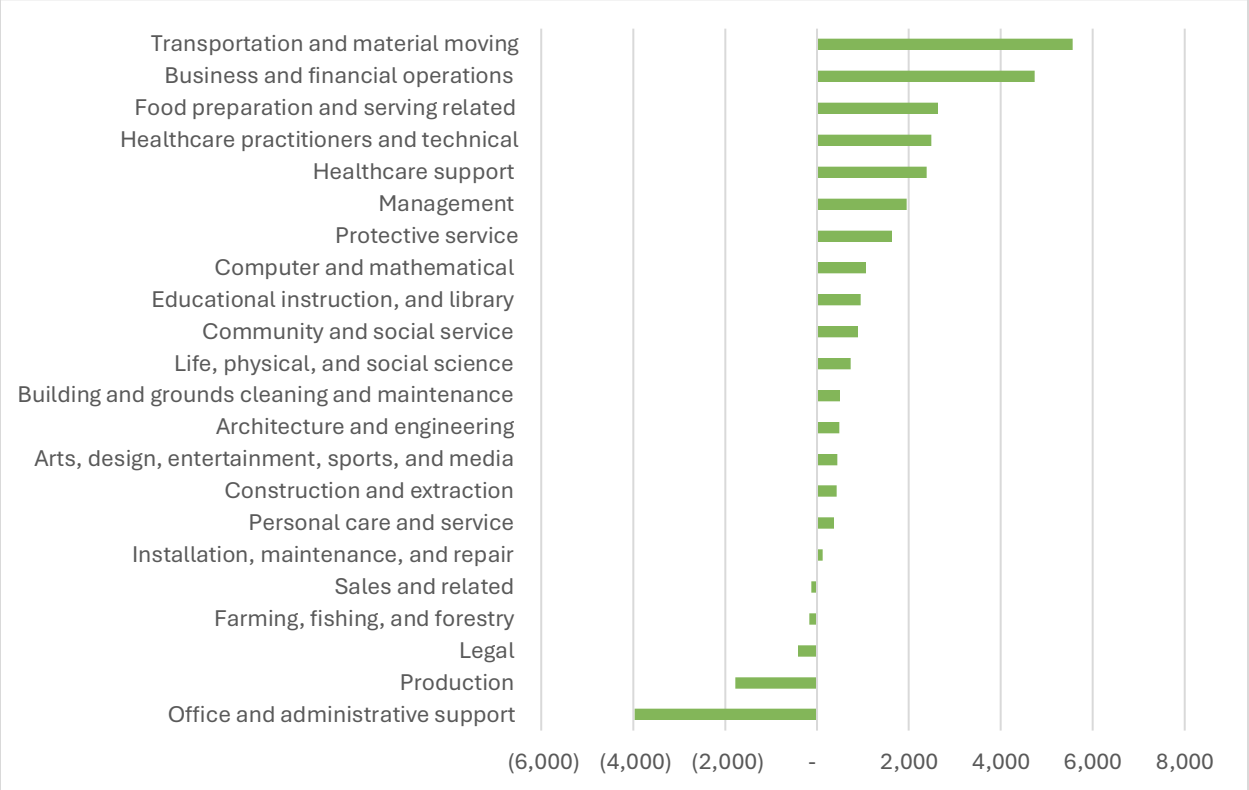
OCCUPATIONS

Occupational data provides further insight on the supply of workers and their skills, but also begins to blend into observations on labor demand. Trends in residents' occupations suggest where they are providing the right mix of skills to fill in-demand roles. At the same time, this analysis shows what jobs employers are offering and filling. This section focuses on the former subject, while labor demand is evaluated through separate, but related, analysis below.

Kane County's employment rate has grown faster than the metropolitan area and the state.[253] Within that overall increase, the composition of the workforce (of Kane County residents) has changed. Across a high-level set of 22 job families, 10 grew or shrank by more than 1,000 employees, providing a window into the major shifts in residents' occupations (see Figure 14).[254] These shifts largely follow national trends, except the US is experiencing greater growth in higher-skilled occupations like management, as well as computer and mathematical occupations.

[249] The progress for Black and Hispanic or Latino origin populations was higher than the progress made at the metropolitan area or state levels.
[250] interviewees
[251] interviewee
[252] U.S. Census Bureau Quick Facts: https://www.census.gov/quickfacts/kanecountyillinois
[253] Based on percentage change in civilian employed population 16 years or older from the American Community Survey, ACS Five-Year Estimates 2007-2011 and 2017-2021.
[254] The largest gainers over the period include transportation and moving occupations with an increase of 5,560 jobs, business and financial operations occupations with an increase of 4,737 jobs, food preparation and serving related occupations with an increase of 2,631 jobs, health practitioners and technical occupations with an increase of 2,496 jobs, healthcare support occupations with an increase 2,387 jobs, management occupations with an increase of 1,949 jobs, protective service occupations with an increase of 1,636 jobs, and computer and mathematical occupations with an increase of 1,071 jobs. The largest percentage change in gains in jobs over the period were in healthcare support occupations (57.8 percent), life, physical, and social science occupations (54.1 percent), and in protective service occupations (45.6 percent). Of the five job families losing jobs over the period, office and administrative support occupations lost 3,970 jobs for a 11.1 percent decline and production occupations fell 8.2% with a loss of 1,770 jobs.

FIGURE 14: CHANGE IN EMPLOYMENT BY O*NET JOB FAMILIES (2011-2021), KANE COUNTY



Source: American Community Survey (2011, 2021).

Each of these broad categories covers a variety of positions that require a range of skills, education, and expertise.[255] Based on the average skill level, two of the five job families with the largest growth in Kane County employment – business and financial occupations and healthcare practitioners and technical occupations – are mostly comprised of higher-skill positions, requiring medium to considerable preparation. Of the remaining three largest growth job families, two, material moving and transportation occupations and food preparation and serving occupations- skew toward lower-skill and lower-wage positions. Two of the three job families with the largest declines are in largely middle-skill occupations – production and office and administrative occupations. One of the reasons could be that both occupations have been impacted by automation.[256] Growth in these occupational groups could connect with opportunities in regional clusters experiencing strong employment growth - like Business Services; Transportation, Distribution and Logistics; and Food and Beverage Manufacturing and Packaging.

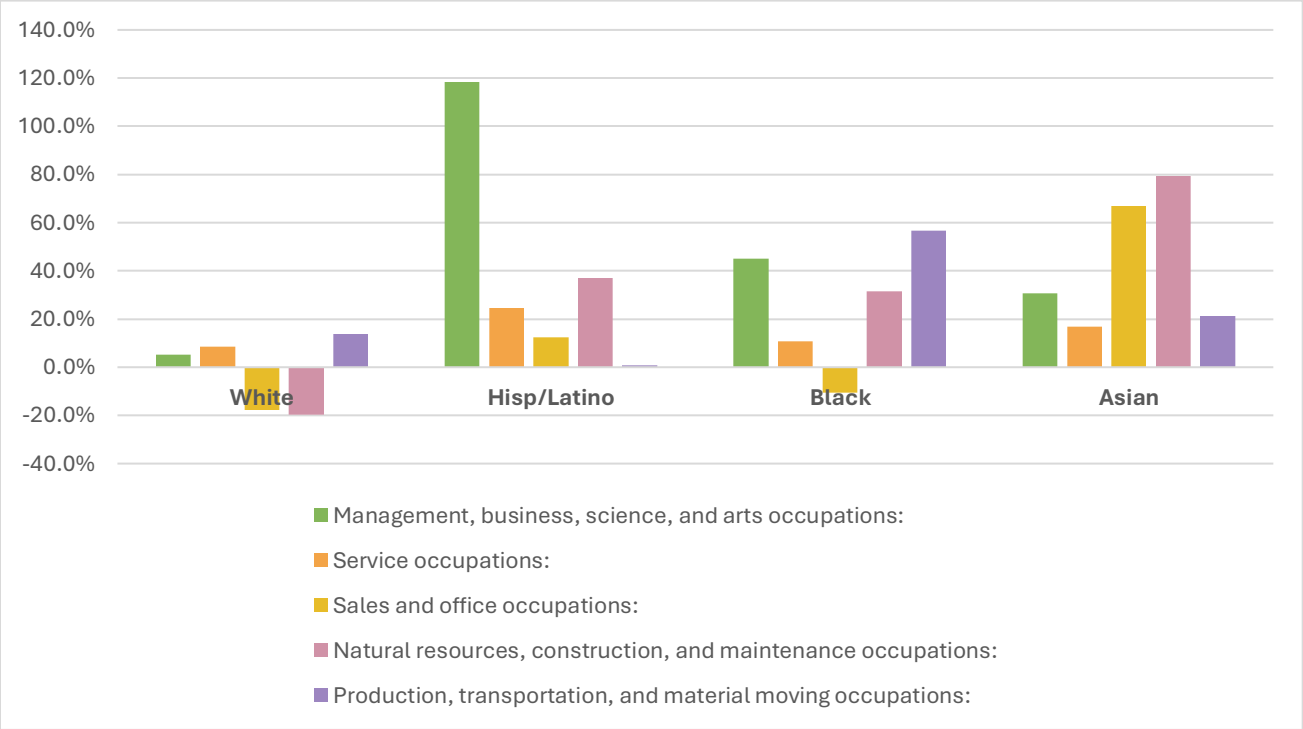
[255] The Bureau of Labor Statistics' O*NET "Job Zone" scale goes from 1 to 5 to indicate the level of education and preparation generally required for a given occupation, where:
1 = little to no preparation (some may require a high school diploma)
2 = some preparation (usually requires a high school diploma)
3 = medium preparation (usually requires an Associate's degree, vocational training, or related on-the-job experience)
4 = considerable preparation (most require a Bachelor's degree)
5 = extensive preparation (most require an advanced degree)

[256] Decline in office and administrative support work suggests certain tasks and skills have been replaced by automation, The Conference Board, October 19, 2022, https://www.conference-board.org/topics/labor-markets-charts/automation-replacing-office-and-administrative-support-jobs; Crafting the Future of Work: A Policy Framework for the Automation Age, Economic Innovation Group, June 2023, https://eig.org/automation-policy-brief/

Though approximate, these results suggest that the residents of Kane County are increasingly bifurcated in their skill sets with middle-skills decline. This represents a potentially concerning mismatch between residents' skill sets and future demand given the distribution of education referenced above.

Looking at occupations by race reveals some interesting trends. About 37% of Kane County's population is employed in "management, business, science and arts" occupations,[257] which could explain the County's high median household incomes - $93,300, higher than the MSA average of $82,900.[258] As of 2022, 72% of those employed in management occupations were white, 16% Hispanic/Latino, 5.9% Asian, 3.8% Black. Looking at trends over the last 10 years shows that the Hispanic/Latino population has been increasingly moving into these higher-skilled roles, from more service-oriented jobs (see Figure 15). This could reflect the fact that Hispanic enrollment is increasing at local colleges, producing more Bachelor's degree holders.

FIGURE 15: PERCENT CHANGE IN OCCUPATIONS (2012 – 2022), BY RACE, IN KANE COUNTY



Source: American Community Survey (2011, 2021), civilian employed population, 16+. Data is displayed for the largest four racial groups in Kane County.

Interviews have also indicated that a portion of the County's population is self-employed – but many businesses are unregistered. The data presented here does not account for these individuals; the "informal economy" is not captured. Receiving degrees is not the only way for residents to move into higher-skilled, and often higher-pay, jobs. Increasing availability of skills-based training within Kane County, as well as support for entrepreneurs, can help BIPOC residents

[257] about 37% of employed persons over 16 (2022); ACS data
[258] CMAP (2022), Inclusive Growth Analysis. Available at: https://www.cmap.illinois.gov/documents/10180/10749/2022-10-18+CMAP+Plan+FINAL.pdf/805cc42e-55c9-98eb-758d-3b52a4f52e5b?t=1669828594013

in Kane County to move into higher-paying roles. This will be discussed more in the following sections.

Labor Demand

The extent to which workers are productively deployed into the regional economy depends largely on how well their skills are aligned with employers' demand. This includes both current and projected demand – ideally, employers could anticipate trends in occupational and skills growth and inform development of targeted programs (both at institutions and on-the-job training) that would prepare workers for those jobs. Recent trends and current population projections in occupation change, coupled with information on average educational requirements for certain positions, provide some insight into what Kane County's employers are seeking from their workforce.

State economists project an additional 29,782 jobs will be added in Kane County from 2020 to 2030 (see Table 19). About 11 percent of future demand will require at least a Bachelor's degree and nearly 16 percent would require vocational training.[259] If 11% of future jobs will require a Bachelor's degree or higher, Kane County's educational attainment (as well as the MSA's educational attainment) is currently meeting this need, with over 35% of residents meeting this criteria. As more and more jobs require skills-based training (and not degrees), this need can be met not just by third party providers but also by employers offering on-the-job training.

TABLE 19: PROJECTED OCCUPATION JOB FAMILY GROWTH AND JOB ZONE SCORES

Job Family	2020	2030	Change	Percent Change	Job Zone Score
Food Preparation and Serving Related	21,181	27,323	6,142	29.00%	1.73
Transportation and Material Moving	30,004	35,033	5,029	16.80%	2.25
Sales and Related	27,879	30,541	2,662	9.50%	2.82
Management	23,023	25,508	2,485	10.80%	3.89
Personal Care and Service	7,259	9,221	1,962	27.00%	2.39
Installation, Maintenance, and Repair	10,782	12,469	1,687	15.60%	2.62
Building and Grounds Cleaning and Maintenance	9,813	11,436	1,623	16.50%	2
Education, Training, and Library	23,165	24,447	1,282	5.50%	4.56
Business and Financial Operations	13,197	14,389	1,192	9.00%	3.81
Construction and Extraction	13,492	14,650	1,158	8.60%	2.05
Healthcare Support	7,706	8,497	791	10.30%	2.53
Production	25,784	26,569	785	3.00%	2.13
Computer and Mathematical	6,415	7,125	710	11.10%	4.03
Arts, Design, Entertainment, Sports, and Media	4,008	4,628	620	15.50%	3.48
Healthcare Practitioners and Technical	14,863	15,439	576	3.90%	4.26
Protective Service	5,137	5,648	511	9.90%	2.65
Architecture and Engineering	4,013	4,396	383	9.50%	3.79
Community and Social Service	4,546	4,902	356	7.80%	4.5

[259] For the occupational job families that are projected to grow by at least 1,000 jobs, there is diversity in the job zone scores, suggesting job growth across a range of skills and training requirements. While it is difficult to make direct comparisons between job zone scores and educational attainment, using the definition of job zone score would suggest that nearly 11 percent of future demand will require at least a Bachelor's degree and nearly 16 percent would require an Associate's degree or vocational training and/or on-the-job training.

Life, Physical, and Social Science	2,074	2,291	217	10.50%	4.33
Legal	1,415	1,533	118	8.30%	4.29
Farming, Fishing, and Forestry	853	882	29	3.40%	1.58
Office and Administrative Support	33,249	32,713	-536	-1.60%	2.33
Total	289,858	319,640	29,782	10.30%	

*Source: Illinois Department of Economic Security, Long-Term Occupation Projections; O*NET*

Kane County's existing and emerging clusters project a need for an increasingly skilled future workforce.[260] As of 2021, eight clusters in Kane County employ 35 percent of its workers (see Table 20).[261] Production occupations (e.g., plastics; production technology, and heavy machinery; food processing and manufacturing; metalworking technology) will be susceptible to automation and digitalization impacts. There is a need for more production occupations – as many of these jobs are filled by workers who live outside of Kane County.[262] In addition, decarbonization and electrification are impacting food processing and manufacturing and automotive industries.[263] These changes will require local employer and workforce development responses to train the future workforce.

TABLE 20: KANE COUNTY CLUSTERS WITH HIGHEST SHARE OF EMPLOYMENT

Cluster	Employment	Share
Blue Collar B2B On-Site	16,625	9.0%
White Collar B2B	16,278	9.0%
Blue Collar B2B Off-Site	8,127	5.0%
Business Services	5,894	3.0%
Plastics	4,795	3.0%
Production Technology and Heavy Machinery	3,480	2.0%
Food Processing and Manufacturing	3,028	2.0%
Metalworking Technology	2,902	2.0%

Source: data-Fab QCEW, data-Fab QWI (2021)

Other opportunities include healthcare and related-support industries, clean technology, and agri-food technology. Interviewees have also shed light on projected labor demand, noting that existing programming is largely focused on supplying existing skills gaps (e.g., HVAC, welding, machining, healthcare) but there is a need for skillsets to fill longer-term demand, for instance:

- **Metals Manufacturing** - Advanced manufacturing (e.g., mechatronics, CNC machining, robotics, computer-aided design [CAD] programming), in particular: skillsets to enter green economy (e.g., EV technicians); mid-term skills gaps (e.g., machine operators, welders, machinists, vacuum system technicians, sterilization technicians)

[260] Forecasting this demand is by nature speculative, especially in an economy that is highly disruptive and rapidly evolving.
[261] This is out of a total of 177,647 employees in both traded and non-traded clusters.
[262] Intersect Illinois data for occupations with more than 20 net commuters. A positive net commuter value is indicative of a labor shortage within the county (although note that these jobs may be filled by commuters and therefore do not reflect regional labor shortages).
[263] Navigating a world of disruption, McKinsey, https://www.mckinsey.com/featured-insights/innovation-and-growth/navigating-a-world-of-disruption
Why the automotive future is electric, McKinsey, https://www.mckinsey.com/industries/automotive-and-assembly/our-insights/why-the-automotive-future-is-electric
The agricultural transition: Building a sustainable future, McKinsey, https://www.mckinsey.com/industries/agriculture/our-insights/the-agricultural-transition-building-a-sustainable-future

- **Agriculture and Food Manufacturing** - sustainability careers in growing and packaging; agricultural equipment technicians (including heaters, irrigation); agriculture/food science (e.g., plant breeding, genetics, precision management, process engineers)
- **Transportation, Distribution and Logistics** – advanced logistics skillsets (e.g., supply chain management, warehouse distribution, and delivery)
- **Business services** – varied skills acquired through vocational training programs, apprenticeships and on-the-job training (i.e. local trucking, facilities management, repair & services – in particular here there is opportunity for clean tech careers like EV repair technicians)
- **E-beam technology** – although not one of the clusters assessed in this report, Fermilab is working to scale commercialization of its e-beam technology and local colleges have expressed an interest in developing training programs to assist

Labor Markets

Kane County trains many workers to align with high-growth, in-demand career pathways – yet, employers still have trouble finding hires. Skillsets required for jobs in this economy are changing rapidly, pointing to the growing importance of providing on-the-job training and engaging employers in the design and delivery of training curricula.

In Kane County, a range of workforce providers and programs exist (see call-out box) – many that have begun to move toward a more skills-based, flexible, and nimble model (see Table 21). But, existing programs (see Table 22) are almost entirely focused on training for current labor supply gaps rather than for future labor market needs.[264] This can be addressed by increasing employer involvement - not just in identifying skills needed for future careers, but also in scaling on-the-job training efforts and informing development of training curricula offered by other providers.

TABLE 21: SKILLS-BASED TRAINING PROGRAMS AND CAREER PATH ASSESSMENT

Program	Description
Industry Consortium for Advanced Technical Training (ICATT)[265]	Elgin Community College is a member of ICATT – an apprenticeship program for manufacturers and companies with complex administration processes.
Customized Apprenticeship Programming – Information Technology (CAP-IT)	Kishwaukee College's[266] CAP-IT grant[267] supports information technology pathways leading to a Basic Networking Certificate.

[264] Some exceptions include training in machining and industrial maintenance and automation technologies as well as programming to address the future of the automotive industry.
The organizations that *are* working to fill in-demand skills gaps have programs that are relatively siloed and unknown to one another. Interviews with civic and business leadership suggest that while there has been progress, further work is needed to improve the impact of these programs.
[265]ICATT is "the largest program benchmarked on the German Dual Education System and is a joint program of the German American Apprenticeship and Education Foundation and the German American Chamber of Commerce."
https:www.icattapprenticeships.com/
[266] Kishwaukee College, west of Kane County, is also a significant provider of workforce solutions for the Kane County industrial base including customized training, employer services, internships and apprenticeships, and small business development.
[267] Kishwaukee is one of nine Illinois Community Colleges awarded the Customized Apprenticeship Programming – Information Technology (CAP-IT) Grant.

Google IT Support Professional Certificate	With funding from Google.org., Kishwaukee is partnering with Google and Jobs for the Future to support the implementation of the Google IT Support Professional Certificate to train learners for entry-level roles in information technology in six months
Pathways to Prosperity	Aurora Regional Chamber of Commerce's Pathways to Prosperity initiative prepares high school students for secondary education or career paths in healthcare, manufacturing, and information technology industries and, through the Advance Aurora Foundation,[268] uses the U.S. Chamber's talent pipeline management strategy to employ intelligence and industry to develop workforce "talent supply chains."[269]
Greater Chicago Advanced Manufacturing Partnership	Valley Industrial Association (VIA)[270] is home to the Greater Chicago Advanced Manufacturing Partnership, which is a coalition of area manufacturers, education providers, trade associations, workforce development, economic development, etc. with the goal of addressing skills gaps in manufacturing occupations. The partnership provides assessments of skills gaps through employer surveys and programs to raise the awareness of manufacturing career opportunities to students as well as training solutions that are being provided by schools to manufacturers.
Job Skills Training Partnership	A partnership between the three community colleges and the Kane County Office of Community Reinvestment, to share resources (to remove duplicative efforts) and connect WIOA-eligible unemployed and underemployed job seekers to credentialed training programs. Some of these programs include apprenticeships.
Career Pathways	Valley Education for Employment System (VALEES) promotes career pathways including apprenticeships and other skills-based resources.

Currently, there is baseline employer involvement: Elgin and Waubonsee Community Colleges are regularly engaging industry advisory groups that provide input in the development of curricula and in developing work-based learning solutions like apprenticeships (e.g., CNC machining, industrial maintenance and automation technology, cybersecurity, etc.). Engagement with local employers on *non-manufacturing-related* labor supply solutions has been limited (e.g., IT, healthcare, etc.) – and, these employers tend to engage the workforce system only once their labor supply gaps have been acutely problematic.[271]

Opportunities to expand employer partnerships include the development of two new manufacturing and career and technical training centers at Elgin and Waubonsee Community Colleges. The colleges plan to partner with industry and advisory committees to co-locate equipment and develop curricula to address existing and future workforce needs in local and

[268] Workforce Development Program, Aurora Regional Chamber of Commerce, https://www.aurorachamber.com/images/documents/Workforce_Developement.pdf
[269] TPM Orientation, TPM Academy, U.S. Chamber of Commerce Foundation, https://tpmacademy.uschamberfoundation.org/wp-content/uploads/2019/10/TPM_Strategy0_FINAL.pdf
[270] The VIA represents the labor supply interests of member manufacturers in regional committees and consortia.
[271] interviews

tradable sector industries including automation and industrial maintenance, welding, HVAC, robotics, etc.

In working to improve labor market efficiency, it will be particularly important for Kane County to assess labor supply and demand *regionally*. About 67% of Kane County residents work outside the county's borders – and, for every 12 new working residents that have moved to the county, only 1 is employed within its boundaries (see *Spatial Efficiency* section). In addition, the county should coordinate with development of wraparound services (e.g., childcare, transportation).[272]

KANE COUNTY WORKFORCE ECOSYSTEM

Kane County's industrial base is primarily served by **Waubonsee Community College, Elgin Community College, Aurora University, Judson University, Rassmussen College**, and **Columbia College of Missouri-Elgin campus**; **local chambers** and the **Valley Industrial Association**; and the **Kane County Workforce Division** and **workNet Batavia** – managing and implementing federal Workforce Opportunity and Innovation Act programming. Kane County is home to 17 chambers or chamber-like community-based organizations and industry associations. Most of these organizations offer traditional business networking, education, marketing, and business support services.

Elgin, Kishwaukee, Waubonsee Community Colleges have developed several partnerships with state and out-of-state universities to support local completion of degrees. Students at these colleges can be guaranteed admission and/or complete undergraduate education in Kane County at Aurora University, Northern Illinois University (on Elgin's campus), and Columbia College of Missouri (on Elgin's campus). The breadth of the offerings is largely focused on preparation for careers in non-traded industries (i.e., education, criminal justice). Table Y provides a brief overview of each institution's enrollment, completions, and programs relevant to the Kane County's tradable or major industry base.

Kane County is the largest of the three counties that make up the Local Workforce Innovation Area 5 (LWIA) designated by the Illinois Department of Employment Security. Tactically, the LWIA has identified the community colleges, state agencies, and chambers as key partners to support outreach and programming for key industry sectors to promote business growth. There are several programs tied to WIOA through community colleges across the region.

The LWIA and its partners engage middle and high schools with facilitators like **Valley Education for Employment System (VALEES)** to promote early college credit programs, career pathways including apprenticeships, and other career and technical education resources. School districts served through this partnership include the Aurora, West Aurora, Batavia, Kaneland, and Geneva school districts and the **Fox Valley Career Center (FVCC).** FVCC provides vocational training for high school students. The County also include the **Illinois Mathematics and Science Academy (IMSA),** a college preparatory public high school in Aurora, and the **Weisner Family Center for Career Development**.

[272] Spatial efficiency challenges exist in getting to training programs; most are car-dependent and difficult to access especially for residents already working 1-2 jobs.

TABLE 22: EDUCATIONAL INSTITUTIONS IN KANE COUNTY – SELECTED PROGRAMS

Institution	Student Population	2022 Completions	Minority Enrollment	Local Industry Serving Degrees/Certifications and Work-Based Learning Programs
Elgin Community College	8,910	2,201	44% Hispanic or Latino, 7% Asian, 4% Black or African America, 4% Two or more races, 1% American Indian or Alaskan Native	• CNC machining professional* • Industrial maintenance technology* • HVAC • Transportation and material moving • CAD/CADD, design technology • Instrumentation technology • Polymer engineering technology • Mechanic and repair technologies • Certified Nurse Assistant apprenticeship
Waubonsee Community College	7,491	1,564	41% Hispanic or Latino, 7% Black or African American, 5% Asian, 3% Two or more races	• Precision production (i.e., welding technologies) • Health professions and related • Mechanic and repair technologies • Business administration • Computer and information sciences and support • Engineering-related technologies
Kishwaukee College	2,581	791	26% Hispanic or Latino, 12% Black or African American, 4% Two or more races, 1% Asian	• Information Technology Apprenticeship (CAP-IT) • Agricultural, animal, plant, veterinary science • Health professions and related • Biological and physical sciences • Engineering-related technologies • Precision production
Aurora University	5,918	2,181	39% Hispanic or Latino, 6% Black or African American, 4% Asian, 2% Two or more races	• Business, management, marketing, and related • Biological and biomedical • Computer and information sciences and • Computer software engineering • Health professions and related • Mathematics and statistics, physical sciences
Judson University	973	354	37% Hispanic or Latino, 11% Black or African American, 2% Asian, 1% Two or more races	• Business, management, marketing, and related • Natural sciences

Source: National Center for Education Statistics, 2023; institution websites
**In partnership with the Industry Consortium for Advanced Technical Training (ICATT)*
Note: No data for Columbia College of Missouri-Elgin Campus available; unaccredited, for-profit and retail vocational schools not included

Assessment

While Kane County's labor market system is making some connections between its workforce and available jobs (e.g., training healthcare workers to meet demand for nurses), there is a need to improve its efficiency by increasing employer involvement and training/connecting workers to careers in high-growth sectors.

Companies should be reassessing their perspective on talent management, ideally taking a "life cycle" perspective on developing the entire workforce pipeline, akin to how they have engaged in proactively improving their supply chains.[273] Internally, a life cycle framework will naturally lead to reconfiguring hiring practices, taking a skill-based approach to assessing job requirements, upskilling incumbent workers, and evaluating prospective employees. Externally, this will lead to deeper involvement in the design and development of training programs – either through in-house initiatives or employer-led collaboratives to address skills gaps in specific industries.

In particular, to improve labor market efficiency, private sector engagement should be increased to:

- **Design and deliver targeted, skills-based training programs** that align with demand, can be nimbly scaled, and align with the County's strategies to scale high-growth, tradeable clusters. For instance, this may include training for skillsets to enter green economy (e.g., EV technicians), implement sustainability solutions in growing and packaging, or digitizing the logistics sector.
- **Change hiring practices to be more skills-based and inclusive.**[274] While employers are currently engaged in work to outline near-term skills gaps, there is a need for a next level of systems change from the private sector. There will need to be a critical mass of regional employers committed to approaching hiring differently, so that assessments of current and potential employees inform and align with training providers' programming. Reorienting hiring around skills will allow for less reliance on academic credentials that may be outdated or inadequately reflective of a worker's ability to perform well.
- **Support employer-based training.** Scaling delivery of stackable credentials or on-the-job training will play an important role in creating accessible pathways to good jobs – particularly for the significant portion of the BIPOC population working in service-oriented careers.[275]

There is opportunity for Kane County to develop employer-led industry consortia, focused on priority industries, to improve labor market efficiency. There are limited efforts underway currently in Kane County in building these types of partnerships to address future workforce needs. When properly assembled and managed, these partnerships can identify areas suitable for company collaboration so that, rather than strictly competing for talent, industry can develop the region's skills together. These consortia can also expand partnerships with Hispanic-focused organizations

[273] See, for example, the U.S. Chamber of Commerce Foundation's Talent Pipeline Management Initiative, https://www.uschamberfoundation.org/talent-pipeline-management.
[274] The organization and engagement of employers varies. Manufacturers are well-organized. Community colleges have responded with several programs in industrial maintenance and automation technologies, precision production, CNC, polymer engineering technology, etc.
[275] BIPOC education attainment, particularly the Hispanic population, has been improving as enrollment has been increasing at colleges. BIPOC populations have also been moving into higher-paying management-type careers over the last decade. But BIPOC populations are still disproportionately represented in more of the trades and service-oriented occupations.

(e.g., Aurora Hispanic Chamber, Northwest Hispanic Chamber of Commerce) to address workforce challenges and opportunities for the County's growing Hispanic population. Areas of focus for employer-led consortia could include advanced manufacturing (e.g., mechatronics, CNC machining, robotics, CAD programming), clean economy careers (e.g., EV technicians and repair services, ag/packaging sustainability), or advanced logistics (e.g., supply chain management).

III.Innovation & Entrepreneurship

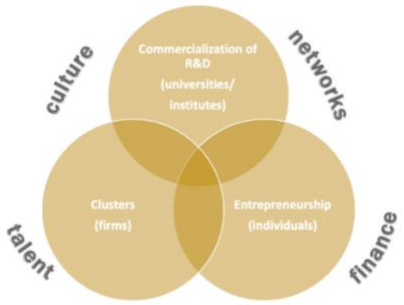
At a fundamental level, in the long run, all economic growth stems from innovation, which by definition generates new value from existing resources through the creation of novel products and the implementation of new processes. [276] The information intensity, technological advances and other characteristics of the knowledge economy enable more rapid and continuous innovation, while at the same time the pace of change and heightened global competition require it. To attain and maintain a competitive edge, firms need to prioritize pursuit of innovation, making idea generation, development and testing (i.e., applied R&D) integral to their business models. Educational and training providers need to produce graduates that are not only at the cutting edge in their respective disciplines, but also experienced in the process of innovation and entrepreneurship. The regional ecosystem must also evolve to provide the multidisciplinary networks that facilitate knowledge exchange and collaborative problem solving, along with the resources to support invention, commercialization and entrepreneurship through their various stages.

Innovation flows from three primary pathways, representing distinct sets of actors (see Figure 16):

1. Commercialization of basic and applied research emerging from universities and private institutes;
2. Entrepreneurs conceiving, prototyping, piloting and producing new products and processes; and
3. Activities within existing firms.

These pathways overlap and function best when closely connected (e.g., research can be commercialized through industry partnerships or entrepreneurs). Crucial supporting elements facilitate those connections and support innovation activities: an innovative, risk-tolerant culture; a rich talent pool; nimble, flexible networks to connect the system's actors and resources; and the right capital to support and scale the various stages and types of activity.

FIGURE 16: PATHWAYS AND FACTORS DRIVING INNOVATION



[276] Innovation is ultimately the source of all long-term economic growth (although in the shorter term, growth can also occur through increasing economic inputs or importing someone else's innovations). See Paul M. Romer, "Two Strategies for Economic Development: Using Ideas and Producing Ideas" (Proceedings of the World Bank Annual Conference on Development Economics, 1992). See, generally, Paul M. Romer, "Endogenous Technological Change" (Journal of Political Economy 98.5.2, 1990): S71-S101; Gene L. Grossman and Elhanan Helpman, Innovation and Growth in the Global Economy (Cambridge, MA: MIT Press, 1991); and Joseph A. Schumpeter, Capitalism, Socialism, and Democracy, 2d ed. (New York: Harper & Bros., 1947; rpt. New York: Harper & Row, 2010). For a review of empirical studies confirming the relationship between innovation and regional economic growth, see Jeremy Howells, "Innovation and Regional Economic Development: A Matter of Perspective?" (Research Policy 34.8, 2005): 1222-1223. For a much more detailed innovation review, see: George Washington Institute of Public Policy and RW Ventures, LLC, *Implementing Regionalism: Connecting Emerging Theory and Practice to Inform Economic Development*.

A region's innovation and entrepreneurship environment and performance are particularly shaped by the degree of grounding that relevant activities have in the region's economic and industrial base. These include strong connections between academic R&D and local industry, industry-focused technical assistance and funding resources, and connections between growing entrepreneurial businesses and the region's largest corporations.

Note the distinction between innovation and entrepreneurship. While entrepreneurship is a key driver and pathway to innovation, not all entrepreneurship is innovative;[277] and not all innovation occurs through entrepreneurship.[278] (The phrase "innovation ecosystem" generally refers more narrowly to the ecosystem supporting entrepreneurship, which heavily overlaps with but is not identical to this broader framing of drivers of innovation.)

[277] Entrepreneurship also encompasses more standard small business formation, and growth in existing products and services. While this type of entrepreneurship may not generate transformative innovations, it is still relevant for regional growth, and particularly to inclusion since it provides a path to increased wealth.
[278] The huge and critical category of firm and cluster-based innovation, for example, often gets too little attention.

Commercialization: R&D and Patents[279]

ACADEMIC AND INSTITUTIONAL R&D

Higher education and research institutions can play a crucial role in innovation; they can become centers of cutting-edge research, license commercially important innovations, provide local firms with consulting expertise, and generate a steady flow of talent. University R&D is the first step in the path to production and growth; to create economic value, applied R&D must be commercialized, through existing firms (industry partnerships) or the creation of new firms (entrepreneurship).

Kane County itself has no higher education institutions that receive Federal research and development funding (universities in Kane County include Aurora University and Judson University[280]). However, regionally there are many: just west of Kane County is Northern Illinois University and several others lie to the east. Industry partnerships with regional universities therefore may be one avenue to growing Kane County's innovation capacity.

Research centers in Kane County include Fermi National Accelerator Laboratory (Fermilab), which focuses on particle physics. Federal research dollars attracted by Kane County research institutions are low (see Table 23), and most federal funding that is distributed to Kane County is for Fermilab. Fermilab's work is primarily early-stage research with long commercialization timelines. While Fermilab has historically been somewhat siloed from the surrounding community, it has plans to build a new center to grow collaboratively innovation. The center will likely focus on use cutting-edge e-beam technology to improve the efficiency of industrial chemical processes – for applications including wastewater treatment or medical device sterilization.

TABLE 23: FEDERAL INNOVATION-SUPPORTING GRANTS ($K)

Geography	NIH R01 Grants	NSF	DOE	USDA (Research Related)	R&D Expenditures at Federally Funded R&D Centers
Chicago MSA	$550,897	$209,723	$99,320	$2,353	$1,291,424
Kane County	$0	$249	$639	$100	$338,037
Kane % of MSA	0%	0%	1%	4%	26%

Source: data-Fab analysis of federal datasets. Note: Data is an average of 2020-2022, in 2022$.

PATENTS

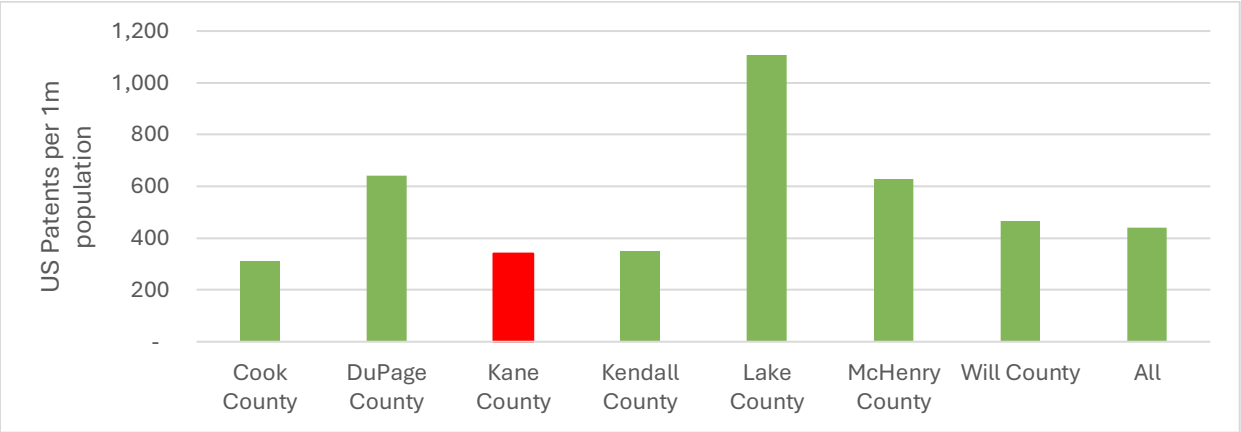
Patents are an important indicator of innovation activity, linking research and commercial applications. At 340 patents per 100,000 population, Kane County ranks 6th in the 7-County region,

[279] Innovation is difficult to measure with data; variables and associated datasets presented in this section are the best available indicators of innovation. Even these datasets are lacking. For instance, NETS data slightly overstates the amount of startup activity because it measures establishments, not companies (although majority of new establishments are in fact new companies). And some datasets, like Pitchbook, do not account for small/private deals.

[280] In addition, there are 3 community colleges: Elgin Community College; Rasmussen College; Waubonsee Community College

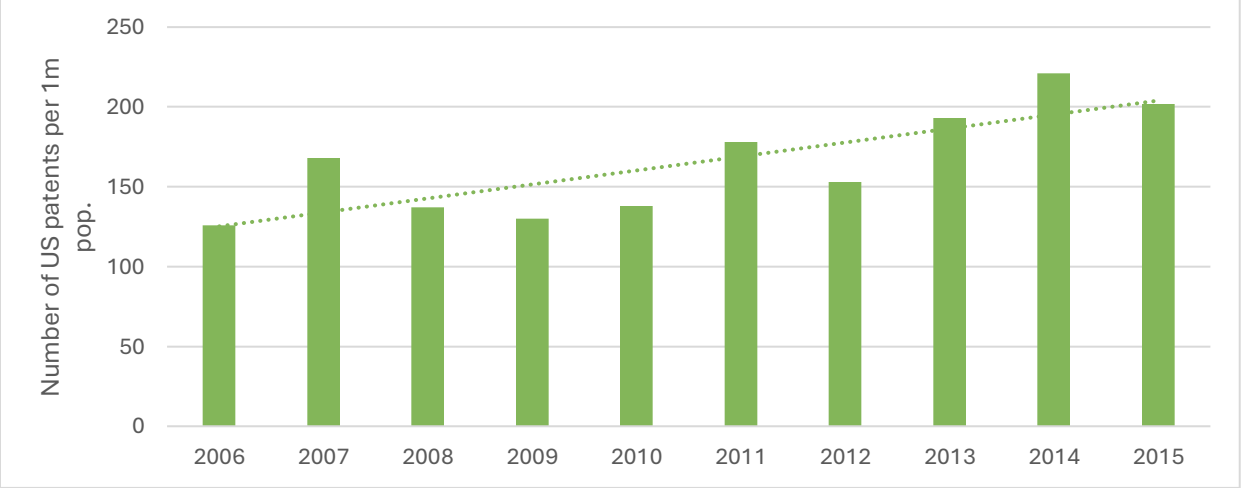
with numbers similar to Kendall and Cook counties (see Figure 17).[281] However, Kane County's patents have been growing steadily (see Figure 18).[282]

FIGURE 17: US PATENTS RECEIVED BY ASSIGNEES IN SELECTED ILLINOIS COUNTIES, 2000-2015



Source: USPTO.

FIGURE 18: NUMBER OF US UTILITY PATENTS GRANTED PER 1M POPULATION, 2006-2015



Source: USPTO.

Most patents in Kane County are held by a few large companies. Among the 50 largest employers in Kane County, Suncast (a manufacturer of outdoor equipment) holds 607 patents, Lifespine (medical devices) holds 290, and OTTO Engineering (electrical and audio equipment) holds 33. Some smaller high-tech companies also hold a number of patents; for example, Muons Inc. has 9 patents on record. Suncast, OTTO, Lifespine, and Muons all appear to operate in quite tightly specified niche sectors, where there are few opportunities for development of either an upstream

[281] For this analysis, we reviewed patents in Kane County and six other counties around the Chicago area, for the period covering 2000-2015. USPTO provides no data by county beyond 2015. In order to develop an appropriate benchmark, we normalized the data to provide patents received per 1 million population. Note that the high number of patents in Lake County may be due to the presence of large pharmaceutical companies (e.g. Abbott Laboratories, AbbVie).

[282] The most recent available data is for 2015.

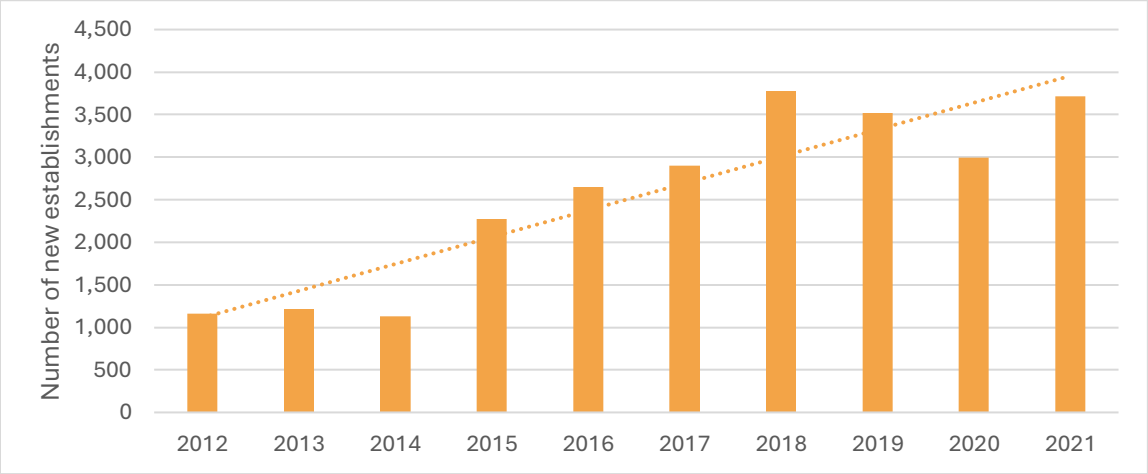
specialized supply chain or a cluster of downstream industry users.[283] The companies that dominate county patenting patterns are unlikely to become the basis for driving innovation more broadly in the future.

Entrepreneurship

STARTUPS

Patterns of startup formation are broadly influenced by the state of the overall economy. The rate of company formation is also an important measure of business climate. Establishment formation in Kane was negatively affected by the aftermath of the 2008 financial crisis and the aftermath of the 2020 COVID-19 pandemic (see Figure 19).

FIGURE 19: ESTABLISHMENT FORMATION IN KANE COUNTY, 2012-2022

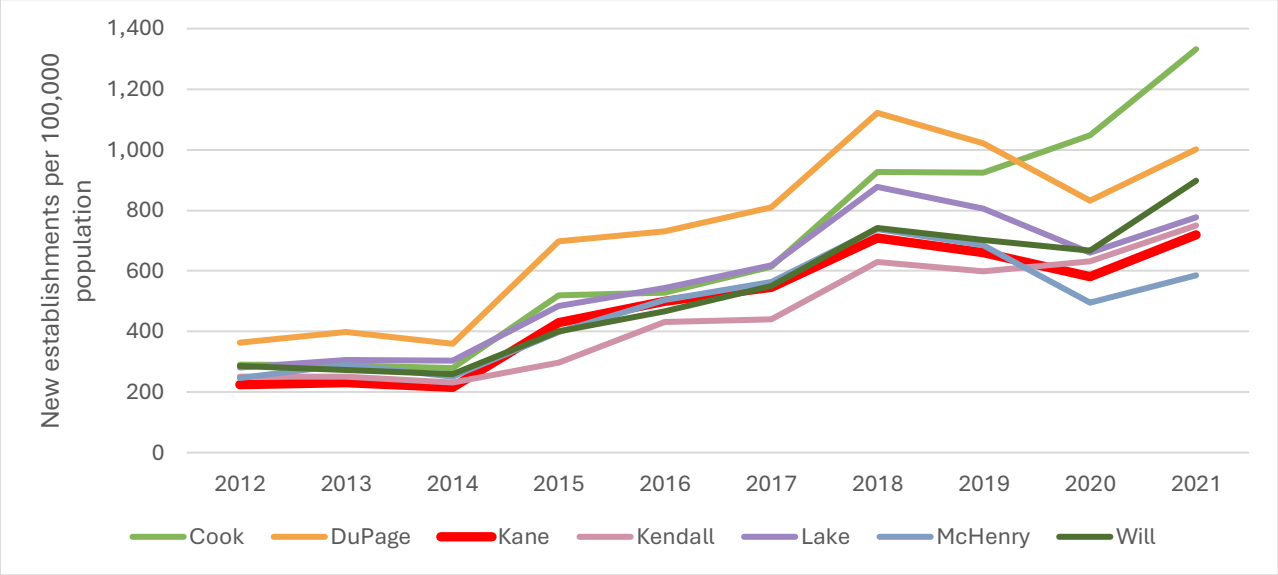


Source: NETS.

Kane County's experience broadly mirrors that of Cook and surrounding collar counties, with some nuances. Establishment formation in the region[284] grew during the past decade, from fewer than 2,000 (per 100,000 people) in 2012 to more than 6,000 across all selected counties for the first time in 2021. Registrations in Cook County grew fastest, up more than 4-fold during this period, while DuPage registrations grew rapidly but were significantly down during the pandemic years. Kane remains among the counties with relatively few new establishments relative to its population, despite significant growth in the past decade (see Figure 20).

[283] Suncast has no local supply chain and sells direct to consumers and garden supply retail stores. OTTO buys components off the shelf and serves regional and national customers. Muons primarily sells services and custom products to the National Labs and other highly specialized buyers. Lifespine appears to be both a technology developer for others and a specialized surgical facility for its own patients.
[284] The 7-County CMAP region

FIGURE 20: NEW ESTABLISHMENTS BY COUNTY, 2012-2021



Source: NETS. Note: This graphs new establishments; it does not take into account those that closed/relocated.

Of key sectors in Kane County (those listed in Table 24),[285] new establishments are dominated by business and professional services, which accounted for more than 21,000 of the ~25,000 establishments formed during the period. This is followed by freight services (7.2% of new establishments), ag-tech (2.1%) along with a wide range of "green businesses" (5.5%). The share attributable to business and professional services continues to grow, up from 66% in 2012 to 87% in 2022, while the share of ag-tech has declined sharply since 2016, as has the share of the logistics-related sector.

As explored in more detail in the *Business Services* chapter, key sub-sectors that are growing in Kane County include Advertising Services, Repair and Servicing, and Packaging (in particular to support the Food and Beverage industry). The growing clean economy may also provide opportunities to grow new establishments to support it.

TABLE 24: PERCENT OF NEW ESTABLISHMENTS IN KANE COUNTY BY SECTOR, 2012 AND 2021

Sector	2012	2021
Ag Tech	2.7	1.1
Ag	0.1	0.0
Green manufacturing	7.2	1.9
Green construction	1.0	0.4
Green R&D/services	7.8	3.0
Manufacturing	0.9	0.2
Business services	66.3	87.2
Logistics/freight/transport	13.9	6.3

Source: NETS.

[285] The clusters assessed here are different than the priority clusters analyzed in the report. Here, we analyzed legacy clusters that are important to Kane County (e.g., agriculture, food and beverage manufacturing, manufacturing of metals, paper, plastics; business and professional services, TDL) but also high-growth clusters being disrupted by innovation (e.g., ag-tech, green manufacturing, green construction, green R&D).

MOVEMENT INTO AND OUT OF KANE

The movement of companies provides a useful lens through which to view the relative dynamism of the business climate. In addition, if Kane County is developing a strong innovation ecosystem, we would expect to see consequent clustering of incoming firms in some innovative sectors.

From 2012 – 2021, about 1,250 establishments moved into Kane from across Illinois. Most (42%) moved from within Kane[286] or moved from nearby counties - 41% from Cook and DuPage. Only about 5% of incoming firms have come from other states – primarily Wisconsin and Florida.[287] The sector-based data does *not* suggest that incoming firms are clustering in a specific industry (see Table 25); of the incoming firms from out of state, about 40% are engaged in business services, and this represent a wide variety of industries (e.g., repair to real estate to design services). Ag-tech is the only sector where the number of out-of-state incomers suggests that a hub of innovation activity could be starting to emerge; it accounts for about 13% of out-of-state incomers. However, Ag-tech's share has declined in recent years.

TABLE 25: INCOMING ESTABLISHMENTS BY SECTOR, 2012-2021 (%)

Synthetic sector	% of out of state incomers
Business services	42.6
Ag-Tech	12.8
Prof. services	9.8
Green biz.	4.5
Sustainable transport.	4.5
Metals and machinery	4.1
Energy	4.1
Food and Bev manuf.	2.6
Plastics manuf.	1.5

Source: NETS.

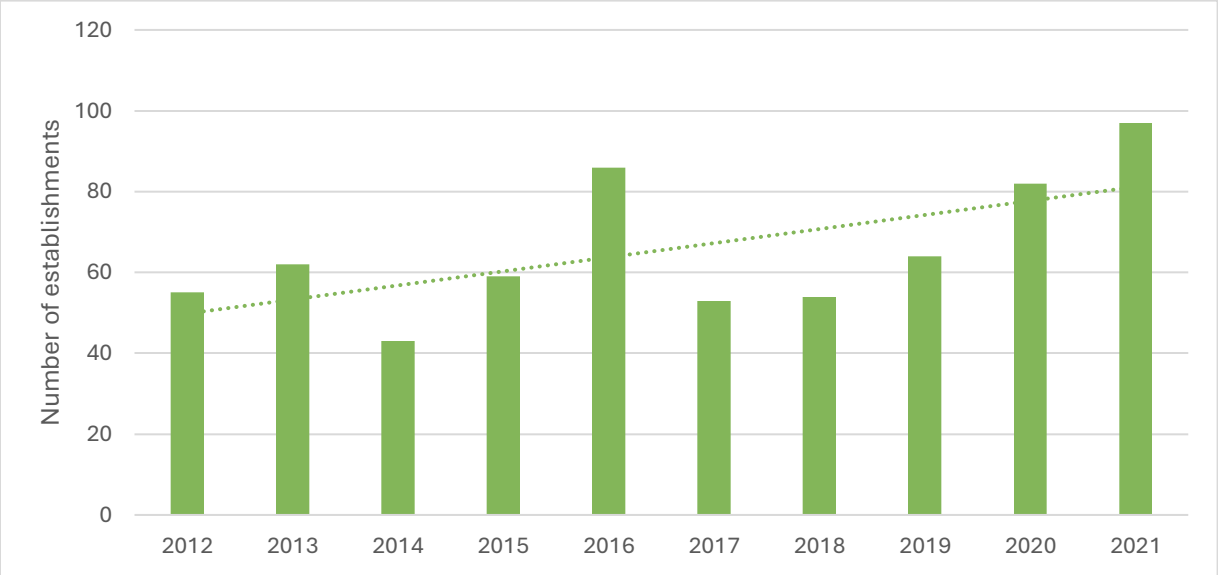
More importantly, the number of establishments leaving Kane County for other states is significantly higher than the corresponding number of incomers. Between 2012 and 2021, 655 establishments left, while only 266 entered from other states. The trend is also quite negative: the rate at which establishments leave has on the whole been growing over the past decade (see

FIGURE 21). The top out-of-state destination is Florida, followed by Wisconsin, Texas, and Tennessee. Among establishments that left for other Illinois counties, most went to DuPage and Cook.

[286] For those that came from "within Kane:" this is due to moving from one location to another, or opening a new location. Source: analysis of NETS database.

[287] Kane County averages about 32 incoming establishments from out of state annually, and this number has not changed significantly over the past decade. Source: analysis of NETS database (2022).

FIGURE 21 NUMBER OF ESTABLISHMENTS LEAVING KANE COUNTY FOR OTHER STATES, 2012-2021.



Source: NETS.

FUNDING

Another way to view entrepreneurship activity is to look at funding flows. High growth companies – or companies with significant high growth potential – in the US are usually funded by private investment from angel investors or venture capitalists, and secondly from government funding provided via the Small Business Innovation Research (SBIR) program.

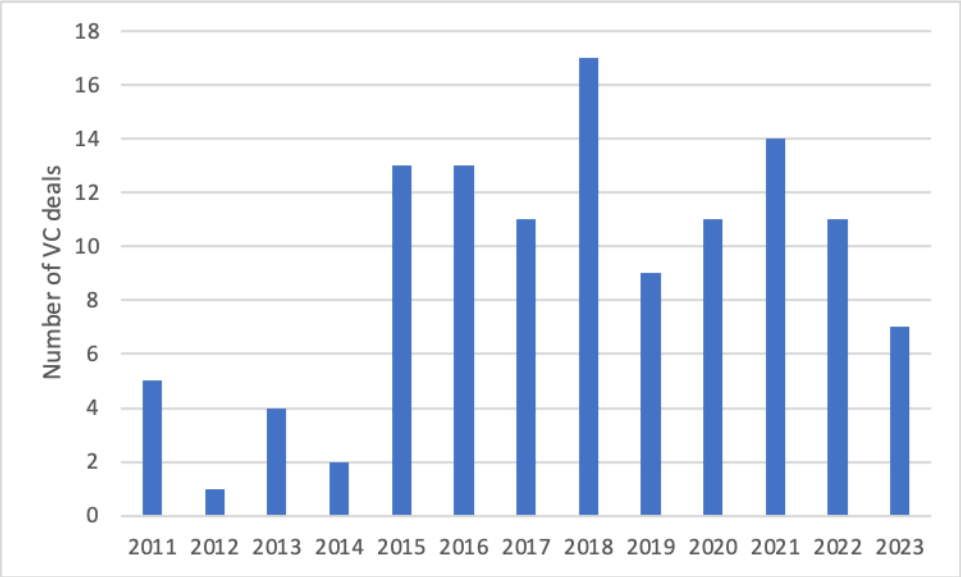
VC and angel investment

Growth investments in Kane County companies from private sector sources totaled $339 million between 2011 and 2023, spread across 118 deals.[288] This is about one-quarter of average investment per capita across the Chicago MSA ($400 per capita in Chicago MSA versus $50 per capita in Kane County).[289] There have been about 11 deals annually in Kane County since 2015, though there has of course been substantial annual variation (see Figure 22).

[288] About half of the total was provided through three investments.

[289] Chicago MSA received $11,779 million in VC over a 3-year period, 2019 – 2021 – an average of $3,926 million per year (and $413 per capita for the MSA's ~9.5 million people). https://www.bloomberg.com/news/articles/2023-12-07/san-francisco-bay-area-nyc-boston-dominate-vc-investment-in-us

FIGURE 22: GROWTH COMPANY INVESTMENTS IN KANE COUNTY, 2011-2023



Source: Pitchbook.

Based on venture investment data, there is no dominant sector receiving substantial venture investment, and later-stage rounds are relatively rare, which likely reflects an absence of successful venture-funded companies. For instance, four Kane companies have received investments of at least $10m since 2011 (see Table 26):[290]

- Mako provides cloud-based security services
- Stix is in the cannabis manufacturing business
- Clearflame is a green tech company focused on reducing diesel emissions via ethanol

TABLE 26: KANE COUNTY COMPANIES WITH AT LEAST $10M IN VENTURE INVESTMENT, 2011-2023

Company	Amount ($M)	Year	Type	Sector
Mako	60	2022	PE	IT Services
ClearFlame	30	2023	VC-Late stage	Business services
Stix (Recreational Goods)	10	2022	VC-Early stage	Manufacturing

Source: Pitchbook. Note: sector names were edited where data seemed inaccurate.

SBIR/STTR

The Small Business Innovation Research (SBIR) / Small Business Technology Transfer (STTR) program is the largest federal government program for small business innovation. It provides about $2 billion annually in grants and contracts to small businesses. Most Kane County businesses have less than 5 employees (58.9% - higher than the US average of 56.6%),[291] and small business support is therefore important to sustain and scale these businesses. Kane County receives just 3% of the SBIR/STTR awards distributed across the Chicago MSA.[292]

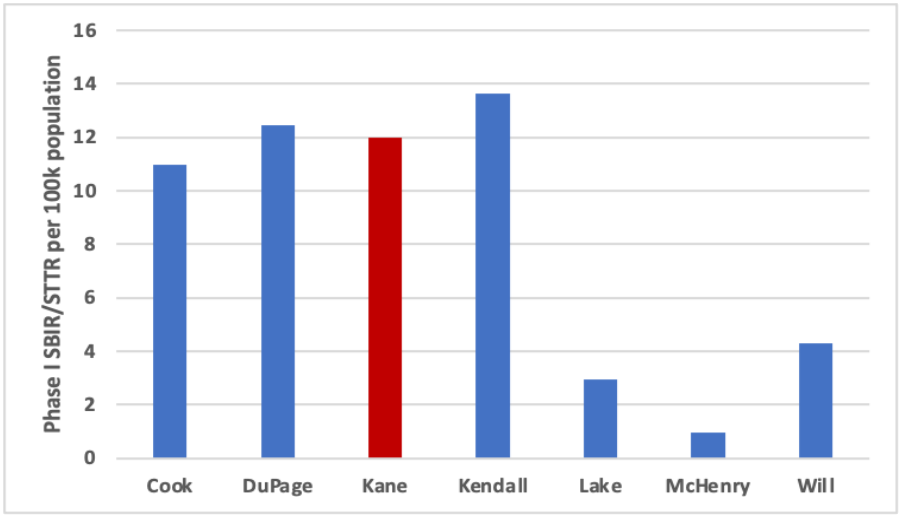
[290] In addition, the Pitchbook VC data includes Greater Elgin Family Care Center - a health care provider whose funding was provided by the US Department of Health and Human Services. It was not included in Table 26, as it is not a typical venture investment.
[291] US Census. County Business Patterns, 2021
[292] Mass Economics analysis of federal data.

SBIR/STTR awards are distributed in two phases, and Phase I awards are followed in just under half the cases by the much more substantial Phase II award:

- Phase I awards are around $150,000; they are an important gateway into the Federal support system and help companies to complete proof of concept studies (and are designed to help and encourage small businesses to commercialize their innovation).
- Phase II awards are typically for $1-1.5 million, and for new small businesses they can be transformative.

Kane County is generating Phase I awards at a rate that is approximately in line with Cook County and the most successful collar counties (see Figure 23).[293]

FIGURE 23 PHASE I SBIR/STTR AWARDS (PER 100K POPULATION)



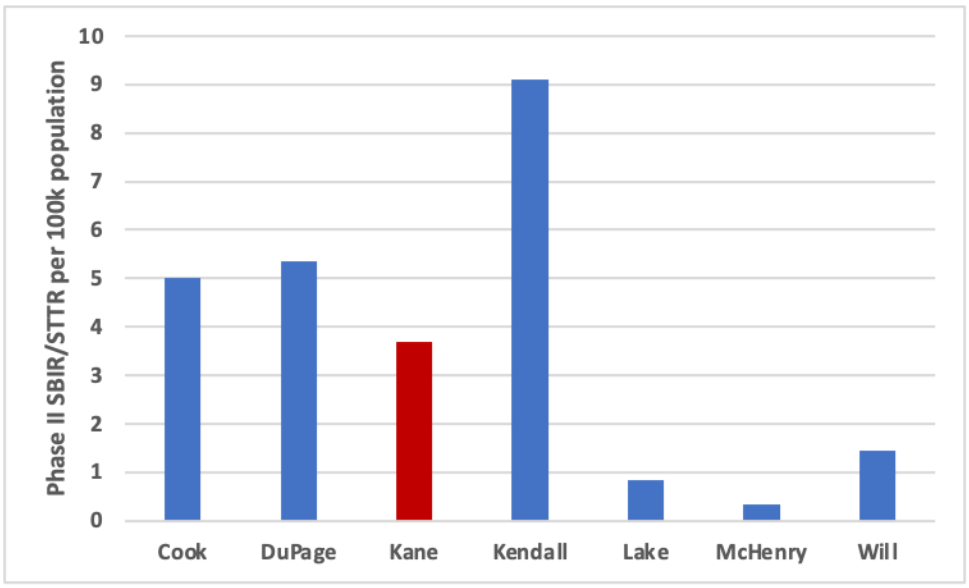
Source: SBA.

Phase II tells a somewhat different story. Kane County businesses have found it difficult to translate their Phase I successes into Phase II, as shown in

[293] The amounts generated by these awards largely reflect the number of awards, as award amounts for Phase I do not vary much within the SBIR/STTR program. Note: All data from SBA reflect SBIR and STTR awards collectively. To ensure that we are measuring innovation capacity correctly, we rebase the data on a per population basis (per 100,000 population).

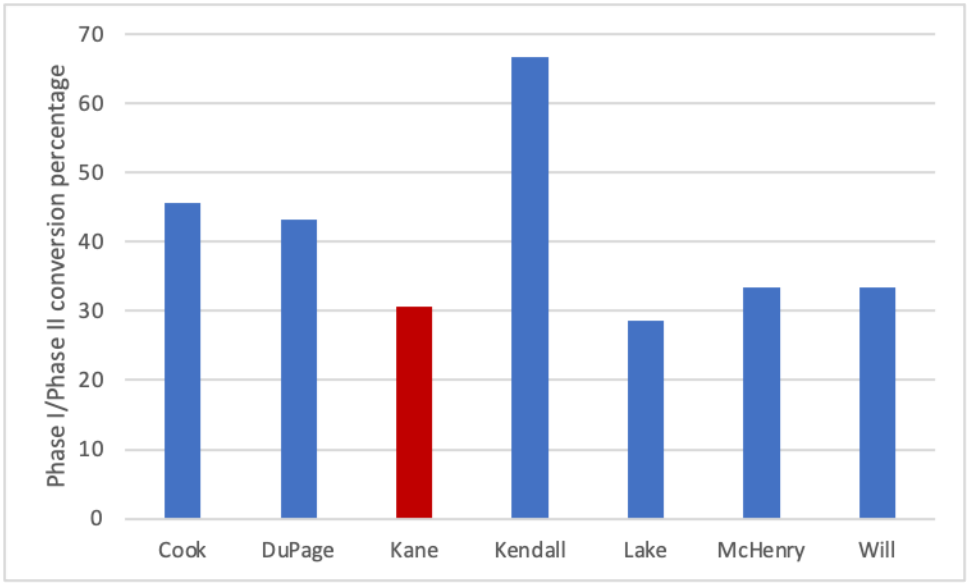
Figure 24. The county's conversion rate (30.6%) is well below the average for the seven counties (45%), falling far behind Kendall County but also behind Cook and DuPage (see Figure 25). Low conversion rates strongly suggest low commercialization potential.

FIGURE 24 PHASE II SBIR/STTR AWARDS (PER 100K POPULATION)



Source: SBA.

FIGURE 25 SBIR/STTR PHASE I/PHASE II CONVERSION (%), BY COUNTY.



Source: SBA.

Explanations can be found by looking at award-winning companies. In Kane County, Phase I awards are concentrated in a few companies, and fewer still receive Phase II awards. Eleven Kane County enterprises have received at least one Phase I SBIR/STTR award (see Table 27),[294] with Muons Inc. and Vega Wave Systems Inc. leading the way with 27 and 16 awards respectively

[294] Vega Wave has been receiving awards consistently since 2003, the majority from DOE. However, it has been markedly unsuccessful in converting Phase I to Phase II awards. Its technical focus has been on radiation hardened communications technology, largely designed for use with the sponsoring Federal agencies (notably DOE in recent years). DOE accounts for all Muons awards, which given its emphasis on high energy physics is not surprising. Industrial Measurement has not received an award since 2016, while Epsilon Lambda's most recent award was in 2013.

(majority from DOE).[295] These two companies have relatively poor track records in converting Phase I awards to Phase II (Vega Wave's conversion rate is especially low at 12.5%).[296] Muons is focused on high energy particle physics technologies that, while they could have significant commercial markets, are not expected to reach commercialization until the 2030s.[297]

TABLE 27: SBIR/STTR AWARDS BY COMPANY IN KANE COUNTY

Company	Phase I	Phase II
E3TECSERVICE, LLC	1	1
Epsilon Lambda Electronics Corp.	5	
Industrial Measurement Systems, Inc.	5	2
K2 Biomicrosystems LLC	1	
Kaliber Imaging, Incorporated	1	1
Kazadi Enterprises Ltd.	1	
Kinetic Bei LLC	2	1
Muons Inc	27	10
Nextwatt LLC	2	
Protonvda LLC	1	2
Vega Wave Systems Inc	16	2
Total	62	19

Source: SBA.

ENTREPRENEURSHIP ECOSYSTEM

In general, companies need different resources as they grow and mature. Individual support for firms often is most successful if it's highly tailored to the circumstances of each firm. Generally, business support needs are as follows:

- **Startup support** - generic support, often provided by mentors (e.g. business registration, business planning, market research, legal consulting), access to strong local business networks
- **Growth support** – incubators or accelerators, with intensive peer networking, support from specialists, and access to resources - particularly capital
- **Scale-up support** - highly specialized, sector-specific expertise (e.g. new technologies; specialized product and market development; identifying new markets, production facilities, etc.)

Resources within Kane County that exist to help businesses launch or scale include the Fox Valley Entrepreneurship Center (FVEC),[298] Small Business Development Centers (SBDCs) at Waubonsee

[295] Other awardees like Epsilon Lambda Electronics and Industrial Measurement Systems appear to have dropped out of the SBIR/STTR program.
[296] Sometimes, agencies use Phase I awards to undertake contract research with no real expectation of later commercialization. It is unclear whether Vega Wave awards fall into that category.
[297] Muons Inc website. www.muonsinc.com
[298] FVEC provides growth support to Kane County and surrounding areas, but on a very limited scale (usually 6-8 companies annually – see FVEC callout box, in *Vision and Strategies* section). FVEC offers inexpensive support for scale-up companies particularly those with strong local roots, and good connections to local resources such as banks.

and Elgin Community Colleges, [299] Chambers, and select resources provided by cities.[300] In addition to providing specialized support to companies by stage of growth and sector, there is a need to provide targeted resources to address barriers for scaling BIPOC-owned businesses. The minority business enterprise (MBE) rate in Kane County is 20.8% - higher than the MSA rate (see Table 28).[301] While these businesses span a variety of industries, many are in lower-growth sectors (e.g., retail, repair, food manufacturing, construction, electricians, etc.) and could benefit from support to scale or move into higher-growth markets. But first, Hispanic business owners are in need support getting established, including:[302]

- Registration assistance – guidance to register their business (many operate from home)
- Citizenship assistance – need for immigration attorneys to provide pathway to citizenship; need for training/programs to be offered in Spanish
- Mentorship/assistance – Business plans, finance plans, marketing support (most marketing is word of mouth), growth advising
- Access to capital – credit is an issue in accessing a loan; grant processes are often complicated

TABLE 28: ENTREPRENEURSHIP RATE (%): FIRMS TO POPULATION, AGED 25-64 ('000)

	Total	MBE
Illinois	36.4	15.8
Chicago MSA	38.5	16.2
Kane County	42.2	20.8

Source: data-Fab, ABS (2017)

While there are no major sources of business financial support within the County, a few programs do exist (e.g., Invest Aurora's EDA Revolving Loan Fund).[303] Regionally and nationally, there are debt-based tools available to Kane County businesses. For instance, CDFIs include: Bridge Investment CDC, C3 Fund, Chicago Community Loan Fund, LiftFund, The Grow America Fund. A few innovation centers are in development that may help entrepreneurs connect with resources, such as Fermilab's incubator around high energy physics, Waubonsee Community College's auto center, or Elgin Community College's manufacturing center.

In general, Kane County has a relatively low level of startup, growth and scale-up support. Interviewees have noted a need for additional business launch/scale support (e.g., writing a business plan, assessing financial resources, etc.), in particular for BIPOC-owned businesses. To provide this, relationships and trust-building will be important; the Hispanic business community

[299] Waubonsee Community College, which serves three counties including Kane, hosts an SBDC program which provides startup supports for entrepreneurs. It offers workshops for both startups and existing small businesses, addressing standard business challenges. It also offers some initial growth support via a 7-week program based on the Kauffman Foundation's FastTrac curriculum, cosponsored with SBDC and the Fox Valley Entrepreneurship Center (FVEC).

[300] For instance: Elgin for example has a business start page which includes links to a comprehensive permitting and licensing page: https://www.elgindevelopment.com/start-a-business/. However, it does not offer any further support for entrepreneurs, besides directions to activities that connect with the city itself i.e. permits and zoning.

[301] Many of these businesses are Hispanic-owned. About 40% of businesses served at Waubonsee SBDC are Hispanic-owned, and organizations like the Aurora Regional Hispanic Chamber work to serve the needs of Hispanic business owners (but there is a need for greater resources/support according to interview findings). Note that nationally, Latin American immigrants are launching businesses at more than twice the rate of the US population. https://www.wsj.com/business/entrepreneurship/latinos-are-starting-u-s-businesses-at-a-torrid-pace-64773fc3?st=rr235t6kccoglmx

[302] interviewee

[303] https://investaurora.org/financial-assistance/eda-revolving-loan/ .

responds better when an SBDC or Chamber does community outreach – rather than hosting in-office support.[304]

In addition, Kane County businesses need greater financial support – most notably early-stage VC or angel investments.[305] Outside of Kane County's borders, there may be opportunity to connect entrepreneurs with regional resources to launch and scale their company; for instance, to Northern Illinois University, to the many resources in Cook County (e.g., mHUB's scale-up support curricula), to national VCs (e.g., SJF Ventures), or to one of Illinois' planned cleantech incubators around the state. This will require a mechanism that can efficiently match Kane County entrepreneurs with resources specific to their industry and stage of growth.-

Cluster- and Firm-Based Innovation

This third pathway to innovation is addressed in the cluster sections above. Notable takeaways include the need to address impacts to Kane County's key clusters - such as reshoring, digitization and climate change – in order to help each stay competitive. There is also a need for more partnerships to drive collaborative innovation (e.g., to develop and manufacture new advanced logistics products, to increase the use of technology in farming). This can be done through better connections to regional partners or resources, or even through the development of a new innovation center that brings together stakeholders in a specific industry (see *Strategies* section).

Assessment: Kane County's Opportunities

Kane County does not have strong private-sector led innovation,[306] nor large research institutions (with the exception of Fermilab, which conducts early-stage research and does not significantly commercialize). Efforts to build the innovation capacity of a region are usually tied to either of these[307] – knowledge-intensive companies or large research institutions – and without these building blocks, the county's capacity for invention is limited. Instead, the County can convene industry partners and stakeholders – within the county, regionally, or even nationally – around an Innovation and Entrepreneurship Hub concept to make a bet on a specific industry cluster. There could even be an opportunity to work with Fermilab to jointly design a new innovation center around e-beam technology, provided there is enough of a market for the County to make a long-term bet on this.

The county does have a relatively high rate of entrepreneurship, particularly in the Hispanic community. However, there are not enough resources for entrepreneurs to launch businesses or scale. The Business Services cluster in particular has a significant number of entrepreneurs and small businesses within facilities management, food and beverage manufacturing and packaging, and repair/servicing – each of these industries would benefit from more targeted business support. Kane County is well placed to develop a suite of low-cost generic business information and an online resource center, which could go a long way to provide the necessary framework within

[304] interviewee
[305] Later stage investment rounds are relatively rare, which likely reflects an absence of successful venture-funded companies
[306] The county does have some knowledge intensive companies but these companies focus on in-house product development that is not concentrated in a specific industry or supply chain.
[307] Silicon Valley is the most obvious example, but Carnegie Mellon and large research hospitals have helped drive the biomedical cluster in Pittsburgh, while the nanotechnology cluster around Albany was driven by the arrival of Global Foundries.

which further startup support could be developed. The County could also connect startups, growth companies, and companies ready to scale to existing resources within the county and across the region – and, help build an entrepreneurship network.[308]

[308] Then, development of incubators or accelerators might flow quite naturally from an enhanced focus on specific sectors.

IV.Governance

The increasingly dynamic economy places a premium on rich formal and informal networks that enable exchange of ideas and facilitate relationships, transactions and coordination across the public, private and civic sectors. Regions that enable the ready entry of new people and firms and the fluid development of the relationships, deals and activities that drive innovation and economic activity are the ones that are succeeding.

Facilitating this type of environment requires a new form of governance – a constellation of public, private and civic institutions – that fosters open, adaptive and flexible cross-sector networks. [309] **Gover*nance***[310] thus includes but goes well beyond the role of government, referring to the business, civic, and cross-sector institutions that constitute the formal and informal networks enabling economic growth.

Government needs to enable economic activity through value-added public goods; efficient and streamlined processes; transparency and information sharing; and broad-based stakeholder engagement. County government, in particular, influences economic growth through:

- its inherent governmental capacities (taxation, regulation, and the provision of public goods) shape and enable market activity;
- its various offices, bureaus, and departments administer economic development funds or tools (such as property tax abatements); and
- its position as a major employer, purchaser, and property owner can be leveraged to improve workforce quality, local business growth, and efficient urban development.

In addition, public-, private- and civic-sector actors alike need to heighten their capacity to deliberately and proactively engage in collaborative, cross-sector efforts; develop locally tailored economic growth strategies; and engage leaders and stakeholders across all sectors to own and execute them. Notably, the private sector plays an increasingly critical and productive role in governance, as business leaders are observing the alignment of their business interests with broader regional economic success.[311]

Governance is also a key element in advancing both climate action, as it influences local production and consumption habits, and economic inclusion, as it shapes the composition and growth dynamics of the local market, including who gains access to the information, networks and support needed to participate in the economy.

Examining governance falls into three broad categories:

- **Fragmentation** – the proliferation of units of government, both vertically and horizontally, and its effects on firm efficiency, productivity and the costs of doing business
- **Tax-value proposition** – the value that firms and households receive in the form of public goods and services, relative to the amount of tax dollars paid

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[309] See: RW Ventures, LLC, *New Institutions for a New Economy,* Online Publication: 2018, available at http://rw-ventures.com/new-institutions-for-a-new-economy/.

[310] As Bradway and Shah (2009) define it, governance is "the formulation and execution of collective action at the local level." See also: Transformative Economies, available at: https://www.brookings.edu/wp-content/uploads/2016/06/1208_metro_summit_business_framing_paper.pdf; Implementing Regionalism, available at: http://rw-ventures.com/wp-content/uploads/2017/01/Surdna-Final-Paper-Combined-112111.pdf

[311] See: http://rw-ventures.com/evolving-corporate-business-engagement-in-community-and-economic-development/

- **Cross-sector institutional environment and culture** – the extent to which public, private and civic stakeholders coordinate and collaborate, the norms of local business culture (e.g., openness, flexibility, etc.), and the effectiveness of partners in their economic development work in regional and local spheres.

Observations

Kane County has 29 municipalities – 5 cities (Aurora, Batavia, Elgin, Geneva, St. Charles) and 24 villages.[312] The County also has several unincorporated communities. About 10% of the County's population lives in unincorporated areas[313] (which comprise about 50% of county land area).

Kane County is overseen by a 24-member Board. The majority of County economic development activities are run by the **Development and Community Services Department**. The department oversees land use and zoning, building permits, farmland programs, and historic preservation. The **Kane County Planning Cooperative** (Health, Transportation and Development staff) works together to implement the County's long-term plans and provides technical assistance to municipalities – but it's focus is on land use and planning (not economic development). **Chambers of Commerce** representing select municipalities assist in business development – there are 14 across the County.[314] Three visitors' bureaus help promote the County: **Aurora Area Convention and Visitors Bureau**, **Elgin Area Convention & Visitors Bureau**, and **St. Charles Business Alliance**.

FRAGMENTATION

Government includes the county, municipal, school district, and various special districts in a regional economy. Vertical fragmentation refers to the number of tiers of government while horizontal fragmentation refers to the number of local governments in each tier.[315]

Illinois is home to the most general purpose governments of any state (2,822).[316]Including special purpose districts like libraries, parks, forest preserves, fire protection, sanitation, and transportation, Illinois has 6,963 units of government – 1,800 more than its closest competitor.[317] Excessive vertical and horizontal government is a challenge in the Chicago region. Kane County has 0.8 units of government per 10,000 residents – higher than Cook County, but lower than collar counties of McHenry, Kendall and Lake Counties (see Table 29).

[312] https://www.kanecountyil.gov/Pages/communities.aspx
[313] Kane County 2040 Plan
[314] http://www.whykane.org/Community-Development.aspx
[315] Horizontal fragmentation refers to multiple governments of the same type covering distinct sub-areas of geography – for example, multiple municipalities within a metropolitan area.
[316] Census of Governments, Local Governments by Type and State: 2022. Table ID CG2200ORG02. General purpose = County, municipal, and township governments.
[317] https://www.illinoispolicy.org/reports/too-much-government-illinois-thousands-of-local-governments/#:~:text=The%20process%20to%20consolidate%20or,be%20revised%20to%20reflect%20this.&text=Taxpayers%20should%20not%20be%20on,corruption%20and%20end%20wasteful%20spending

TABLE 29: UNITS OF GOVERNMENT, BY COUNTY

County	General Purpose Governments	Govs per 10K Population	Govs per 1K Sq. Mile
McHenry County, Illinois	45	1.5	74.6
Kendall County, Illinois	18	1.4	56.2
Lake County, Illinois	64	0.9	144.3
Kane County, Illinois	41	0.8	78.8
Will County, Illinois	50	0.7	59.7
DuPage County, Illinois	39	0.4	119.1
Cook County, Illinois	150	0.3	158.7

Source: 2017 Census of Governments, summarized at: https://www.governing.com/news/headlines/gov-most-local-governments-census.html

In addition to making deliberate, comprehensive development planning challenging, too many units of government can result in duplicative service provision, increased bureaucracy for businesses, counterproductive inter-governmental competition to attract new business and higher overall costs of government.[318]Overall, Kane County has a high level of horizontal fragmentation due to its number of municipalities – each with their own growth plans and agendas. Some municipalities implement growth plans more formally through an economic development organization:[319]

- **Aurora** - Invest Aurora
- **Elgin** – Elgin Development Group
- **South Elgin** – South Elgin Economic Development (SEED) Council
- **Montgomery** – Montgomery Economic Development Corporation
- **Sugar Grove** – Sugar Grove Economic Development Corporation

These offer differing visions for growth within the County, presenting challenges. This causes obstacles for new business development; for instance, zoning ordinances and permitting are different for each municipality, and interviewees cited that the process can be confusing and bureaucratic.[320] This also hampers growth due to lack of alignment and coordination around a county-wide vision for the future. While interviewees didn't cite that much inter-municipal competition for business development, they did note that each municipality has a different vision for its growth (with many predominantly focused on retail) – meaning, they may be focusing on smaller details and a more limited scope.

As noted in the Economic Framing section, economies operate at the metropolitan level and thus collaboration is important not just within Kane County but across the region. Four of the County's five cities (Aurora, Batavia, Elgin, Geneva, St. Charles) are in more than one county, which underscores the importance of improving regional collaboration. In some cases, being in multiple counties is useful given that other counties have Economic Development Organizations (e.g., Choose DuPage provides data to help inform development decisions in Aurora).[321] Regional

[318] http://rw-ventures.com/wp-content/uploads/2017/01/FINALPFPReport.pdf
[319] https://kanecountyconnects.com/article/KaneCountyGovernment-WorldBusinessChicago; http://www.whykane.org/Community-Development.aspx
[320] Interviewee in municipal economic development
[321] interviewee

organizations assist in coordinating economic development across the Chicago MSA include the **Greater Chicagoland Economic Partnership**, a recently formed collaborative to drive growth and coordinate a vision for the region[322] and **CMAP**, the regional planning agency for the 7-County region.

TAX-VALUE PROPOSITION

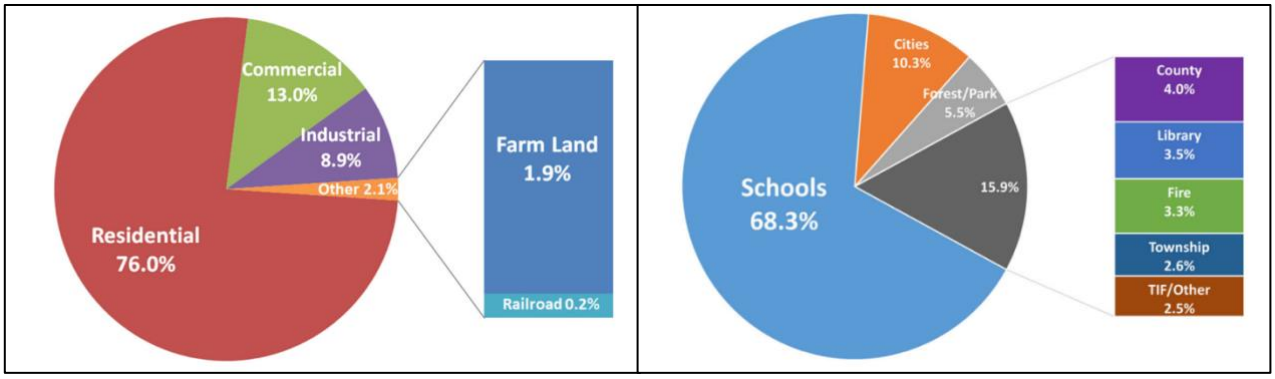
Regions must strategically determine the combination of taxes (e.g., property, user fees, etc.), and public goods and services (e.g., infrastructure, human capital, research centers, etc.) that will make their location most attractive and productive for their residents, firms and industries.

While attention can be paid to minimizing taxes and regulatory burdens, measuring a region's tax-value proposition is more complex than many over-simplified "best business location" indices would suggest. The question is whether residents and firms are getting their money's worth and a value commensurate with the taxes and regulations they must navigate. The goal is not to compete simply on low cost by being the location with the lowest taxes – this will just encourage firms to leave when they find a lower tax rate elsewhere – but to deliver the right value proposition to support the businesses and residents in or desired in the economy. This value comes in the form of, for instance, good workforce, ease of working with government (e.g., permitting process), good infrastructure, high quality of life.

The sales tax rate – combined state and County – is 7% (plus additional rates administered by municipalities).[323] Historically, Kane County boasted low property taxes, which has been one of the reasons companies chose to locate there. However, in recent years they have risen to be comparable to Cook County,[324] with an effective tax rate of 2.76% in Kane as compared to 2.19% in Cook.[325] This may be to offset the 50% of the county that is farmland, which comprises just 2% of Kane County tax revenue – see Figure 26. However, it should be noted that agricultural land requires fewer public services than non-agricultural lands and thus is less expensive for government. For every dollar contributed, agricultural lands receive $0.35 in public services whereas non-agricultural lands receive $1.16.[326]

[322] https://www.cmap.illinois.gov/programs/greater-chicagoland-economic-partnership
[323] https://www.countyofkane.org/pages/finance.aspx
[324] Interviewee in municipal economic development;
[325] http://www.northcentralillinois.org/datacenter/property-taxes/; https://smartasset.com/taxes/illinois-property-tax-calculator
[326] https://conservationtools.org/guides/147-why-preserve-farmland#:~:text=Farms%20feed%20us.,has%20decimated%20America's%20agricultural%20lands.

FIGURE 26: SOURCE OF KANE COUNTY PROPERTY TAX REVENUE; DISTRIBUTION OF REVENUE[327]



Source: https://treasurer.kanecountyil.gov/Documents/PropertyTaxFAQ.pdf

Interviewees have stated that Kane County delivers a good quality of life (see *Other Clusters: Hospitality and Tourism* section) and has good access to distribution networks, but that government is becoming increasingly bureaucratic (e.g., the permitting process can be slow and require seemingly unnecessary follow up requests; local zoning ordinances across municipalities are often confusing). Rezoning has become more difficult now than it was decades ago.[328] At the state level, several interviewees noted the difficulty of working with the Illinois Department of Transportation (IDOT). Given Kane County's location at the urban-rural fringe, for new development sites there is often a need to first make infrastructure improvements. Multiple business owners mentioned difficulty getting even basic improvements done because IDOT is bureaucratic and unresponsive.

Businesses have repeatedly mentioned that the primary benefits from locating in Kane County are access to interstates and lower taxes. Although taxes have risen, Kane County is now in a position to compete on value added rather than lower-cost – essentially, becoming a place where firms and people are more productive because of better human capital, infrastructure, complementary firms, and governance. For instance, the quality of workforce development programs (see *Human Capital* section) could be improved to better match employer demand, particularly because many companies cited hiring and retaining workforce as a challenge to doing business.

CROSS-SECTOR INSTITUTIONAL ENVIRONMENT AND CULTURE

Kane County's economy will be most successful when growth is facilitated by large-scale open, adaptive and flexible cross-sector networks. Without this, economic development is left to multiple, smaller entities, which often focus on smaller or narrower deals (such as retail to support residents) rather than larger deals that cross political boundaries (e.g., innovation center, industrial park).

At the moment, these types of networks are not present in Kane County because of the differing economic growth priorities at the resident, municipality, county, and regional level. Most municipalities, with the exception of a few, are interested in growing their economy[329] - but, this potentially conflicts with residents' desire to maintain the status quo – to maintain the "charming"

[327] https://treasurer.kanecountyil.gov/Documents/PropertyTaxFAQ.pdf
[328] interviewee
[329] Kane County Economic Development Community Visits 2023; report by JEG 360

character of small towns, keep large residential lots, and maintain access to open space across the County and recreation along the Fox River. [330] Without a clear county-wide economic growth vision, municipalities often listen to vocal pressure from residents, particularly when new developments are proposed. [331] Regional priorities to invest in and grow traded industries are often not coordinated with municipality plans.

Municipalities are, however, open to collaboration with other municipalities, the County and the broader region (and feel that this is necessary). [332] While municipalities generally have a risk-averse mentality and do not want to be a first-mover to test new markets,[333] there is opportunity for the County to do so. At the moment, municipalities collaborate more with the state or region than the County. County leadership tends to focus more on quality of life than economic growth – and while this is important, typically quality of life *follows* economic growth.

In addition to growing coordination among governments, there is also a need for greater private sector involvement and input into economic development initiatives. Business leadership is not sufficiently engaged in economic development, despite a desire to be.[334] Current private sector involvement includes the County's Business Council, business engagement through municipal economic development groups, Valley Industrial Association, Industry Advisory Committees at community colleges, and the Kane County Farm Bureau. These initiatives are a necessary first step in building relationships with businesses across the County, and they have the potential to move beyond gathering employers towards meaningfully working together to create change in the economy.

Another hurdle to facilitating economic growth is the lack of racial diversity at decision making tables and other networks where relationships form, ideas flow, and deals are made. Over thirty percent of Kane County's population is Hispanic, but from interviews it seems that the Hispanic population is not sufficiently integrated into workforce programs or high-growth entrepreneurship opportunities. For instance, the Aurora Hispanic Chamber is one of the only organizations working to address specific business growth needs for Hispanic-owned businesses.

Assessment – Kane County's Opportunities

Kane County has several governance challenges to overcome to move towards efficient engagement of public, private and civic actors in economic development. The county's municipalities each have their own growth plans, which result in smaller deals that at times compete with one another. In addition, private-sector leadership in the development of economic growth strategies is lacking. The county's growth over time has focused on bedroom community and agricultural functions – with its industrial growth more reactionary (largely attracting companies that locate in the county for its access to distribution networks).

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[330] The Fox River's recent designation as a National Water Trail will increase access to activities anchored around the trail (e.g., hiking, biking, boating, fishing, dining).
https://www.countyofkane.org/Documents/Press%20Releases/Fabulous%20Fox!%20Water%20Trail%20Designated%20as%20National%20Water%20Trail.pdf
[331] interviewee
[332] Kane County Economic Development Community Visits 2023; report by JEG 360
[333] interviewees
[334] interviewees

Looking ahead, there is an opportunity for large-scale industrial development that deliberately targets specific sectors. To enable this, Kane County will need a greater public- and private-sector coordination and collaboration in economic development strategies:

- The County itself has the ability to shape and enable market activity. Kane County's position as an employer, purchaser, and property owner can be leveraged to improve workforce quality, local business growth, and efficient urban development. More broadly, the county can establish a unified vision for growth across each of its municipalities, and drive creation of cross-sector institutions (such as an EDO – see below) that the County participates in and supports, but does not lead. This would help direct the use of state and federal resources that are distributed to the County. In addition, the County may be able to provide development tools for non-home-rule municipalities (e.g., Geneva) and unincorporated areas of the County.
- The County can support a shift toward more private sector engagement, ownership and driving of inclusive economic development – first, through improved relationships with the business community. An Economic Development Organization (EDO) led by the private sector (although could be convened by the county) would help to realize the county's vision for growth. Private sector involvement could also be grown through existing initiatives (e.g., Elgin Community College's new manufacturing center; Fermilab's proposed Tech Hub to bridge gap between research and industry), or by creating new employer-led collaboratives.

Finally, inclusion in *participation* is critical to driving long-term growth and ensuring programs are designed to truly meet the needs of the County's population. There is a need for increased BIPOC leadership both within government and in other decision-making entities where deals are shaped.

V.Spatial Efficiency

From an economist's point of view, the very reason for the existence of cities is to reduce the transportation (i.e. transaction) costs for moving around and connecting people, goods and ideas.[335] A spatially efficient urban form will minimize these costs by locating businesses and residents near each other, or by connecting them with infrastructure such as roads, railways, or even broadband internet.

The historical development of communities has often been driven by attempts to improve spatial efficiency. The earliest settlements in Kane County were located along the Fox River to take advantage of the waterway's power and transportation benefits. Fjording sites used to reduce travel times to trade centers would eventually become major thoroughfares, and in some cases railways. These railways, in turn, concentrated industry and workers in a few key locations to take advantage of the economic benefits of density.[336] Today, 72% of residents are still located within 2 miles of the Fox River,[337] historical fjording sites have become major roadways such as IL Route 38 and Ogden Road, and the railway hubs of Elgin, Geneva and Aurora are the three most populous municipalities in the County.

Although spatial efficiency is a key driver of historical development patterns, current urban form is far from perfect. Spatial mismatches occur when key components of the economy are not efficiently located or connected, thus adding unnecessary costs to economic activity. These mismatches can occur because of policies (e.g., zoning codes, reduced public transit investments, etc.) or may be a product of market forces. In either case, strategies can be used to correct spatial mismatches and foster economic growth through improved spatial efficiency by encouraging a compact, well-connected urban form.

Market Observations

JOBS-HOUSING MISMATCH

One of the most impactful, and prevalent, mismatches occur between workers and jobs. This type of mismatch arises when the best-suited workers live far from, or are poorly connected to, their best-matched job centers. The mismatch is typically the result of a lack of housing diversity and affordability near and around job centers, often exacerbated by local policies that disincentivize density and mixed land uses, or by poor transit connections. The lack of connectivity between job centers and the labor market creates inefficiencies that include high commute times, lower worker productivity, higher worker turnover and a reduction in certain agglomeration benefits like shared labor pools and knowledge spillovers.

Resident working location and commute time can be indicators of the existence of a jobs-housing mismatch. Like other collar counties in the region, Kane County has a high percentage of residents who work outside of the county. Only approximately 33% of employed residents work within the

[335] https://www.nber.org/system/files/working_papers/w28287/w28287.pdf
[336] Kane County, Illinois. 2010. "2040 Conceptual Land Use Strategy".
[337] Calculated by census tracts intersecting a 2-mile buffer around the Fox River. Population estimates are sourced from the U.S. Census Bureau 2020 Decennial Census

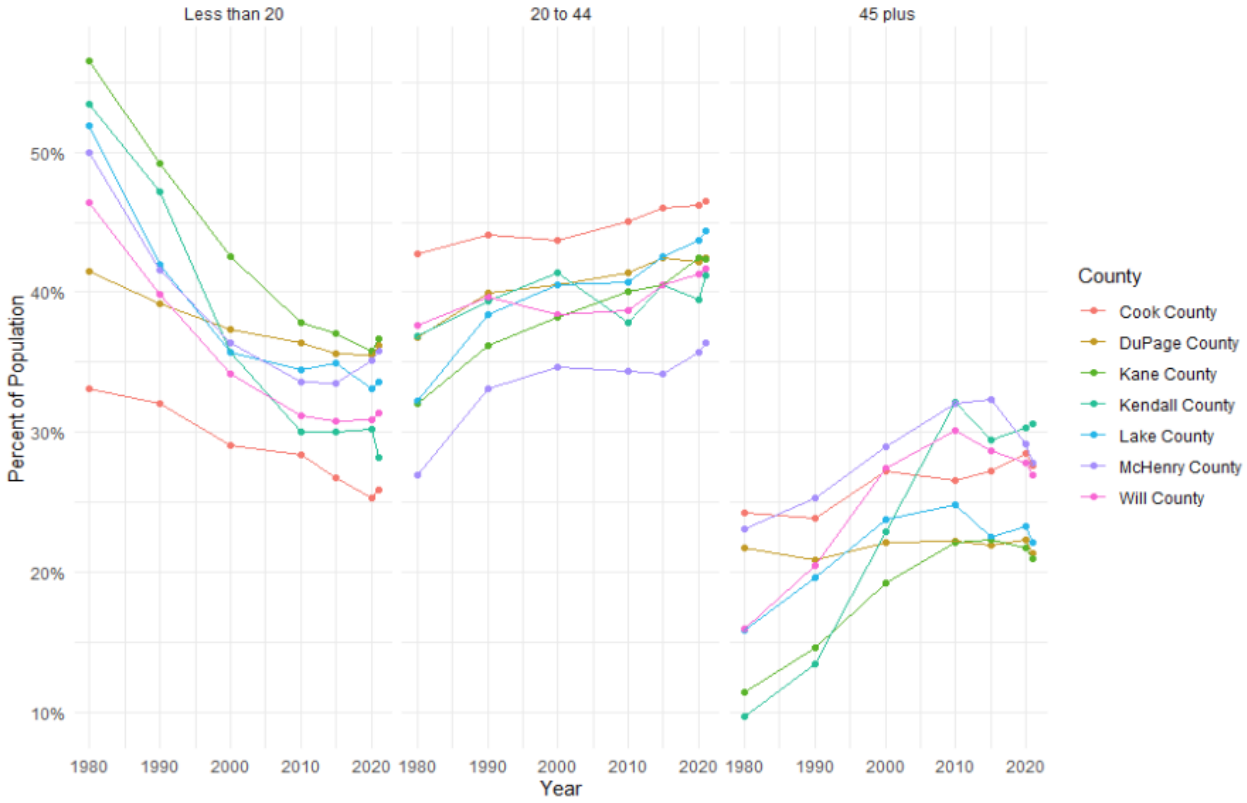
county's boundaries.[338] The remainder mostly travel to nearby job centers either along the I-90 (to Schaumburg) and I-88 (to Naperville) interstates in Cook and DuPage counties or to the "Loop" area of Chicago. Though residents travel outside of the county to reach these centers, they tend to be within a 45-minute commute radius - the travel time experienced by over 70% of workers throughout the seven-county region.[339]

More concerning is how these figures have changed over time. The number of employed residents in Kane County has increased by approximately 27% since the early-2000s.[340] This growth is generally aligned to population changes within the county and across other edge counties. However, the number of those residents who are employed within Kane County itself has decreased by 5% over the same period. This means that for about every 12 new employed residents that have moved to the county, only 1 is employed within its boundaries.

This trend is also reflected in changes in commute times. In 1980, almost 60% of residents in Kane County benefited from a commute time of less than 20 minutes.[341] By 2000, this percentage had declined to under 45%, and by 2020 to only 35%. Conversely, residents experiencing a commute time more than 45 minutes has increased from under 15% in 1980 to more than 30% in 2020. The region has experienced similar trends, with only central DuPage County experiencing relatively stable commute times - though even here the proportion of residents with a commute less than 20 minutes has also decreased substantially (see Figure 27).

[338] U.S. Census Bureau. 2021. OnTheMap. Accessed September 2023.
[339] US. Census Bureau. 2021 American Community Survey 5-Year Estimates. Accessed September, 2023.
[340] 2021. OnTheMap
[341] US. Census Bureau. Decennial Census Data. Accessed from https://nhgis.com September 2023.

FIGURE 27: COMMUTE TIME (MINUTES) EXPERIENCED BY COMMUTERS; 7-COUNTY REGION, 1980-2020



Source: US Decennial Census, accessed from https://nhgis.com, Fall 2023

As commute times are increasing, this could either mean job centers are moving farther away from Kane County – or, traffic and congestion are worsening. The ability to efficiently get to these job centers is explored in the next section below. In addition, growing job centers within Kane County or shortening distances to suppliers could reduce commute times and congestion.

CONNECTIVITY & MOBILITY

Good connections and mobility can outweigh some of the adverse impacts of spatial mismatches. Efficient road systems, varied transit options and access to communications infrastructure like broadband internet can reduce transaction costs.

Connections into and out of Kane County, particularly eastward toward the economic center of the region, are fairly good compared to other collar counties. Two interstates (I-90 and I-88) traverse the county and serve as the most important connectors for residents commuting outside of it. Together the two interstates support up to 180,000 daily vehicle trips.[342] Over three quarters of Kane County's population live within a 10-minute drive time to interstate entrances and are subsequently well-connected to the regional job centers located along them in neighboring Cook and DuPage counties.

[342] Traffic data is sourced from the Illinois Department of Transportation's "Getting Around Illinois" web-based data tool. Data was collected and analyzed from https://gettingaroundillinois.com September 2023.

The interstates also provide important connections for business-to-business and business-to-consumer travel. Each interstate supports approximately 15,000 daily truck trips with the highest recorded volumes located within the county or near its eastern boundary. The area near O'Hare International Airport, just 16 miles east of the county's boundary, is responsible for half of I-90's traffic generation alone. Access to both highways is critical given the county's high reliance on trucking as a means of freight delivery. Despite the high traffic volumes, there are no identified major trucking bottlenecks on the interstates within the county.[343]

Kane County does not have significant transportation assets related to freight outside of the interstate systems, though the county is near some significant regional assets. Neighboring Cook and Will Counties are the two leaders in the state for rail freight origination and termination, each supporting numerous intermodal facilities. Goods shipped through these facilities are primarily consumer goods and food/agricultural products. The county is home to the Aurora Municipal Airport and neighbors the DuPage Airport Authority. Both are general aviation airports and are focused on supporting executive travel rather than general commercial or freight services.[344] Nearby O'Hare International Airport (Cook County) and Chicago-Rockford (Winnebago County) account for 98% of all air freight that passes through the state, and although this infrastructure is located outside of the county, it relies heavily on the I-90 and I-88 interstates and is near enough to be partially supported by the county's employment and services base.

Mobility *within* the county is more restrictive than connections to locations outside of it. While there are no east-west interstate bottlenecks, truck bottlenecks *have* been identified on all three major north/south arterials in the county, forming near industrial centers and connections with the interstate system. Although such bottlenecks are common across most regional industrial centers, Kane County is uniquely impacted by these bottlenecks due to a heavy reliance on these arterials to also support commuting traffic.

Indeed, almost 95% of commuters in the county rely on a vehicle for their travel to and from work (see Table 30).[345] As the population of the county and the region grows, daily vehicle trips are expected to increase by nearly 60% over the next thirty years.[346] This growth is expected to principally impact the already congested north/south arterials with the addition of more than 20,000 daily trips to certain road segments. Increased congestion along these arterials will decrease mobility throughout the corridor, including to the major connections to the regional economy (i.e., the interstates and commuter rail stations).

TABLE 30: COMMUTE TIME (MINUTES) EXPERIENCED BY MODE OF TRAVEL

	Car, truck, or van	Public transportation
Less than 20	78,865 (36%)	313 (7%)
20 to 44	96,126 (44%)	252 (5%)
45 plus	42,227 (19%)	4,058 (88%)

Source: US Census ACS 2022 5-Year Estimates, accessed from https://nhgis.com, Fall 2023

[343] Interstate congestion tends to be localized closer to the City of Chicago and traffic moves relatively freely through the interstate system in Kane County. Business-to-business bottleneck data is sourced from Chicago Metropolitan Agency for Planning. 2023. Freight Clusters and Truck Bottlenecks. Access from https:datahub.cmap.illinois.gov September 2023.
[344] Aviation data is from Illinois Department of Transportation. 2022. Airport Inventory Report. Accessed from https://idot.illinois.gov/transportation-system/network-overview/airport-system.html September 2023.
[345] Commuter travel characteristics data is from U.S. Census Bureau. 2021. American Community Survey 5-Year Estimates
[346] Kane County Division of Transportation. 2050 Long Range Transportation Plan. Accessed from http://kdot.countyofkane.org/Pages/Long-Range.aspx September 2023.

The existing state of transit options within the county may also worsen the impact of increased congestion. Currently, north-south oriented public transit options within the county are restricted to a single Pace Bus route. This limited service, in turn, reduces the east-west connectivity to the region via commuter rail, and worsens roadway congestion throughout the county and the region. Without mitigation strategies the increase in spatial inefficiency will weaken the Kane County economy as a whole by exacerbating the costs of spatial mismatches.

There are three commuter rail lines with seven stations located in Kane County. These lines primarily support commuter traffic to the City of Chicago's central business district. Most stations are located along or near the populated Fox River corridor and two are located in the mid-section of the County. None are located west of IL Route 47. The five stations along the Fox River Corridor generate nearly 80% of the commuter rail traffic within the county, and two (Aurora and Geneva) are responsible for almost 60% of all ridership.[347] In total, about 11,000 riders board or alight Kane County stations daily.

Broadband availability within the county is generally strong relative to the state, and in line with neighboring collar counties. Approximately 98.4% of households have access to broadband service of at least 100/20 Mbps, enough to meet the needs of most households.[348] The estimated 4,000 unserved and underserved households are almost exclusively located in the less dense western portion of the county (which could be a barrier to adoption of technology on farms).

COMPACT URBAN FORM

Having a compact urban form is another means of reducing the transaction costs associated with spatial inefficiency. Urban form is primarily a product of market forces and government regulations, where land use codes, in particular, can have a major influence on improving or exacerbating the spatial mismatches that create inefficiencies. For example, traditional Euclidian zoning focuses on separating land uses from one another, resulting in larger distances between places of work and workers' residences. Minimum lot size requirements (see

[347] Commuter rail data is from Metra Rail. 2018. Station Boarding/Alighting Counts. Accessed from https://metra.com/station-level-data September 2023.
[348] Broadband data is from Illinois Broadband Lab. 2023. The Illinois Broadband Map. Accessed from https://broadband.uillinois.edu/ September 2023.

Table 31), height restrictions and parking requirements, among other traditional zoning regulations, can result in a dispersed and highly fragmented urban form. This results in economic inefficiencies, notably: longer commute times to jobs, higher public costs (e.g., cost of building and maintaining infrastructure is disproportionate to the population that it serves). Conversely, emerging zoning models that encourage density by mixing uses and activating spaces tend to increase connectivity and reduce travel times, particularly when such development is localized around transit centers as in transit-oriented development (TOD) policies.

TABLE 31: MINIMUM LOT SIZE REQUIREMENTS BY MUNICIPALITY

Municipality	Minimum Lot Size in Single-Family Residence Districts (square feet)	
	Least Restrictive	Most Restrictive
Chicago	2,500	6,250
Batavia	5,000	14,000
Geneva	6,500	40,000
St. Charles	5,000	54,450
Aurora	10,000	10,000
Elgin	10,000	20,000

Source: Various municipal ordinances accessed Fall 2023

The built environment in Kane County has largely developed under a traditional Euclidean zoning model. Development has also occurred without collaboration between municipalities. The result has been a development pattern that is haphazard, linear, and oriented towards highway corridors that has exacerbated issues with spatial mismatches and connectivity. Most importantly, this pattern has been uncoordinated and detached from any regional identity or shared vision amongst the communities which make up Kane County. This has resulted in tensions between land uses and uncertainty around the County's development pattern in the future.

The County's setting on the urban-rural fringe in particular presents unique challenges to its future development – presenting the need to continually manage the balance between the county's industrial, agricultural and bedroom community functions. In a continuing environment of uncoordinated planning, these futures are directly at odds with each other. For example, industrial growth within the County will result in the conversion of existing rural land into developed land – subsequently undermining potential opportunities in agriculturally-driven cluster strategies. Unchecked residential growth will promote continued sprawl - exacerbating spatial mismatch and poor connectivity between workers and employment. Prioritization of rural land preservation over all other uses will create market pressures that result in decreased housing affordability and limited economic growth. In all these examples, inefficiencies are introduced by failing to coordinate land use and zoning policy with economic growth goals.

Many of these tensions are already present within the county. Several companies, in particular manufacturers and logistics companies, are located in Kane County because of its access to distribution networks and land availability. Additional opportunities for industrial development are arising (as reshoring increases manufacturing-related construction in areas like Kane County, and as warehousing companies increasingly look to locations like Kane County to site facilities). However, residential push-back is happening as new large-scale warehouses threaten to increase congestion and pollution. Developers struggle to accommodate new industrial development due to the cost of building on rural land lacking infrastructure. Kane County needs a unified economic growth vision, along with coordinated zoning to help implement it, to manage the balance of its industrial, agricultural and residential development.

Assessment

Kane County is well connected to job centers outside of the county through its interstate network – I-90 and I-88. But, as more and more residents are working outside the county, congestion on north-south arterials (to get to interstates) is increasing – thus lengthening commute times. This

trend is aggravated by the fact that businesses are leaving Kane County faster than they are entering (see *Innovation and Entrepreneurship* section). Given that many companies choose to locate in Kane County because of its access to distribution networks, addressing congestion is important not just to improve the jobs-housing mismatch but to address traffic bottlenecks that impact business-to-business or business-to-consumer transportation logistics. Solutions may include:

- **Establish new job centers within Kane County.** Encourage growth in industries that are well-aligned to the local workforce.
- **Reduce congestion across Kane County's major distribution networks.** This will improve travel times to job centers outside of the county, in addition to improving business-to-business freight travel.
- **Improve within-county transit options.** Public transit options within the County are extremely limited, which in turn weakens outside connections to the regional economy. This is particularly the case for north-south corridors that link job centers throughout the Fox River corridor. A stronger public transit system serving this corridor would alleviate existing, and future, traffic congestion and improve spatial efficiency across the County.

As the county's economy grows, the balance between industrial, agricultural and residential growth will shift. The county would benefit from a more coordinated and unified process for determining what land is made available for what types of new development, and for providing the infrastructure to make development financially feasible. This might also include encouraging land use and zoning that promotes compact urban form and transit-oriented development. Kane County primarily developed under a traditional, Euclidian zoning model that encouraged large lots and the separation of uses. Emerging zoning models that prioritize mixing uses, activating spaces, creating density near transit centers and coordinating land uses are proving to be successful tools in alleviating spatial inefficiencies and creating a more compact, well-connected urban form.

VISION

At a moment of economic transition, Kane County has enormous opportunities to build off its strengths in metals, food manufacturing, business services and agriculture to grow its economy. The County will build specializations within each of these sectors. To support growth in these sectors, the County will also be expanding its support ecosystem for innovation and entrepreneurship, as well as its workforce development programing.

It will be important to coordinate and align industrial growth goals with the County's agricultural and bedroom community functions. As industry grows, so must housing options and associated amenities – in order to maintain the quality of life that Kane County provides for its residents. In addition, the County's historic farming assets and strengths will be leveraged to move into higher value agriculture – to support broader growth of the County's economy.

Central to managing the ever-changing balance between industrial, commercial, agriculture and bedroom community functions will be creation of an institution to continuously assess the county's economy, design and develop economic growth strategies, and coordinate across municipalities (particularly how land use and zoning policies can be better aligned with the county's economic growth goals).

VISION

Kane County will become a dynamic mix of traditional industries and emerging sectors – a center of innovation. The County's industrial base will grow alongside leading-edge agricultural practices and quality of life for residents.

STRATEGIES

To realize this vision and execute upon the objectives, a series of mutually-reinforcing strategies are presented below – designed to deliberately move Kane County's economy forward.

The first strategy presented is:

1. Creation of an **Economic Development Organization (EDO)**. Given that the County does not have the institutional infrastructure to coordinate growth across its municipalities, forming this will be an important first step.

Following launch of the EDO, it will be important to develop and launch a first set of programs and initiatives to realize the Plan's strategic recommendations. Strategies presented include:

2. Manufacturing Support Services
3. Innovation and Entrepreneurship Hub
4. Industry-led Workforce Collaborative
5. Crop Diversification Support
6. Economic Growth and Land Use Coordination

The strategies listed here seemed the most important, feasible starting points considering current assets and activities, opportunities and challenges – but are not meant to be comprehensive and do not represent all of the opportunities uncovered in the market analysis. Many require further exploration after the EDO's mission and vision are refined. As a result, the strategies are deliberately at a fairly high level at this point: each needs its own business planning to confirm, refine, adjust and convert to concrete implementable initiatives.

I. Economic Development Organization

Kane County is lacking cross-sector leadership in economic development. There is a need to coordinate and align goals of the county's 29 municipalities with regional economic development organizations. Currently, each of Kane County's municipalities have their own vision and agenda for driving growth, dedicating their capacity and resources to narrower deals within municipality borders. Executing large-scale, deliberate initiatives that work towards a broader vision can be achieved with both County-led coordination and also greater private sector, cross-sector leadership in economic development.

This requires the invention of new types of development entities with the forms, capacities and powers to impact a wide range of development sectors (e.g., real estate, workforce development, supply chain and cluster growth, etc.), while also remaining nimble and responsive. [349]

Kane County is in need of a new institution – an **Economic Development Organization (EDO) –** to nimbly manage growth toward its vision. This entity could address many of the opportunities uncovered in the market analysis by launching initiatives and would be positioned to continually analyze the economy, update strategies and develop further programs. The EDO could, for instance:

- Direct resources to guide growth and to coordinate deals across municipalities in high-growth, tradeable sectors
- Align with high-growth opportunities across the region, coordinating with regional organizations such as Greater Chicagoland Economic Partnership, CMAP, Intersect Illinois, etc.
- Launch initiatives to address County-wide opportunities and challenges, such as the need for more entrepreneurship resources or low wages across the County. Strategies proposed below could be early wins for the County:
  - Build the market for high-value crops
  - Manufacturing Support Services
  - Support entrepreneurs
  - Industry-led workforce collaborative
  - Innovation Hub
- Conduct ongoing market research, for instance:
  - *Land Use and Economic Growth relationship*: identify factors to consider when converting land to other uses – and how to manage this to achieve economic growth vision. See *Economic Growth and Land Use Coordination* strategy for more detail.
    a. *Agricultural diversification*: identify additional high-value crops / livestock / technologies that are feasible in Kane and how to build the market
    b. *Business Services deep-dive*: which industries need what types of start-up support

[349] With a transitioning economy creating new challenges and opportunities, new strategies for driving economic growth are emerging that are often broader in scope, larger-scale, more comprehensive and cross-sectoral. Success requires more deliberate planning to achieve synergies between complementary firms, workforce, technology and innovation assets, enabled by the institutional and built environment. In particular, this emerging practice, in turn, calls for new institutional infrastructure and financial tools. The goal of a new entity is to be deliberate, cross-sector, comprehensive, highly networked (to foster synergies)– yet also flexible and market-driven. See New Institutions for A New Economy, available at: http://rw-ventures.com/wp-content/uploads/2018/06/New-Institutions-for-a-New-Economy_final.pdf

c. *Manufacturing supply chains*: map supply chains, particularly those in emerging clean tech industries, and the role of Kane County manufacturers within them in order to provide targeted, sector-specific scale-up support to manufacturers
d. *Export strategy*: identify existing[350] or new programs that would assist small and mid-sized businesses in building specific product-industry relationships to be connected with global markets

To be successful, the EDO must be cross-sector, involve municipality leadership, and be driven by private sector leadership. While design of the EDO is underway in separate, aligned work, several considerations are proposed below to inform its specific scope, form, structure and operations.

EDO TYPES

There are a range of EDO types, with many different forms/structures as well as types of management and scope. For instance:

1. **Scope.** Entities vary from focusing on a single, if very large, real estate development - to engaging in a broad spectrum of economic development activities (e.g., real estate development, workforce partnerships, small business finance, housing rehab financing and more). Determining the EDO's scope presents a tension between specialization and comprehensiveness. A narrow focus – e.g., on industrial land redevelopment – suggests a clear set of organizational capacities to execute that mission, fosters development of deep expertise and avoids the potential for mission creep. Engaging in a broad set of cross-sector work, on the other hand, offers the potential to align activities across silos and create a whole greater than the sum of its parts. Striking a smart balance between depth and breadth of scope requires prioritizing various challenges and opportunities, considering the extent to which they can be addressed in relative isolation, weighing the capacity of existing organizations doing related work and evaluating of other highly localized factors.
2. **Form and Structure.** This can be anywhere along a spectrum from government agency to private organization. For instance: the EDO could be a non-profit, led largely by the private sector, but perhaps initially funded and managed by government – or, a public-private partnership.
3. **Management and Operations.** Includes elements such as how the EDO is governed (e.g., board structure and selection); how the organization is managed and staffed internally; and how and for what programs the EDO works with third party partners for implementation. An EDO with a broad scope is likely to rely to some extent on a network of partner organizations to deliver on the complete range of development activities it aims to advance.

CONSIDERATIONS FOR KANE COUNTY

The considerations below are meant to inform the creation of an EDO. They summarize and simplify much more extensive resources.

In designing an EDO for Kane County, considerations to take into account include:

[350] For instance: Illinois' State Trade and Export Promotion – ISTEP, or Metro Chicago Exports. See: https://dceo.illinois.gov/smallbizassistance/export/istepprogram.html#:~:text=The%20ISTEP%20program%20includes%205,Export%20Credit%20Insurance%20(ECI); https://www.metrochicagoexports.com/

- Kane County's assets, challenges and opportunities, and the ensuing strategies that the EDO will help develop and implement.
- The role the EDO can play in driving growth, and how to determine which roles make the most strategic sense with respect to particular development activities, geographies, etc.;
- The capacities and powers necessary to effectively deploy leading economic development products and services;
- Creative financing tools to support varied strategies; and
- Legal, structural and operational approaches to managing the tension between exercising governmental powers that are critical to enabling growth, and the need to be nimble, entrepreneurial and market-driven.

Using a business plan framing may help to answer key questions about the EDO's form and scope. A few considerations for the EDO's mission, strategies, products and services, operations and financials are listed below.

1. **Mission/Vision.** The goals of the EDO will be to grow the County's economy, and thus will primarily focus on industrial development, workforce, innovation and entrepreneurship, governance, and spatial connections that enable growth. The EDO will need to decide the extent to which it will address related but separate issues (e.g., housing, public safety, wraparound services like childcare).
2. **Strategies.** What strategies will the EDO focus on – at least initially? In the sections below, recommended strategies are proposed. These may change as the economy continually evolves, and in addition may be further refined/informed by additional studies.
3. **Products/Services.** Which will the EDO provide? Examples include:
    a. Product and program design and delivery
        i. Workforce development (e.g., sector-based curriculum development, apprenticeship programs)
        ii. Housing (e.g., data analysis, homeowner counseling)
        iii. Entrepreneurship support (e.g., capacity building, targeted incubators and accelerators)
        iv. Program management
    b. Market analysis
    c. Strategic planning and research
    d. Stakeholder engagement (e.g., assembling industry consortia)
    e. Coordination and alignment of partner activities
    f. Business support for existing businesses (and building from this and other strategies, business attraction)[351]
    g. Marketing/branding
    h. Advocacy/policy
    i. Land use & zoning
    j. Creating growth/development zones
    k. Shared services (which may include a broad set of potential services beyond economic development)

[351] As stated in the Introduction, growth starts with *existing* assets: most net growth comes from a region's existing firms, followed by start-ups and only then by firms moving in. Firm attraction is the tail, not the dog, of economic development. Initiatives should therefore start by strengthening existing firms and industries and the assets which support them.

l. Real estate development

4. **Operations.** What roles will the EDO play to drive growth in the types of development activities encompassed by its mission?
    a. The EDO will likely take on some/all of three distinct yet overlapping organizational strategies:
        i. **Government: Packaging and Delivering Targeted Government Functions More Effectively** – i.e., providing government-related development services (e.g., zoning, permitting, clearing land titles, etc.) in a more streamlined, nimble, business-like and market-based fashion than existing municipalities and government agencies can accomplish, and with a more strategic, proactive focus.
        ii. **Developer: Being a Strategic Economic Developer** – i.e., actively playing "master developer" roles on projects, working to move markets toward desired goals ("market making") by taking the first risk on projects, using creative predevelopment activities and finance to leverage private-sector participation in deals which would not otherwise occur and leading the creation of new products and services that shape markets and systems such as housing, workforce development, entrepreneurship, etc.
        iii. **Coordinator and Booster: Coordinating Economic Development Activity** – i.e., acting as the center of gravity for a broad range of development activities across the relevant geography, which includes aligning and supporting existing assets and institutions, identifying and building potential synergies among activities, determining how to fill gaps where they surface and promoting the work and region more broadly.
    b. How does the existence of current entities impact how an EDO defines its roles? How should it approach defining relationships and communicating a clear, compelling value proposition (and value-add) in a large field of existing actors and institutions?

RELEVANT MODELS

There are a wide range of EDO types, capacities and scopes. For example, each have different degrees of government authority and development capacity. For the Kane County EDO, it will likely be more private-sector driven and broader in scope (rather than narrowly focused on development deals). Relevant models include:

- CenterState CEO
- Milwaukee 7 Partnership for Economic Development

Local models include:

- Choose DuPage
- Lake County Partners
- McHenry County Economic Development Corporation

Other EDO models that the county could explore are listed below.

- Alaska Industrial Development and Export Authority (AIDEA)
- The Brooklyn Navy Yard Development Corporation (BNYDC)Central Indiana Corporate Partnership

- Greater Cincinnati Redevelopment Authority (GCRA)
- Greater St Louis Inc
- Menomonee Valley Partnership (MVP)
- MidAmerica Regional Council
- One Columbus
- Philadelphia Industrial Development Corporation (PIDC)
- Prosper Portland

II. Manufacturing Support Services

Most Kane County manufacturers are small Tier 2 or 3 suppliers to a variety of markets and supply chains.[352] These manufacturers are not well connected to one another and they serve so many different markets that there is no real center of gravity in Kane County. Given this, there is a need for Kane County to better understand their current industrial capacity and what they can become known for. In addition, there is a need to address the rapid changes in the manufacturing sector – ranging from increasing use of technology in product development and operations (e.g., 3D printing, AI), reshoring and the increasing construction of manufacturing facilities in the US, and climate change and the associated demand for production of clean tech products (as well as lowered emissions from manufacturing facilities). The County's manufacturers have the potential to serve major emerging markets (e.g., EVs, energy storage). However, interventions are needed to grow the cluster, continue its modernization and capitalize on these opportunities.

Kane County's manufacturers are small firms and lack the networks or resources to address these challenges and the tremendous opportunities they create to scale production in new markets. Support services could include:

- **Identifying the greatest opportunities/markets for Kane County manufacturers.** An organization or initiative that can conduct capabilities assessments for the manufacturers in the region. This information can be used to identify opportunities for shared opportunities/gaps to be addressed in new markets.
- **Providing higher-end support for existing manufacturers to scale.** Support could be focused on sub-sectors (e.g. metals and machinery; food and beverage manufacturing) and stage of growth. Entrepreneurs or small-scale manufacturers could also access scale-up resources provided by the *Innovation and Entrepreneurship Hub* strategy.
- **Creating a manufacturing innovation center** to increase adoption of advanced manufacturing practices, do product development, or improve access to new supply chains and emerging "green" and other markets.

Support services, primarily technical assistance, are currently being provided in Kane County by IMEC and VIA. There is opportunity to scale these organizations' efforts, leverage programming at the new Advanced Manufacturing Center being built at Elgin Community College, or create additional programs tailored to assets and opportunities in Kane County. These programs could be extensions of regional efforts that are already providing sophisticated assistance for manufacturers (e.g., mHUB); with a local center of gravity, it would be easier to connect these regional organizations with Kane County businesses. Support services for manufacturers could also address the low wages in some manufacturing sectors (e.g., food and beverage manufacturing and packaging) by helping businesses move into higher-growth industries or guiding businesses to implement new technologies and processes to compete in the next economy.

In addition, many manufacturers have cited workforce as one of their biggest challenges. There is opportunity to gather employers to identify future skills demand and co-develop curricula to train the workforce of the future (e.g., skills needed to enter "green" markets like electric vehicles or energy storage). See *Industry-Led Workforce Collaborative* strategy for more detail.

[352] They produce widgets and components such as switches, gears, screws, controls, and motors – for industries such as HVAC, automotive, agricultural, and appliances.

RELEVANT MODELS

Relevant models include:

- mHUB,[353] a HardTech innovation center with a range of programming including prototyping labs, industry partnerships, and accelerators
- MAGNET,[354] Cleveland-based manufacturing support services focused on small and mid-sized manufacturers

NEXT STEPS

- Map existing manufacturers in Kane County – and how they fit into regional industry clusters and supply chains
- Examine emerging and changing markets and supply chains to determine where Kane County companies can best compete or evolve
- Deliver tailors programs to help identified manufacturers evolve to implement changes or enter new markets

[353] https://www.mhubchicago.com/
[354] https://www.manufacturingsuccess.org/

III.Innovation and Entrepreneurship Hub

Many industries, globally, are undergoing rapid changes due to COVID-related impacts (e.g., reshoring), digitization, and climate change. Kane County's legacy industries in particular – manufacturing, agriculture, and logistics - are being disrupted by these changes. An Innovation and Entrepreneurship Hub may help the County's legacy industries to prepare for next economy growth, by launching and supporting new businesses, scaling existing small businesses, and facilitating the cross-sector collaboration that is increasingly driving economic growth.

While there is not significant innovation activity in Kane County, the county has a high rate of entrepreneurship – and, is well positioned to launch new products and enter new markets. In particular, the Business Services cluster makes up the majority of new businesses in the County and many are BIPOC-owned. Small businesses are also a key part of the economy, both businesses that support the county's bedroom community function (e.g., retail, amenities) and businesses in traded sectors (e.g., business services, manufacturing). However, the county's support ecosystem for entrepreneurs and small businesses is lacking. While there are already organizations working to provide business assistance (e.g., SBDCs, Chambers, FVEC), there is more demand for business start-up and scale-up support than existing organizations can provide.[355] There is a need for greater: (1) connection to resources; (2) targeted business support, in particular tailored to the specific sector and stage of growth; and (3) support to address particular barriers faced by BIPOC-owned businesses.

The county could create an **Innovation and Entrepreneurship Hub** that connects entrepreneurs and businesses with resources and provides targeted scale-up support. This would involve working one on one with a business to provide assistance tailored to its stage of growth and industry. The Hub could, for instance:

- **Build networks:** Particularly for BIPOC entrepreneurs. Work to develop networks for entrepreneurs, either by supporting and encouraging some existing networks or by providing an online platform and a suite of local activities to help accelerate connections.
- **Provide deep, industry-specific mentorship:** Work with entrepreneurs and firms to connect them with resources (e.g., SBDCs, mHUB, platforms of technical and financial assistance available through CDFIs like LISC Chicago or NDC Grow America) and provide mentorship to develop customized solutions to scale their business. Founders who are mentored by a high-performing entrepreneur are three times more likely to become high performers themselves.[356] Some of the business needs highlighted in interviews are early-stage assistance for BIPOC-owned businesses to complete business registration, business/finance/marketing plans, build credit, and access capital.[357] Businesses may also need help identifying appropriate locations for startups – including for larger storage/trucking facilities that will support growth of food and beverage manufacturing and packaging. The County could create a network of mentors that can provide tailored assistance to a business, helping them to access new regional and even national markets. Or, existing programs could be expanded to connect businesses with these more specialized mentors (e.g., Aurora Hispanic Chamber, NW Hispanic Chamber).

[355] And, entrepreneurs fail at a higher rate in Kane County than others within the 7-County CMAP region.
[356] https://media.erepublic.com/document/CITYACCELERATOR_FINAL.pdf
[357] This aligns with research that demonstrates many entrepreneurs, especially early stage, require assistance with accounting, tax planning, and credit counseling – or, access to low-cost legal services.https://media.erepublic.com/document/CITYACCELERATOR_FINAL.pdf

- **Collaborative innovation:** As the Hub grows, it may begin to fill innovation needs and gaps in target clusters. For instance, it could prototype and produce new products (particularly to meet demand in the clean economy); provide research and innovation services; scale synergies between entrepreneurs, small and large companies through shared workspace and specialized equipment; perform product development consulting and technical assistance services; inform workforce development curriculums in emerging sectors; provide access to capital.

The county could provide focused support around sectors including:

- **Business Services** – In particular, as AI and other technologies disrupt the Business Services sector (which typically has small firm sizes), there is an opportunity to expand access to entrepreneurship. For instance, integrating new technologies into facilities management firms to better serve headquarters and businesses in the Chicago MSA; launching new companies that can conduct repairs to support clean tech growth (e.g., EV charging station repairs).
- **Food and Beverage Manufacturing and Packaging** – Building connections with local farmers to package or store their product, particularly for high-value crops (e.g., fruits, vegetables, nuts), or developing new bio-based packaging solutions.
- **Manufacturing** – In partnership with a regional organization like mHUB and IMEC, manufacturing startups could access resources to launch and scale their business, particularly in new, high-growth markets.
- **Agriculture** – Work with famers to integrate next-generation agriculture practices into farms and identify financial resources to implement changes.

Instead of anchoring a Hub around a local institution, Kane County may be able to partner with national/regional innovation organizations whose business models involve assembling local partners to collaboratively launch innovation centers. For instance, Newlab is beginning to launch innovation centers outside of its first Brooklyn location (e.g., a new partnership with Ford in Detroit to create a mobility innovation center). Regional organizations may be able to anchor a new Hub, such as mHUB (hard tech innovation) or NIU's Center for Sustainability (perhaps focused on commercialize-able research). The Hub can focus on some/all of the sector listed above or make a bet on a specific sector/topic (e.g., 3D Printing,[358] Bio-Based Packaging, Digital Logistics, E-Beam technology with Fermilab).

Ensuring that startups, growth companies, and companies ready to scale can all find the resources and information they need will help to keep them in Kane County. In addition, launching a major Innovation and Entrepreneurship Hub in Kane County will assist in marketing the County's expertise to the region, and defining its niche within the regional economy.

RELEVANT MODELS

- Innovation DuPage[359]
- SDA Business Support Program[360]

[358] Jabil (a contract manufacturer) has launched 3D Printing Centers in collaboration with local organizations across the country.
[359] https://www.innovationdupage.org/
[360] https://southlanddevelopment.org/mid-sized-small-business-owners/

- Baltimore BASE Network[361]
- Motor City Match[362]
- NYC Business Solutions Centers[363]
- Newlab[364]
- AgLaunch[365] – Accelerating Ag-Tech Innovation
- Illinois AgTech Accelerator[366]
- Applied Digital Manufacturing Center[367]
- Greenpoint Manufacturing and Design Center in NY[368]
- Urban Manufacturing Accelerator Fund [369]

NEXT STEPS

- Identify the business types and industries most in need of support (e.g., BIPOC-owned Business Services firms in specific sub-clusters).
- Determine whether an Innovation and Entrepreneurship Hub could be run as an extension of an existing program or should be run by a third party group.
- Build program infrastructure to field business support requests (e.g., a robust CRM system; a clear operational process).

[361] https://www.baltimorebasenetwork.org/
[362] https://www.motorcitymatch.com/
[363] https://nextstreet.com/small-business-services/
[364] https://www.newlab.com/
[365] https://aglaunch.com/
[366] https://researchpark.illinois.edu/tenant_directory/gener8tor/
[367] https://www.prnewswire.com/news-releases/eos-to-partner-in-morf3ds-recently-announced-applied-digital-manufacturing-center-301372677.html
[368] https://nextcity.org/urbanist-news/manufacturing-fund-launches-to-support-industry-and-jobs-in-nyc
[369] https://anhd.org/project/urban-manufacturing-accelerator-fund-umaf

IV.Industry-led workforce collaborative

As the economy changes – with rapid changes to industry and associated jobs and skills requirements – there is a need improved labor market efficiency. The historical systems that match employers and workers are not keeping up, with employers often relying on legacy hiring practices and still using educational attainment as an ever less-accurate proxy for the skills and capacities required by next economy jobs. The private sector underinvests in developing its workforce, placing much of the training needs on third party providers.

But, legacy workforce training and education systems are outdated and insufficiently nimble, struggling to quickly design and launch programming that is responsive to in-demand skills in a rapidly changing environment. Meanwhile, most employers have not updated their hiring practices, relying largely on traditional credential evaluations and professional and personal networks. Skills-based hiring processes have demonstrated the potential to ameliorate these outcomes, better identifying the workers - regardless of degree or background - who truly have the sought-after skills and aptitudes.

Many regions around the country have tackled this issue, and best practices have shown that employers should lead the collective action to change these integrated systems. Starting from the demand side of the skills equation - getting timely, detailed insight on what employers are looking for from employees, both currently and in the coming years - is the ideal approach for revamping the programs and processes that prepare workers and get them into jobs. Employers can be the most difficult stakeholders to engage in broader workforce development efforts, as day-to-day operational needs occupy most, if not all, free time. Getting industry champions up front and leading from the outset clears a major organizing hurdle early on, and these first movers can encourage other companies to follow suit.

While Kane County's community colleges are improving the breadth of non-degree training options and do have baseline employer involvement, the labor market needs even greater market- and employer-driven curricula. Kane County can begin to address this by developing employer-led industry consortia that assemble private- and public-sector stakeholders to collectively chart a path toward modernizing education, training, and hiring practices. These partnerships can identify areas suitable for company collaboration so that, rather than strictly competing for talent, industry can develop the region's skills together.

These consortia should aim to migrate towards being more industry-specific and centered. Organizing these consortia is a labor-intensive process. The first one should be chosen based on an industry where the private sector is most likely to engage and lead, where the ecosystem of relevant stakeholders is substantial, and where the receptiveness of all parties to collaboration is high. Opportunities may be within:

- **Metals Manufacturing** - demand for new skills is constantly changing (e.g., mechatronics, CNC machining, robotics, CAD programming), and many opportunities for growth are opening up in clean tech industries (e.g., EVs, energy storage, energy efficient building products).
- **Agriculture and Food Manufacturing** – demand is growing for skills in sustainability-related careers (e.g., sustainable packaging), agriculture/food science careers, and

technicians to support the increasing use of technology on farms and in food manufacturing
- **Transportation, Distribution and Logistics** – demand for advanced logistics skillsets (e.g., supply chain management, warehouse distribution, and delivery)
- **Business services** – varied skills to meet demand for growing sectors (e.g., trucking, facilities management, repair & servicing)

Employer-led industry consortia will provide a more effective vehicle for designing and delivering training resources, and in expanding options for the training structure and location (e.g., on-site training programs). The consortia can also fund pilot programs that test new training and apprenticeship options, partnering with third-party providers when appropriate, encouraging their adoption throughout the industry. For instance, the manufacturing workforce could be upskilled through an employer-led apprenticeship program modeled after the Accenture Apprenticeship program (see *Relevant Models* below).

Note that any workforce initiatives implemented should also coordinate with organizations providing the necessary wraparound services (e.g., childcare, transportation assistance) to help them succeed – for instance, in partnership with existing organizations (e.g., Casa Central).

RELEVANT MODELS

Relevant models and resources include:
- Employer-led Industry Consortia
  - U.S. Chamber of Commerce Foundation's Talent Pipeline Management (TPM) Initiative
  - Talent-to-Industry Exchange (TIE), managed by the Mid-America Regional Council (MARC) in Kansas City - has helped assemble collaboratives in Skilled Trades
  - Executive Roundtable Program in Milwaukee, WI[370]
- Industry-Specific Training and On-Ramps
  - American Airlines maintenance worker program – in partnership with the Aviation Institute of Maintenance in Chicago, American Airlines is training maintenance workers for their facilities[371]
  - Accenture Apprenticeship program – a year-long on-the-job training and coaching program that provides a pathway to a full time role;[372] this, in particular, would be relevant for older adults who want to learn and earn at the same time. See also: Chicago Apprentice Network (which has other employer members, in addition to Accenture).
  - Year Up – providing free skills-based training to match expertise sought by corporate partners, along with college credit eligibility and assistance landing an internship or job[373]

[370] https://www.mmac.org/executive-roundtable-program.html
[371] https://www.chicagotribune.com/business/ct-viz-biz-airplane-maintenance-hiring-20221102-nnzt6dji6rg5raggagyf7q6hwm-photogallery.html
[372] https://www.corpcoalition.org/business-unusual/accenture-apprenticeships
[373]

  - Worker Education and resources Center (WERC) – develops curriculums and assists with placement into public service jobs in Los Angeles County[374]
  - WNY Manufacturing and Tech Workforce Coalition – a 13-member initiative to strengthen manufacturing and tech career opportunities for individuals underrepresented in these fields[375]
  - WNY Manufacturing and Tech Workforce Coalition – a 13-member initiative to strengthen manufacturing and tech career opportunities for individuals underrepresented in these fields[376]
- Skills-Based Hiring Practices
  - TalNet - brings cohorts of Michigan-area employers together to employ an evidence-based selection model around hiring based on skillset assessments[377]
  - OneTen - hires, promotes and connects Black individuals with jobs, using a skills-first approach[378]

NEXT STEPS

- Identify the first industry for consortium organizing, based on the criteria mentioned above, among others (e.g., private sector engagement, ecosystem scale/quality, collaboration environment and opportunities); in addition, identifying available funding (e.g., Inflation Reduction Act opportunities to inform the development of workforce programs for building decarbonization).
- Recruiting industry champions to co-lead socialization of consortium, recruit other first adopters, Advisory Board members, etc.
- Forming Advisory Board with representatives from the private sector, education, training providers, etc., to lead design of consortium and plan/manage socialization activities (one-on-one networking, events, working groups).

[374] https://werctraining.org/
[375] https://regional-institute.buffalo.edu/work/wny-workforce-coalition/
[376] https://regional-institute.buffalo.edu/work/wny-workforce-coalition/
[377] http://talnet.org/aboutus/
[378] https://oneten.org/about/mission/

V.Crop Diversification Support

Kane County farming is a legacy industry – and is still integral to the region's economy, supplying corn and soybeans to a variety of markets, while also important to the County's culture and quality of life. Looking ahead, there is opportunity to respond to global trends in food production and farm operations, working with farmers and agricultural organizations across the region to increase farm revenue by:

- **Entering new markets with existing crops** – e.g., soybeans for tofu, soy-based packaging, ethanol (from corn) and biodiesel (from soy)
- **Diversifying farms with high-value crops** – e.g., scale vegetable production

This will require an intervention to help build the market and supply chains for these crops and markets. Kane County's strong food and beverage manufacturing and packaging cluster, as well as access to distribution networks, can support this change. A detailed study is recommended to assess the specific market opportunities for regional farmers and implement a plan to address barriers to entering these markets – this is one of the first studies recommended to be undertaken by an EDO (see *Economic Development Organization* strategy). The study may also want to consider complex climate change implications, as well as land use implications for growing higher value crops while also balancing the County's other industrial growth goals (see *Economic Growth and Land Use Coordination* strategy).

Kane County can build upon and leverage existing studies, programs and resources – for instance, the Growing for Kane Program (which provides technical assistance to farmers to scale food production) or the 2016 Food Hub Feasibility Study which found that an 8,000 square-foot food facility could support $3.4 million in sales.

As a strategy is developed to build the market for high-value crops, it will be important to drive its development with input from farmers[379] (particularly to specify the amount of financial assistance needed for the strategy to be successful),[380] manufacturers, and agriculture/food organizations (e.g., Kane County Farm Bureau, Chicagoland Food and Beverage Manufacturing Network, Illinois Extension workforce programs). A strategy may involve increasing pathways for new farmers and addressing challenges that come along with this (e.g., land access and affordability) – particularly given the high average age of farmers.

Once alternative crops or new markets are identified, it will be important to provide robust technical and financial assistance to farmers to implement changes – at the state, county and municipal level. State and even federal commerce departments may help open international markets.[381] This can be further explored by the Kane County EDO, as part of an export strategy (see *Economic Development Organization* strategy).

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[379] Interviewees mentioned that a Food Hub strategy had previously failed in Kane county but this was largely due to lack of farmer involvement.

[380] For instance, farmers may need:

- Financial assistance for machinery conversion (they have machinery that works for row crops only - and they may have liens and debt on the equipment).
- Increased crop insurance and subsidy availability, in part because climate change is making it harder to grow crops due to drought and heavier storms.
- Assistance hiring workers, in particular from Latin America through the visa program.
- Assistance transitioning farms/land to new owners – both assistance with the transition and support for new farmers.

[381] Models for export strategies for agriculture: see programs in Virginia, Indiana, Ohio.

There may even be opportunity to create an organization that can link growers to manufacturers to packagers to distributors – and even to end-users. This could also help farmers identify customers' needs and tailor their production to meet marketplace demands. Kane County could even repurpose several acres of farmland to support research and development[382] – perhaps in conjunction with NIU Center for Sustainability (which does food systems innovation) – to pilot new crops to begin to build a regional market for them.

RELEVANT MODELS

Lessons in growing rural prosperity from other counties where land use approximately 50% agricultural (as of 2017) - Hamilton County, Indiana; Licking County, Ohio; Morgan County, Indiana; McHenry County, Illinois - include connecting farmers with technical and financial assistance to scale; working to provide information and incentives/subsidies to integrate alternative crops and reach new markets. In addition, other relevant models include:

- McHenry County Farmer-Landowner Match program – assists new farmers in accessing land (when they don't have access to traditional farmer networks), and these farmers are often looking for smaller parcels to do specialty crops (fruits, veggies, flowers, meats)[383]
- BEAM Circular[384] – Scaling connections between agriculture, manufacturing and bio-economy in California
- Innovation-Led Agriculture and Food Cluster in Colorado[385]
- AgriFIRST grant program – designed to grow innovative farming businesses[386]
- Tech Village RT Park – a 27-acre mixed use development project centered around agriculture research and development; includes 16 acres of farmland for R&D[387]
- The Chicagoland Food and Beverage Network (CFBN)[388] – a cluster organization that connects over 4,000 companies in the Chicago region to collaboratively drive innovation and growth.
- Eastern Market Corporation in Detroit – in particular, their Grow Eastern Market initiative links farmers with communities to help them sell products
- Greater Peoria EDC initiatives – their initiatives leverage both their agricultural and manufacturing strengths[389]

NEXT STEPS

- **Conduct a further study** to identify specific high-value crops that are feasible in Kane County and how to best build the market: an Agricultural Economic Strategy for the County.

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[382] See https://techvillagevi.com/
[383] *https://conservemc.org/farmer-landowner-match-program/*
[384] *https://www.beamcircular.org/about*
[385] https://engagement.colostate.edu/wp-content/uploads/2016/11/Colorado-Ag-Food-Innovation-Cluster-CSU-Nov-2014-FULL-REPORT-6.pdf
[386] https://www.illinois.gov/news/press-release.6385.html
[387] https://techvillagevi.com/
[388] See Chicagoland FOOD report, which recommends an initiative for greater inter-firm collaboration: http://rw-ventures.com/wp-content/uploads/2017/01/Chicagoland-FOOD-Report_Final.pdf, which led to the creation of an inclusive cluster organization, CFBN: https://www.chicagolandfood.org/page/about-us
[389] https://greaterpeoriaedc.org/agriculture-and-food-processing/; https://greaterpeoriaedc.org/wp-content/uploads/GPEDC-Agriculture-Brochure-2019.pdf

- **Assemble key leadership** – The County could contribute the staffing to manage the organizing process, while quickly putting farmers and industry leaders at the helm. Leadership may include farmers (particularly specialty crop growers), manufacturers, suppliers, education providers - to identify challenges in acreage conversion, markets of interest, and how the County could assist (e.g., financial incentives, build the labor pool, assist with machinery conversion).

VI. Economic Growth and Land Use Coordination

As the county's economy grows, the balance between industrial, agricultural and residential growth will shift. The county would benefit from a more coordinated and unified process for determining what land is made available for what types of new development, and for providing the infrastructure to make development feasible.

Emerging zoning models that prioritize mixing uses, activating spaces, creating density near transit centers and coordinating land uses are proving to be successful tools in alleviating spatial inefficiencies and creating a more compact, well-connected urban form. This also may involve exploring land affordability challenges for agricultural owners and operators, particularly new farmers. Rather than continuing a dialogue that views land use decisions as black and white (either preservation or conversion to other uses), there is an opportunity to look at land use as a gradient (e.g., light industrial, small farmstead, forest preserve, etc.) that align with economic growth goals. These include, for example:

- **Transect-based zoning models** are particularly well-suited for coordinating varied land uses along the urban-rural fringe. These models emerged from the new urbanism movement of the 1980's and focus less on zones for individual land uses and more on the density and complementary characteristics of uses.[390] This increased flexibility in allowed uses and emphasis on environmental character can result in development patterns that are more curated towards a shared vision -particularly one that is based on growing several distinct land uses in a single region.[391]
- **Conservation policies** are another tool to effectively balance regional land uses in the context of a shared vision. Kane County has a long history of prioritizing its agricultural heritage through development policies and programming. Most notably, the "50-50-50" land use strategy divided the County into three strategic planning regions (i.e., Urban Corridor, Critical Growth, Rural Village), in part, to encourage infill development along the already populated Fox River corridor while protecting agricultural and environmental resources in the western and central portions of the county.[392] County-level programming like the Farmland Protection Program has reinforced this policy by protecting thousands of acres of agricultural land via conservation easements. Similarly, the Forest Preserve District of Kane County (a separate jurisdiction) has regularly purchased large portions of land in the County with the aim of protecting environmentally important lands from development pressure.
- Extensions of these programs have innovative tools that can extend these existing initiatives include implementing an **urban growth boundary** or a **transfer-of-development-rights (TDR) program**. In the former, an overlay zone restricts the extent of development in certain areas of the County. Alternatives of this strategy can incorporate development review processes and development schedules to ensure the programming is adaptive and sustainable. A TDR program can be implemented as part of an urban growth boundary strategy or alone from it. There are numerous variants of this form of programming, but most share some common elements including a designated growth area and a protected area. Under a TDR program, development rights in the protected area can

[390] Duany, Andres & Talen, Emily. Transect Planning. 2002. Journal of American Planning Association Volume 68-3.
[391] Examples of successful transect-based land use planning on the urban-rural fringe include Copenhagen's "Five Finger Plan" and the Ruhr Metropole Project in the Ruhr Valley Region in Germany
[392] Kane County, Illinois. 2010. "2040 Conceptual Land Use Strategy".

be sold to developers for use in the designated growth area. Thus, this strategy results in the coordination of multiple land uses aligned to pre-established community goal.

As a next step, the county could consider creating a Land Use Council or sub-committee of the EDO. This group should identify factors to consider when converting land to other uses – e.g., industrial development goals, the County's fertile soil, demand for high-value crops and opportunity for Kane County farms to fill demand, goals for manufacturing growth and associated industrial development needs – and how to manage this to achieve its economic growth vision.[393]

[393] One relevant model is the Portland Economic Value Atlas, a decision-support tool to align planning, infrastructure and economic development. https://evatool.oregonmetro.gov/

CONCLUSION

Kane County's diverse assets – its skilled workforce, industrial base, agricultural strength, good quality of life, natural beauty – provide tremendous opportunity for the county's future economic growth. While the county has grown naturally over time, the next economy rewards deliberate, strategic growth planning. Launch of an EDO and focusing on these strategic directions will set Kane County on a path towards a vibrant, prosperous 21st century economy.