

The Indiana Uplands— A Region on the Rise: *Leveraging Drivers of Growth to Ensure Economic Community Prosperity*



Performed for:
Regional Opportunity Initiatives, Inc.

Performed by:
TEconomy Partners, LLC

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Introduction

Over the course of two years beginning in 2012, civic leaders from throughout the Indiana Uplands region¹ came together to research, analyze, and strategize how to foster economic growth and community prosperity for their fellow citizens. The group recognized then, and it remains true today, that the region possesses unique attributes upon which to build and chart its future. These attributes include:

- Highly concentrated industry clusters anchored by globally competitive firms;
- Naval Support Activity (NSA) Crane and its two largest commands, Crane Army Ammunition Activity (CAAA) and Naval Surface Warfare Center, Crane Division (NSWC Crane), a unique federal laboratory that maintains a central role in the U.S. defense operations;
- Indiana University, an R1 Doctoral University that not only draws students from around the world that are seeking to advance their education but also attracts highly educated workers to the region;
- Substantial natural and historical assets that provide quality of life for the region's residents and offer additional potential for tourism and recreational activities to diversify the economy; and
- One of the most significant U.S. interstate highway development projects in the last two decades, the extension of the I-69 Corridor from Indianapolis to Evansville, that has the potential to improve spatial connections within the region and generate new economic opportunities for accessing broader markets.

However, even in light of these tremendous economic assets, key economic measures had been falling short since the Great Recession. This pointed to a concern that the region's ability to generate wealth and prosperity from its economy was not sufficiently competitive. Indeed, general economic indicators suggested that even compared to the sluggish national recovery, the region's economy was lagging and falling further behind in 2012:

- While U.S. employment had grown by 2.6 percent since the economic recovery began in 2009, the region had declined another 0.3 percent over the same 2009-2012 period;
- Per capita incomes were 21 percent lower than the U.S. average; and
- Population growth was not keeping pace with the State of Indiana or the nation.

In analyzing the challenges confronting the region in 2012, the civic leaders ascertained that there were five key economic barriers that needed to be overcome:

1. Industrial growth was being hindered by the lack of sufficient numbers of skilled workers.

¹ The Indiana Uplands Region consists of 11 counties in Southwest Central Indiana: Brown, Crawford, Daviess, Dubois, Greene, Lawrence, Martin, Monroe, Orange, Owen, and Washington.

2. The region had not yet fully taken advantage of the opportunity presented by the development of the I-69 Corridor.
3. Lack of a robust, value-added relationship between the region's two primary public research engines, NSA Crane and Indiana University (IU) hindered the region's ability to compete in the global economy, and also put at risk the ability to retain the institutions' world-class assets in the future.
4. Lack of sufficient entrepreneurial culture hindered economic growth, limiting economic diversification and the stability and opportunities such diversity brings to a community.
5. Lack of regionalism hindered the coordination of efforts and did not allow for the benefits of critical mass.

In 2014, civic leaders released a strategic plan for economic development that sought to leverage the region's numerous assets in a way that could lift up and enhance its communities in a long-term and sustainable way and overcome the challenges identified. The *Strategic Plan for Economic and Community Prosperity in Southwest Central Indiana (now the Indiana Uplands)* focused on six strategies and an associated set of 25 actions to overcome economic challenges and create long-term economic growth and community prosperity within the region.

Believing in the region's potential, the Lilly Endowment in December of 2015 awarded the region \$42 million in grants to advance economic and community prosperity throughout the region. Three organizations – Regional Opportunity Initiatives (ROI), the Indiana University Center for Rural Engagement (CRE), and the Indiana Innovation Institute (IN3) – were formed, each with a distinct mission to help the region leverage its economic assets.

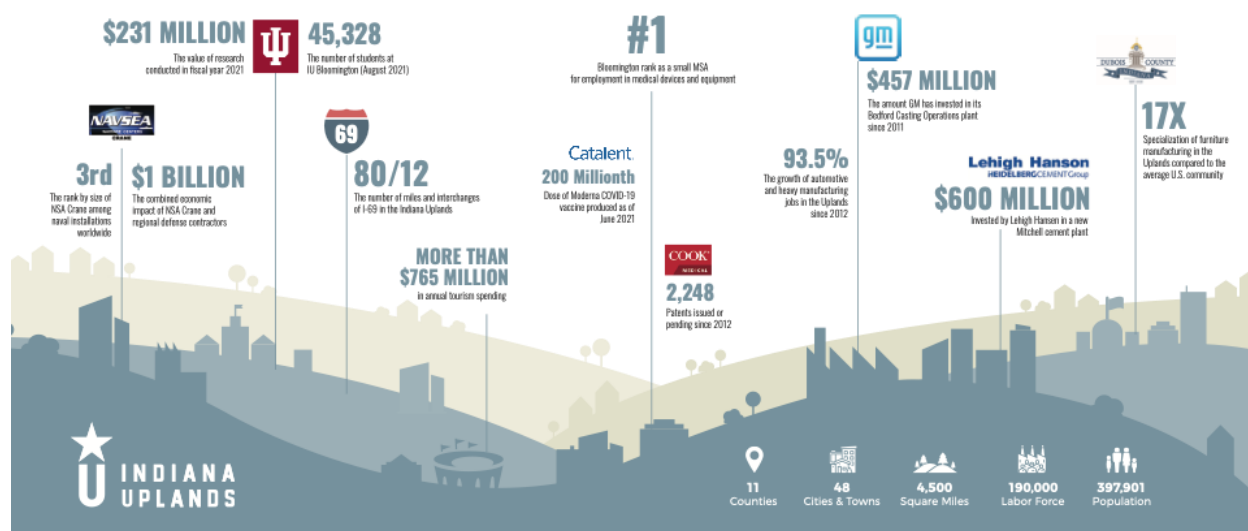
Much has changed in the ensuing six years through the efforts of these organizations and other regional players. The Uplands economy has been growing steadily, and businesses that were once mostly concerned about finding employees to fill vacancies created by retirement are now also seeking employees for expansion and growth. Communities that were experiencing moderate to high unemployment rates are now hovering close to full employment, even with the impact of COVID-19 on the region's economy. The economy is vibrant, with significant growth in key targeted industry clusters.

Furthermore, early concerns about the potential for another round of base realignment and closure affecting the region's defense sector did not come to fruition. Rather, Naval Support Activity (NSA) Crane and its two largest commands, Naval Surface Warfare Center, Crane Division (NSWC Crane) and Crane Army Ammunition Activity (CAAA), are gaining in relevance as national defense needs are becoming more technologically aligned with the strengths of the local defense sector. Both the Navy and Army commands are projecting a significant increase in workforce needs as they continue to grow in prominence and gain attention from both existing and new partners. In the last five years, the focus of the region's defense partners has evolved from a conversation about potential contraction to responding to the opportunities for expansion. New and innovative partnerships are forming between NSA Crane, IU, Purdue, and the region's defense contractor base that is driving greater levels of activity and funding to the Uplands.

The 2014 *Strategic Plan for Economic and Community Prosperity*² called out the need for the region to take advantage of the distinct opportunities that exist in this region as it relates to unique industry clusters with comparative advantage. The report identified the most compelling opportunities and charted a course to foster the growth of these opportunities. This promise of the strategic plan has been born out through many different initiatives and programs developed across the region over the last six years by ROI, CRE, IN3 and many other organizations in the Indiana Uplands. The Uplands is responding to the challenges outlined in the 2014 strategic plan and is well on its way to creating opportunity and prosperity in the region.

- Between 2012 and 2019, the economy gained 11,155 jobs, a 7.5 percent increase in employment throughout the region.
- More than 61 percent of these jobs are attributable to the region's targeted industry clusters (6,825 jobs).
- Over the past decade, the Uplands' population has grown at a rate of 2.4 percent
- Educational attainment has increased to 36% in 2021 (compared to 33.29% in 2016).

A REGION ON THE RISE



The Indiana Uplands region is truly a “Region on the Rise.” The region has made significant strides in implementing the 2014 economic development strategy. Much has been accomplished, and much within the economy has changed. As a result, the question before us today is, based on the current economic realities facing the region, what more can be done to further foster the economic growth and community prosperity of the Indiana Uplands region?

² See https://swcindianadotorg.files.wordpress.com/2016/04/strategic_plan_for_economic_and_community_development_in_sw_c_indiana_11-25-14_1.pdf

Setting the Context

In 2014, the Uplands Region was home to several unique regional assets upon which to anchor its economy but was also faced with significant economic challenges that needed to be overcome. Recognizing that economic stagnation would be the ultimate downfall of the region, the Uplands undertook bold steps to change the trajectory of the economy and the prosperity of its citizens. The question before the region today is—did the bold bets pay off?

The Economic Context

Civic leaders were faced with a sobering economic reality as they sought to develop an economic strategy in 2014—the Indiana Uplands region had lost 1.1 percent of its employment base during the 2001-2012 period. The decision to pursue an innovation-driven economic cluster strategy was rooted in the reality that the region was losing employment opportunities, and many citizens were being left behind.

In reaction to this economic reality, the first bold initiative of the 2014 economic development strategy was targeting key industry clusters for which the region had a comparative advantage and focusing resources, time, and attention on further developing these clusters through expansion, retention, and attraction efforts.

Today, the Uplands region is experiencing a very different economic reality. Between 2012 and 2019, the economy gained 11,155 jobs, a 7.5 percent increase in employment throughout the region. More than 61 percent of these jobs are attributable to the region’s targeted industry clusters (6,825 jobs). Furthermore, while the Uplands region experienced a period of economic decline as a result of COVID, losing 5,349 jobs between 2019 and 2020, a 3.4 percent decline, the targeted industry clusters were more resilient, representing 35 percent of the region’s job loss or 1,892 jobs (806 of them within the hospitality and tourism cluster).

As the following analysis will detail, the 2014 economic development strategy has paid significant dividends to the Indiana Uplands economy as these industry clusters have grown and become even more vital today, driving economic and community prosperity throughout the region.

Overview of Cluster Analysis Methodology

The key to success for a region in today’s globally based economy is to identify those growth opportunities within its core industry sectors in which it is best positioned to differentiate itself and experience economic growth. This can be supplemented with an approach that seizes opportunities within emerging areas that are rooted in existing regional excellence that can be supported and nurtured to lead to regional economic advances. The concept of building regional economic development strategies and tactics around industry clusters is not a new concept; yet a “one-size-fits-all” approach to determining and assessing a region’s industry clusters can miss unique opportunities for regional economic development.

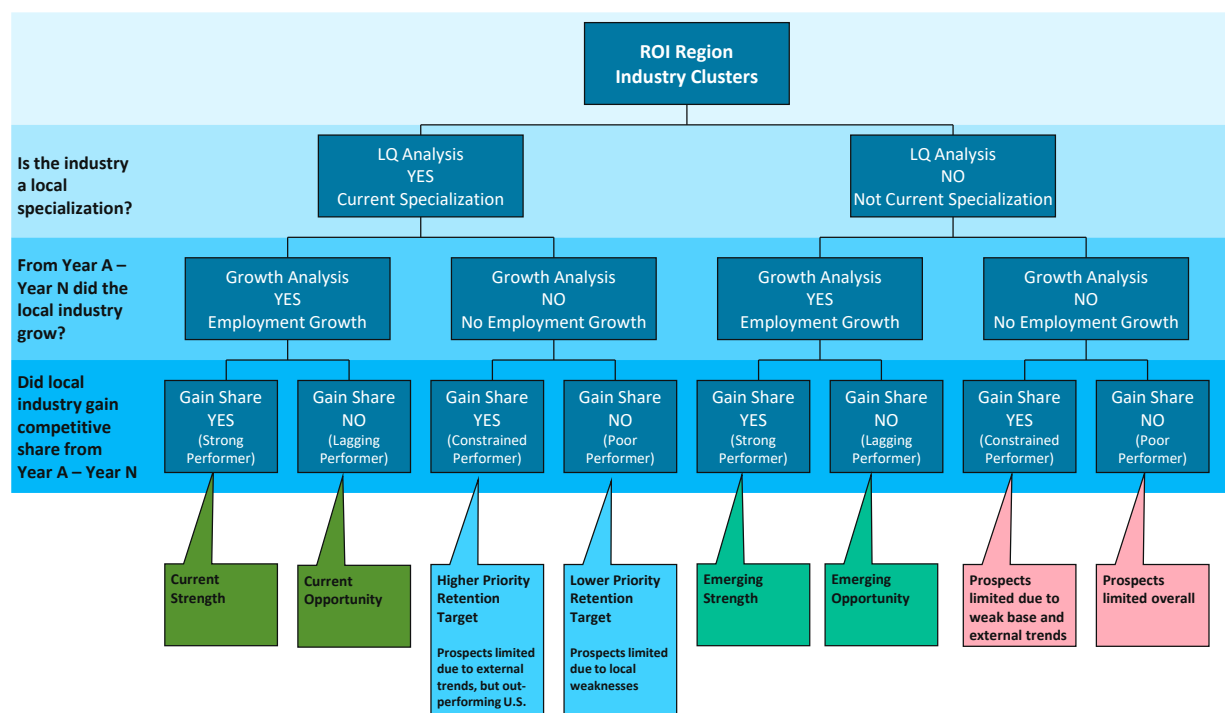
Defining Regional Industry Clusters

Identifying and defining a region's industry clusters must include a consideration of both quantitative and qualitative information and a comparative context to assess true possibilities. Potential clusters are determined by a variety of factors, including employment size (critical mass), regional industry concentration, growth prospects, number of establishments, broad economic development context, and even relationships to other clusters. An overarching premise in selecting or focusing efforts on a specific cluster relates to the ability of that industry cluster to generate new wealth in the region. Those sectors that generate new wealth, typically referred to as traded sectors, are meeting the needs of consumers and industrial demand outside of the region in question, thereby bringing value back to the region (in the form of pay for workers and profits for ownership). Those sectors that primarily serve the needs of the local/regional community are considered non-traded sectors in that they are primarily supporting the needs and demands of the local/regional population and not generating financial returns from outside the region. Even this distinction between traded and non-traded sectors must be understood in the context of the region in question. For example, a regional health care system is developed and sized to support the needs of the local/regional population, and hence is typically viewed as a non-traded sector. However, regions can, in certain situations, differ in what industries are traded versus non-traded in nature. For example, regions with unique medical specialties or international reputations, such as the Mayo Clinic or Cleveland Clinic, not only serve local populations but attract patients globally. These patients, in turn, bring in outside wealth in the form of payments and other spending to their particular regions, in which case they can be considered a traded sector.

Establishing the industry structure of a cluster (typically through the use and inclusion of specific industry classifications such as the North American Industrial Classification System [NAICS] codes) requires a thorough understanding of inter-industry supply chain dynamics, a perspective on the region's uniqueness, and an eye on national comparative norms. The process of identifying and defining local industry clusters begins with detailed analysis to discover unique components and strengths, integrating component industries around both regional and national industry supply chain "norms," and ultimately grouping subsectors to achieve both conceptual understanding and actionable "scale."

From an economic development perspective, industry cluster analysis attempts to understand the interrelationships (both existing and potential) among firms and to what extent can these industry clusters be worked with, enhanced, and developed. While the ability to work with true industry clusters allows for significant economies of scale in the development process, it is important to recognize that not all establishments will be part of a group of similar firms, and not all groups of firms are able to operate as an industry cluster. However, from an economic development and job opportunity perspective, these firms and groups of firms are often key economic assets in their own right. For this analysis, industry cluster and industry group are used interchangeably. Figure 1 portrays the TEconomy industry and cluster targeting analysis decision tree structure.

Figure 1: Industry and Cluster Targeting Analysis: Decision Tree



Source: TEconomy Partners, LLC.

First, an examination of the full spectrum of the region’s industry employment was undertaken to see if new areas for consideration have emerged. Then, building upon the original analysis, TEconomy worked to update the industry clusters focusing on the final clusters selected for their economic development potential in the prior (2014) strategic plan.³ In analyzing the data this time, one relatively significant modification was made—the expansion of the furniture industry cluster to include more of the upstream supply chain. NAICS codes that were previously part of the lumber and wood products cluster examined in the prior project are now included in the furniture cluster.

Metrics were analyzed across three timespans: 2012-2019 (2012 was the most recent data available for the prior study), 2019-2020 (to examine what impact the COVID-19 pandemic may have had on the cluster), and the overall 2012-2020 period.

The results of the industry cluster performance-based decision tree provide a place to start for the overall assessment of cluster opportunities. Beyond the results of the decision tree-based analysis, TEconomy further examined these clusters and, to the extent possible many of the individual firms within these clusters, to better understand the regional context and dynamics of the cluster (e.g., overall size of the cluster; is the cluster’s employment spread throughout the Uplands region or primarily located in one county; growth limited to a single county) and the establishment nature of the cluster

³ It is important to note that due to changing NAICS definitions and reclassification of establishments by the federal government, the numbers presented in the 2012 analysis in this report do not 100 percent match the prior 2012 values.

(e.g., does the cluster consist of many individual firms, a number of establishments of the same firm, or is the cluster based primarily on one or two key firms; are there key niches within a cluster that should be examined separately).

Based upon this analysis, eight Indiana Uplands industry clusters offer unique and important opportunities upon which strategic development efforts can be established (Table 1). Each cluster is categorized into one of four strategic areas – technology, advanced manufacturing, industrial support services, and quality of place.

Table 1. Indiana Uplands Industry Clusters—An Overview

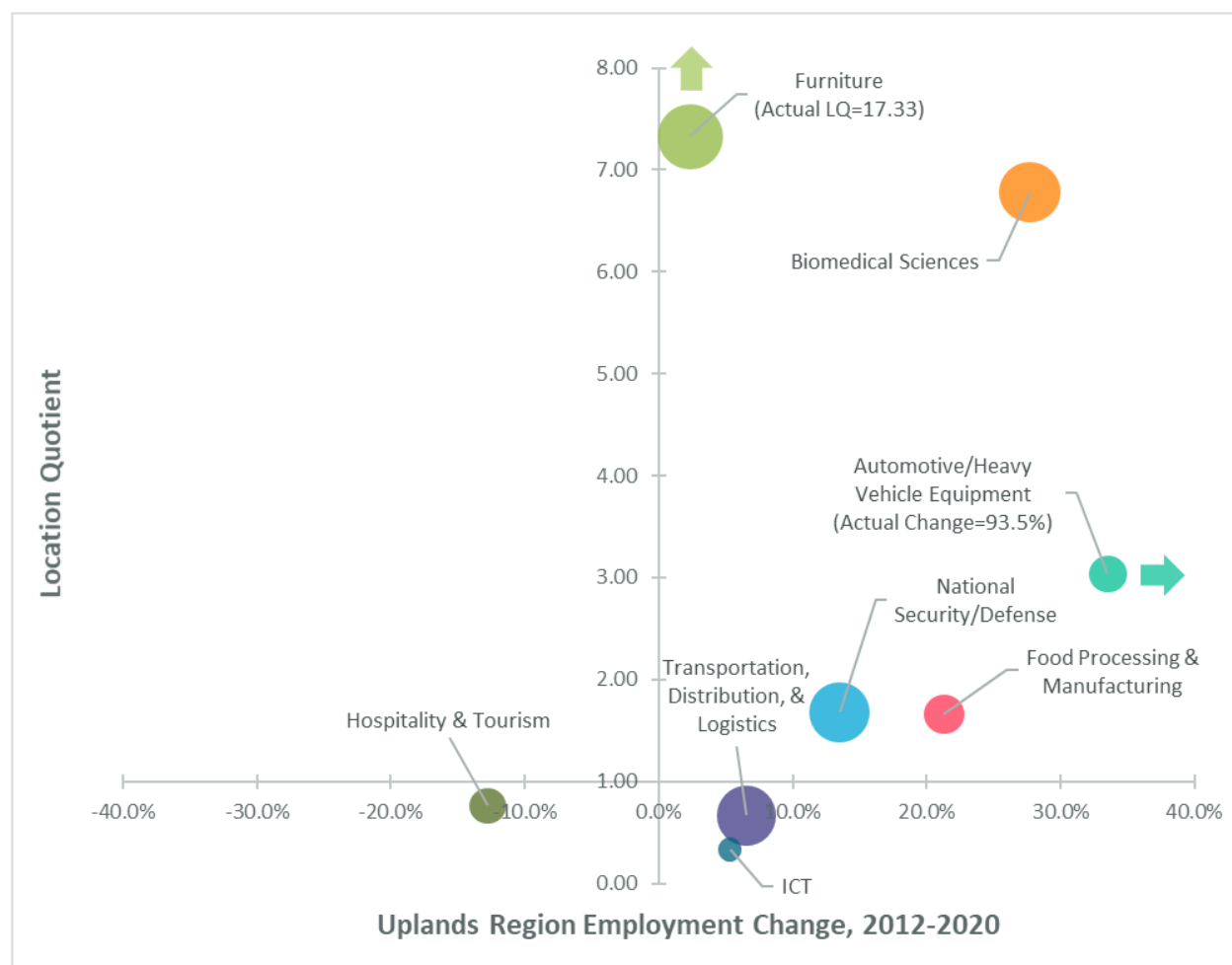
Indiana Uplands Industry Clusters	Economic Development Potential	
	Previous Period 2001-2012	Current Period 2012-2020
Technology		
Biomedical	Current Strength	Current Strength
Information and Communications Technology	Emerging Strength	Emerging Opportunity
National Security/Defense	Current Strength	Current Strength
Manufacturing		
Automotive/Heavy Vehicle Equipment	Current Strength	Current Strength
Food Processing and Manufacturing	Current Strength	Current Strength
Furniture	Current Strength	Current Opportunity
Industrial Support Services		
Transportation, Distribution, and Logistics	Emerging Opportunity	Emerging Opportunity
Quality of Place		
Hospitality and Tourism	Emerging Strength	Prospects Limited-Poor Performer

Source: TEconomy Partners, LLC.

A good way to summarize and visualize the performance of these eight Uplands clusters is through the use of an industry cluster bubble chart (Figure 2) that presents in one graphic three key characteristics for assessing the region's current position and recent trends:

- Current employment size (size of the bubble). An employment size reference bubble is in the upper left of each figure.
- Growth rate relative to the U.S. (the x-axis; growth greater than the U.S. increasing to the right of the y-axis)
- Employment concentration or specialization relative to the U.S. (location quotient; y-axis; equal concentration to U.S. is valued at 1.00; greater concentration than U.S. as the value increases upward; concentration metric greater than 1.20 indicates a true regional specialization).

Figure 2. Current Performance of Indiana Uplands Regional Clusters



Source: TEconomy Partners analysis of Enhanced U.S. Bureau of Labor Statistics CEW data (from Emsi, Datarun 2021.2).

The following narrative provides details regarding the cluster development prospects within each strategic industry cluster. The sections begin with a brief overview of the strategic area, followed by a descriptive definition of each included cluster, a cluster economic performance summary, and a discussion of the cluster's opportunities relative to its assets and connections to other clusters. Together, these eight clusters represent important components of the Uplands' industrial structure as well as key building blocks for developing innovation-based industries.

Biomedical/Life Science Industry Cluster

The biomedical/life science industry cluster represents a unique regional specialization and offers significant employment opportunities for the region's residents. The biomedical cluster definition includes medical and electromedical instruments, medical supplies and devices, drugs and pharmaceuticals, and biotech/bio R&D firms. In the Uplands region, there are a number of companies that are driving the health and growth of this industry cluster, including Cook Group, Catalent, Baxter Healthcare, and Boston Scientific. It is also important to note that several other major regional employers that are part of other industry clusters have very close supply chain relationships to the biomedical cluster, including Kimball Electronics and Cook Polymer Technology.

Cluster Performance

With nearly 7,775 employees, the Uplands biomedical/life science cluster represents both significant employment and significant specialization for the region, nearly seven times as specialized as the nation (Table 2). In terms of growth, this cluster has seen strong comparative growth over the total 2012-2020 period, with the region's cluster growing by more than 27 percent while the cluster grew by 22 percent nationally. Before the impact of COVID, the region was outperforming the nation by 10 percentage points.

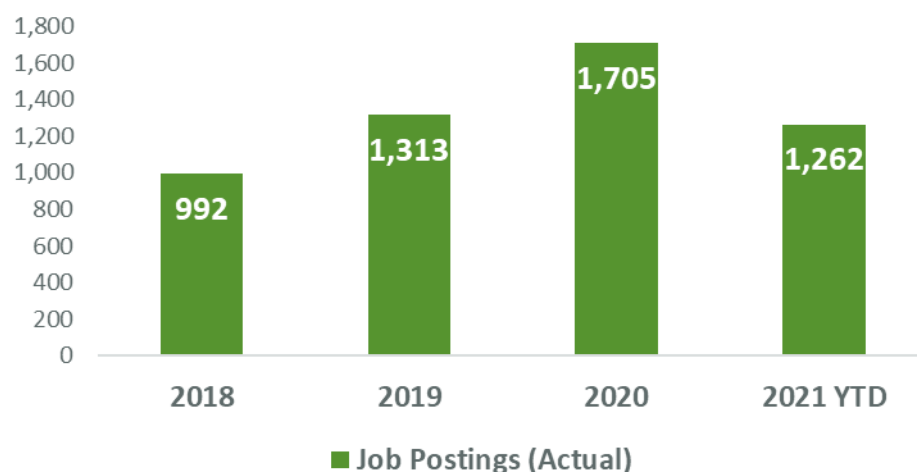
Table 2. Economic Summary for Biomedical/Life Science Cluster

ROI Cluster	2020 Metrics					Recent Jobs Performance		
	Establishments	Employment	Employment Concentration (LQ)	Productivity (GRP/Emp)	Average Wage	% Change 2012-2019	% Change 2019-2020	% Change 2012-2020
Biomedical Sciences	31	7,773	6.78	\$169,344	\$60,935	30.2%	-2.0%	27.7%
<i>U.S. Performance</i>				\$305,757	\$118,833	20.6%	1.5%	22.4%

Source: TEconomy Partners analysis of Enhanced U.S. Bureau of Labor Statistics CEW data (from Emsi, Datarun 2021.2).

The demand for talent to propel the growth of the biomedical/life science cluster is significant. Between January of 2018 and June of 2021, there were 4,590 unique job postings in the region (see Figure 3). Leading job titles in demand are illustrated in Figure 4.

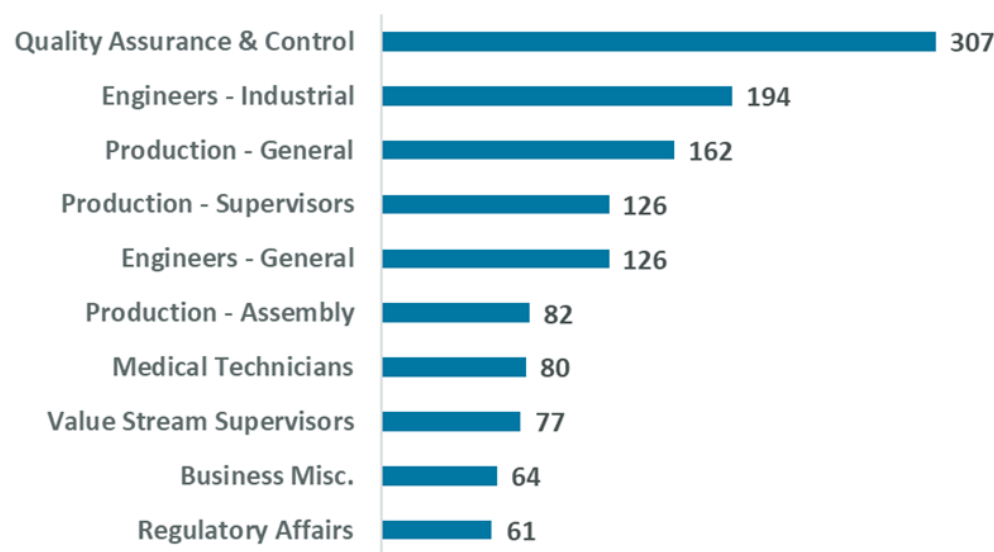
Figure 3. Regional Biomedical/Life Science Job Posting Trends



Source: TEconomy Partners' analysis of Emsi, JPA Database, Q2 2021.

Note: The individual years in trend analysis will not sum to cumulative totals due to unique postings that span across individual years.

Figure 4. Leading Biomedical/Life Science Job Titles in Demand



Source: TEconomy Partners' analysis of Emsi, JPA Database, Q2 2021.

Note: Emsi limits information on job titles and corresponding numbers of postings, limiting the ability to provide comprehensive totals by categories.

It is also important to point out that comparisons to the U.S. are difficult as the performance of the overall cluster at the national level consists of large numbers of small biotech firms and significant “big pharma” operations that drive the national clusters’ average establishment size and productivity measures. The bottom line is that the biomedical/life science cluster is a unique regional niche that drives significant economic growth within the Uplands region.

Cluster Opportunity

The biomedical cluster offers the Indiana Uplands a number of key innovative firms upon which to build its comparative advantage. It will, however, be critical to the region’s employment base to ensure that the existing companies’ talent needs are met in order for expansions to occur in the region.

The innovative nature of the region’s firms is most directly demonstrated by patent activities. The Cook Group (Cook Medical), Boston Scientific/SciMed, and a few other smaller firms together account for 2,309 issued patents or pending applications from 2012 to June 2021, 70 percent of all patents issued or pending to regional inventors. Smaller innovative firms have also been engaged to a limited extent in obtaining risk capital. Four biomedical science companies have received \$12.3 million across 12 deals, and 10 companies received 36 SBIR awards totaling nearly \$18 million in non-dilutive capital.

Information and Communications Technology

The information and communications technology (ICT) cluster includes computer hardware (including semiconductors and storage devices), communications equipment, other audio equipment, software development, software publishing, computer programming and systems design, and other computer or IT-related services. Major employers include Kimball Electronics, Seagate Technologies, Envisage Technologies, Matrix Integration, Cornerstone Information Systems, and Cheddar. The information technology cluster also includes firms that are key NSA Crane suppliers, such as SAIC and CACI.

Cluster Performance

The region's ICT cluster has experienced slower growth than the overall U.S., which leads to declining concentration levels (5.3 percent growth in the region in comparison to 36.8 percent growth across the nation). As Table 3 illustrates, the cluster is made up of 130 establishments, averaging 9 employees per establishment. At present, the cluster is not considered to be concentrated in the region—its location quotient of 0.33 indicates the region is 67 percent less concentrated than the U.S. average. More concerning, the location quotient has fallen since 2012, when it was 0.62, again indicating a loss of market share. The larger firms in the region appear to be more niche-specific support firms (e.g., supporting NSA Crane), but with many, very small potentially emerging/nascent startups trying to gain market traction. This cluster has important potential as it currently is the highest paying among the clusters examined, with an average wage of more than \$87,000.

Table 3. Economic Summary Information and Communications Technology

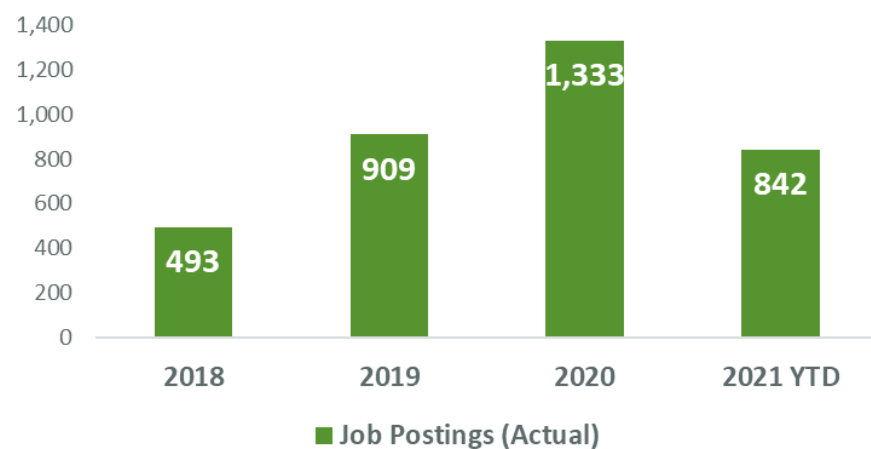
ROI Cluster	2020 Metrics					Recent Jobs Performance		
	Establishments	Employment	Employment Concentration (LQ)	Productivity (GRP/Emp)	Average Wage	% Change 2012-2019	% Change 2019-2020	% Change 2012-2020
Information & Communications Tech	130	1,217	0.33	\$188,704	\$87,007	3.4%	1.8%	5.3%
<i>U.S. Performance</i>				\$281,624	\$150,463	34.4%	1.8%	36.8%

Source: TEconomy Partners analysis of Enhanced U.S. Bureau of Labor Statistics CEW data (from Emsi, Datarun 2021.2).

Note: Employment does not include university employment related to ICT.

The demand for talent to propel the growth of the emerging cluster is significant. Between January of 2018 and June of 2021, there were 3,284 unique job postings in the region (see Figure 5). Leading job titles in demand are illustrated in Figure 6.

Figure 5. Regional ICT Job Posting Trends



Source: TEconomy Partners' analysis of Emsi, JPA Database, Q2 2021.

Note: The individual years in trend analysis will not sum to cumulative totals due to unique postings that span across individual years.

Figure 6. Leading ICT Job Titles in Demand



Source: TEconomy Partners' analysis of Emsi, JPA Database, Q2 2021.

Note: Emsi limits information on job titles and corresponding numbers of postings, limiting the ability to provide comprehensive totals by categories.

Cluster Opportunity

Though currently limited in size and concentration, this cluster represents a unique opportunity for the Uplands region. The continued growth and expansion of the Indiana University-Bloomington education and research assets in the broad information technology arena provide opportunities to leverage this experience to grow existing firms and, ultimately, to spawn new entrepreneurial ventures from the research activities occurring on campus.

Beyond leveraging Indiana University-Bloomington, the cluster also shows entrepreneurial promise. Since 2012, 22 firms have received risk capital representing nearly \$25 million in investment across 32 investment deals. In addition, 8 ICT companies received a total of 12 SBIR awards totaling nearly \$4 million in non-dilutive capital.

It is critical that the current decline of this emerging ICT cluster be reversed in order to help support and leverage it as a cross-enabling technology that the other three targeted industry clusters in the region, national security/defense, life sciences, and advanced manufacturing, can benefit from as supply chain partners/drivers of innovation.

National Security/Defense

The national security/defense cluster, as developed and defined for Indiana Uplands region, obviously includes the federal employment of the commands and operations within NSA Crane (classified under NAICS 928110 – National Security including NSWC Crane, CAAA, NAVFAC, etc.).

Through prior analysis and interviews conducted by the TEconomy team, there is also a significant national security/defense cluster of contractors providing support and development services to NSA Crane. Firms that serve as contractors to the national security/defense cluster include regional locations of major national companies such as AECOM, Booz Allen, CACI, Draper Labs, General Dynamics IT,

Mantech, and SAIC, as well as smaller and emerging regional companies such as Artisan Electronics, BrightVolt, Paragon Force, Scientia, and Tri Star Engineering, among others. As previously mentioned, the synergy between the national security/defense cluster and the ICT cluster needs to be further leveraged and strengthened.

Cluster Performance

The combined federal and private sector employment of nearly 7,700 represents a unique specialization for the region, with the region having 68 percent more national security/defense employment than the national average (Table 4). With average wages over \$75,000, this cluster is the second highest-paying cluster in the Uplands region. The cluster has exhibited strong growth over the total 2012-2020 period, far outpacing the nation (13.5 percent growth in the region vs. 2.1 percent across the nation).

Table 4. Economic Summary for National Security/Defense Cluster

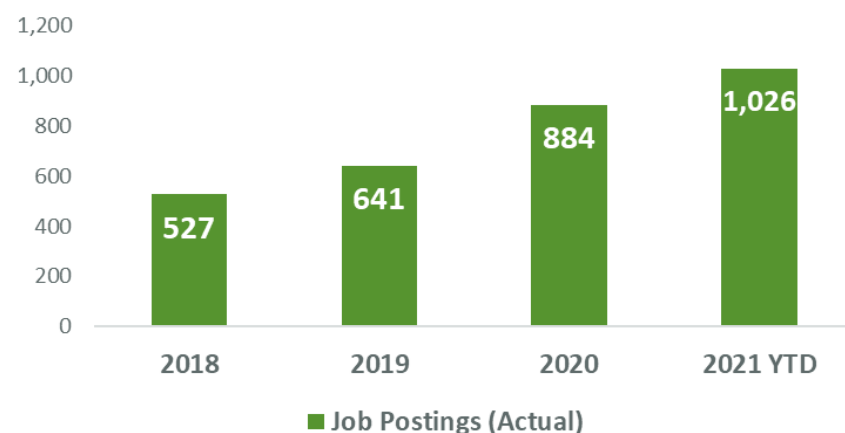
ROI Cluster	2020 Metrics					Recent Jobs Performance		
	Establishments	Employment	Employment Concentration (LQ)	Productivity (GRP/Emp)	Average Wage	% Change 2012-2019	% Change 2019-2020	% Change 2012-2020
National Security/Defense	95	7,698	1.68	N/A	\$75,178	10.1%	3.1%	13.5%
<i>U.S. Performance</i>				N/A	\$150,463	1.1%	1.0%	2.1%

Source: TEconomy Partners analysis of Enhanced U.S. Bureau of Labor Statistics CEW data (from Emsi, Datarun 2021.2).

It is also important to note that approximately 750 of these jobs are held by individuals with positions at Crane Army Ammunition Activity (CAAA), one of the commands at NSA Crane that produces and provides conventional munitions requirements in support of United States Army and Joint Force readiness. These activities, while classified as part of the defense cluster, are significantly aligned with the advanced manufacturing cluster in the region.

The demand for talent to propel the growth of the national security/defense cluster is significant. Between January of 2018 and June of 2021, there were 2,785 unique job postings in the region (see Figure 7). Leading job titles in demand are illustrated in Figure 8.

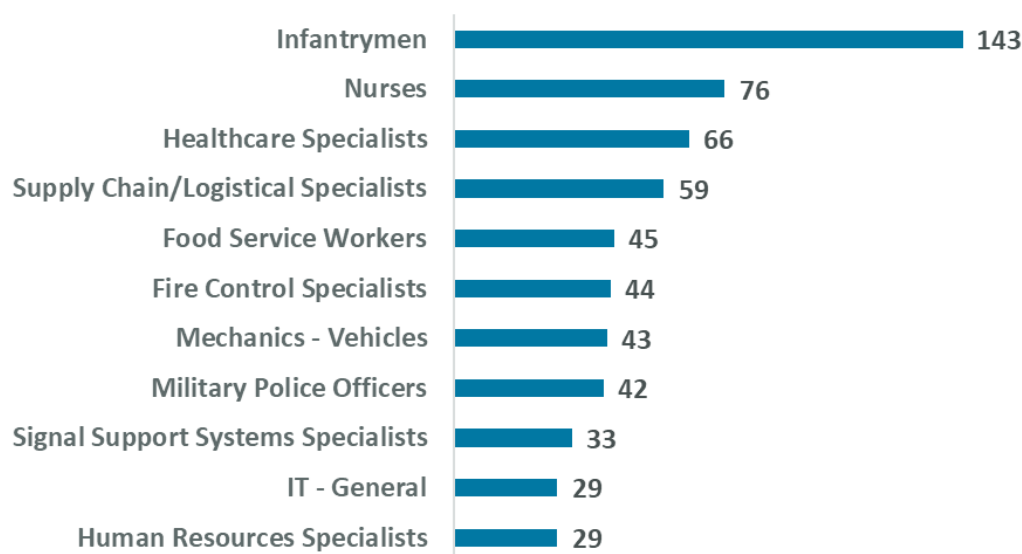
Figure 7. Regional National Security/Defense Job Posting Trends



Source: TEconomy Partners' analysis of Emsi, JPA Database, Q2 2021.

Note: The individual years in trend analysis will not sum to cumulative totals due to unique postings that span across individual years.

Figure 8. Leading National Security/Defense Job Titles in Demand



Source: TEconomy Partners' analysis of Emsi, JPA Database, Q2 2021.

Note: Emsi limits information on job titles and corresponding numbers of postings, limiting the ability to provide comprehensive totals by categories.

Cluster Opportunity

Underpinning this growth is the continued advancement of NSWC Crane as a national leader in its three mission areas. From discussions with NSWC Crane leaders, this national leadership is reflected in NSWC Crane staff being involved in leading national dialogues within the DoD community, being called on to explain future opportunities for advancement, and helping to inform direction of military technology development as well as to be a lead in delivering solutions. As the 2028 Strategic Intent document explains, "NSWC Crane is more valued and relevant than at any time in its history, and our strategies are setting us on a course to remain relevant well into the future."⁴

The fact that NSWC Crane is viewed as a national leader is reflected in its growing portfolio of R&D projects and growing expertise in emerging technologies. This is the result of an intentional strategy by NSWC Crane leadership to expand NSWC Crane's R&D talent by increasing the number of PhDs, establishing a dedicated Science & Technology Office, and increasing the number of innovation cells and technology offices within departments. These proactive actions help enable NSWC Crane to be more forward-thinking and, subsequently, a driver of innovative solutions.

The increasing innovative nature of the defense activity taking place in the Uplands is demonstrated by an increase in recent patenting activities. The DoD/Navy/Crane account for 317 issued patents or pending applications from 2012 to June 2021. By comparison, between 2000-2012, the defense complex only averaged 8 patents annually.

⁴ IBID, page 2

This growing expertise in emerging technology areas by NSWC Crane is offering the Uplands new opportunities to grow as a technology hub. A closer look at NSWC Crane’s growing expertise in emerging technology areas suggests four areas of focus, namely:

- Big Data Analytics, Artificial Intelligence, and Machine Learning
- Modernization of Strategic Electronics
- Trusted Electronics
- Hypersonics

A key facet of this national security/defense cluster-related economic development opportunity is that it is mutually supporting. Leveraging these NSA Crane assets, to the extent possible, will not only provide new private sector firms and employment opportunities in the region, but it will also lead to additional local support and contractor base for NSA Crane.

According to the Semiconductor Industry Association, while the U.S. is the undisputed global leader in the design of cutting-edge semiconductors – the key foundational technology for everything digital that has transformed all sectors of our economy and underpins the “must-win” technologies of the future, including artificial intelligence, 5G, and quantum computing – American leadership in this critical technology faces numerous vulnerabilities. Today, U.S. chip designers rely heavily on suppliers in Asia for advanced chip manufacturing. The share of global semiconductor manufacturing capacity in the U.S. has decreased from 37% in 1990 to 12% today. Over the long term, China is poised to disrupt the industry with \$100 billion in subsidies. The U.S. Congress recently enacted the bipartisan Creating Helpful Incentives to Produce Semiconductors (CHIPS) for America Act as part of the National Defense Authorization Act. The Biden Administration has also called for funding \$50 billion in legislation. This legislation making its way through Congress authorizes an array of R&D initiatives and a subsidy program for domestic semiconductor manufacturers.

The Uplands region already has a strong focus through NSWC Crane on microelectronics, making it a prime location for future public and private investments. The modernization of strategic electronics is a distinct opportunity for the region. This involves a specialized class of radiation-hardened microelectronics with especially high levels of reliability. Efforts are already underway that involve: advances in design at the nanoscale – likely involving a consortium of Midwestern universities; enhanced testing and evaluation capabilities, such as the single event effects; and public and private investments in electronic fabrication and packaging.

In a world of global semiconductor manufacturing, one critical market need is for trusted electronics. This includes the need for new technologies, such as anti-tamper technologies, counterfeit detection, component performance testing, and cybersecurity.

NSWC Crane already makes active use of cooperative research and development agreements (CRADAs) for new trusted electronics technology (computer vision and computation microscopy) and validating new methods with Indiana universities. Plus, IN3, through the Achieving Scientific Security User Reassurance in Electronics (ASSURE) program, has awarded \$2.3 million across nine projects involving Purdue, Indiana University, and Notre Dame.

The defense cluster in the Uplands Region is on the upswing. With the rise of NSWC Crane as a national leader in its mission areas and its growing expertise in emerging technology areas, the region's position as a critical hub in our nation's defense capabilities has never been greater.

Advanced Manufacturing—Automotive/Heavy Vehicle Equipment

The definition of the automotive/heavy vehicle equipment cluster includes all of the motor vehicle (including automotive, truck, and heavy equipment) assembly, body manufacturing, and parts manufacturing. Additionally, key areas of metal fabrication are also included. There are three major Indiana Uplands employers in this cluster: Jasper Engine, Carlisle Brake & Friction, and GM Powertrain.

Cluster Performance

A key aspect of the Indiana Uplands automotive/heavy vehicle equipment cluster is its diversified nature in terms of products and in terms of markets served (e.g., major OEMs, first tiers, and aftermarket). The region's more than 3,000 jobs lead to a regional specialization of 3.04 or more than 200 percent more concentrated in the region than the cluster is nationally (Table 5). The cluster has exhibited incredible growth over the total 2012-2020 period, far outpacing the nation (93.5 percent growth in the region vs. 14 percent across the nation).

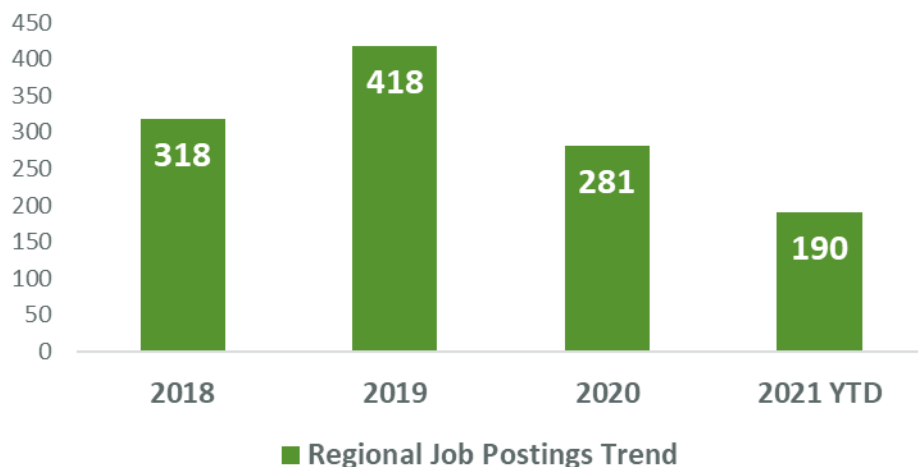
Table 5. Economic Summary for Automotive/Heavy Vehicle Equipment Cluster

ROI Cluster	2020 Metrics					Recent Jobs Performance		
	Establishments	Employment	Employment Concentration (LQ)	Productivity (GRP/Emp)	Average Wage	% Change 2012-2019	% Change 2019-2020	% Change 2012-2020
Automotive/Heavy Vehicle Equipment	17	3,002	3.04	\$107,712	\$60,716	105.6%	-5.9%	93.5%
<i>U.S. Performance</i>				\$170,007	\$58,921	26.5%	-10.0%	14.0%

Source: TEconomy Partners analysis of Enhanced U.S. Bureau of Labor Statistics CEW data (from Emsi, Datarun 2021.2).

The demand for talent to propel the growth of the automotive/heavy vehicle equipment cluster is sizeable. Between January of 2018 and June of 2021, there were 1,027 unique job postings in the region (see Figure 9). Leading job titles in demand are illustrated in Figure 10.

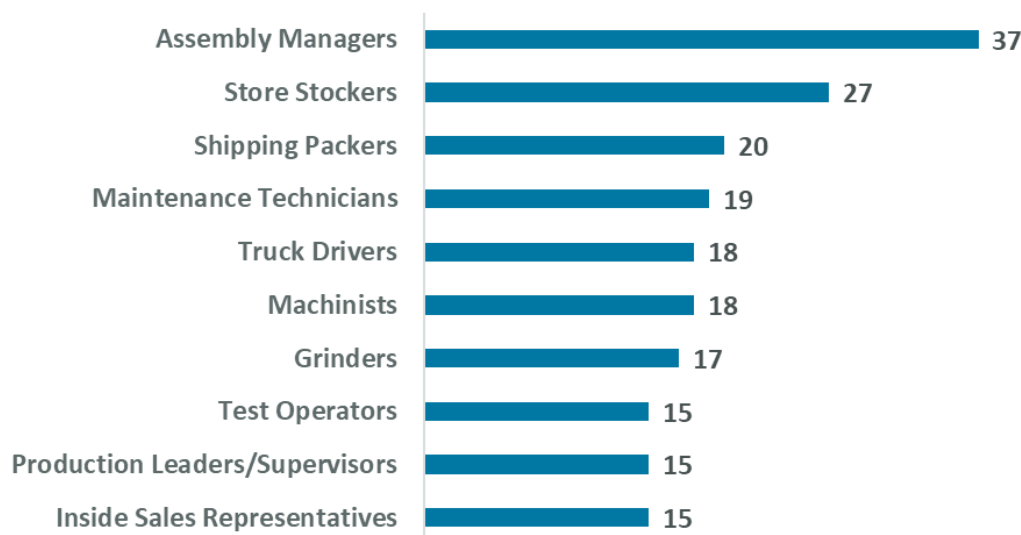
Figure 9. Regional Automotive/Heavy Vehicle Equipment Job Posting Trends



Source: TEconomy Partners' analysis of Emsi, JPA Database, Q2 2021.

Note: The individual years in trend analysis will not sum to cumulative totals due to unique postings that span across individual years.

Figure 10. Leading Automotive/Heavy Vehicle Equipment Job Titles in Demand



Source: TEconomy Partners' analysis of Emsi, JPA Database, Q2 2021.

Note: Emsi limits information on job titles and corresponding numbers of postings, limiting the ability to provide comprehensive totals by categories.

Cluster Opportunity

The principal opportunity for this cluster is the retention and continued expansion of the key firms. This will require access to both a skilled labor force as well as the ability to adapt to global innovation trends. An increasingly vital component of advanced manufacturing industries in general, and the automotive/heavy vehicle equipment industry specifically, is technology adoption and implementation in order to be able to compete in a global manufacturing sector that is investing heavily in and leveraging the capabilities of Industry 4.0 technologies. Industry 4.0 is a technological and innovation movement that represents a paradigm shift so significant that industry experts have referred to it as the arrival of the "Fourth Industrial Revolution." While "Industry 3.0" leveraged the "digital revolution" of

the late 20th century to embed computers and robotics into single processes or machines, Industry 4.0 is utilizing a new wave of technologies to fully automate processes and decision-making across the production life cycle. Digital industrial technology is transforming the modern global manufacturing sector, with major implications for industry competitiveness. As one would expect from such transformational technology, Industry 4.0 has significant implications for all facets of the manufacturing ecosystem, including innovation, supply chains, infrastructure, the workforce, and even customer engagement—implications that will have tremendous impacts on regional competitiveness within advanced manufacturing clusters. The Uplands region’s ability to maintain its significant concentration of the automotive/heavy vehicle equipment industry and foster its continued growth will, in large part, rest on these companies’ ability to adopt, and adapt, to this increasingly Industry 4.0 dominated market.

Advanced Manufacturing—Food Processing and Manufacturing

From a definitional perspective, this cluster includes nearly all of NAICS 311 – Food Manufacturing as well as other industry segments such as beverage manufacturing. For the Uplands region, this cluster consists of key employment levels in poultry and other meat processing, grain milling, milk manufacturing (processing and bottling), and bakeries. Major employers headquartered or with operations in the region include Farbest Foods, Perdue Farms, Tyson Fresh Meats, Bimbo Bakeries, and Darling Ingredients.

Cluster Performance

The food processing and manufacturing cluster accounts for nearly 3,300 jobs in total, driven significantly by poultry/meat processing (Table 6). Firms tend to be larger, mass processors, especially within the poultry processing industry, which accounts for 44 percent of the cluster’s employment. As a key U.S. poultry processing region, the overall cluster employment yields a strong regional specialization, with 66 percent more employment in the cluster than would be expected if the region were at the U.S. average. This cluster has seen strong comparative growth over the total 2012-2020 period, with the region’s cluster growing by more than 21.3 percent while the cluster grew 14.5 percent nationally. However, the cluster, in part because of its dominance in meat processing, was impacted by COVID-19 related job losses more than the overall U.S. industry, declining 6.5 percent in the region between 2019 and 2020, compared to a national decline of 1.9 percent. It is also important to note that these cluster employment figures for the Uplands do not include the jobs on family or incorporated farms in the region, which are also a critical component of the value chain and further enhance the opportunities to grow this cluster.

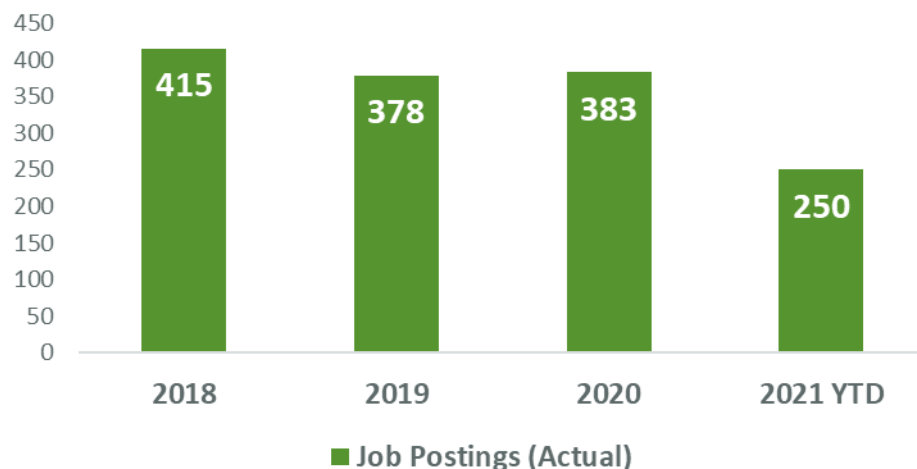
Table 6. Economic Summary for Food Processing and Manufacturing Cluster

ROI Cluster	2020 Metrics					Recent Jobs Performance		
	Establishments	Employment	Employment Concentration (LQ)	Productivity (GRP/Emp)	Average Wage	% Change 2012-2019	% Change 2019-2020	% Change 2012-2020
Food Processing and Manufacturing	55	3,290	1.66	\$99,912	\$41,143	29.8%	-6.5%	21.3%
<i>U.S. Performance</i>				\$136,720	\$51,559	16.7%	-1.9%	14.5%

Source: TEconomy Partners analysis of Enhanced U.S. Bureau of Labor Statistics CEW data (from Emsi, Datarun 2021.2).

The demand for talent to propel the growth of the food processing and manufacturing cluster is sizeable. Between January of 2018 and June of 2021, there were 1,262 unique job postings in the region (see Figure 11). Leading job titles in demand are illustrated in Figure 12.

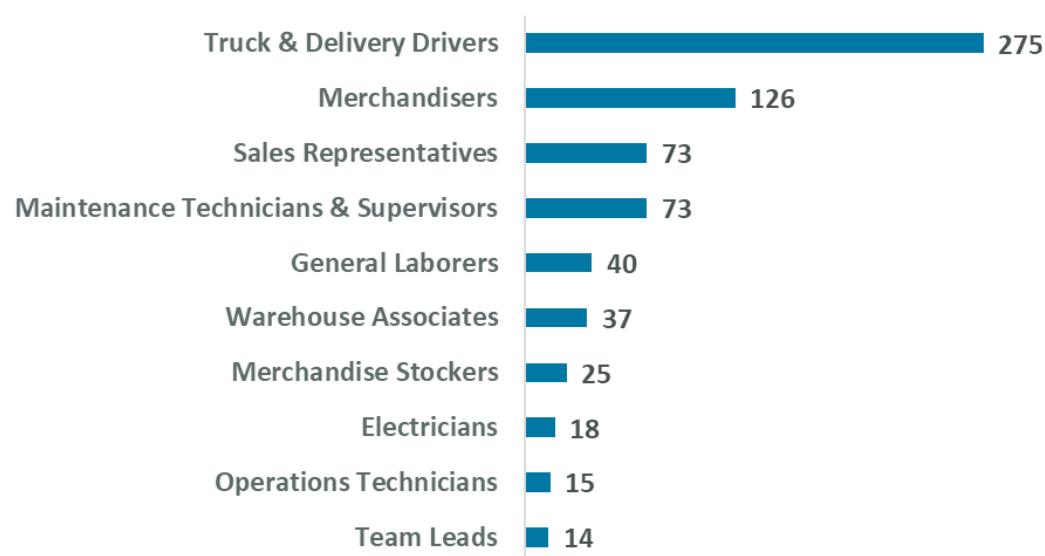
Figure 11. Regional Food Processing and Manufacturing Job Posting Trends



Source: TEconomy Partners' analysis of Emsi, JPA Database, Q2 2021.

Note: The individual years in trend analysis will not sum to cumulative totals due to unique postings that span across individual years.

Figure 12. Leading Food Processing and Manufacturing Job Titles in Demand



Source: TEconomy Partners' analysis of Emsi, JPA Database, Q2 2021.

Note: Emsi limits information on job titles and corresponding numbers of postings, limiting the ability to provide comprehensive totals by categories.

Cluster Opportunity

In the case of the food processing and manufacturing industry cluster, opportunities exist and have been recognized by industry members to better link the agricultural production resources of the Uplands region and even the state with the region's food processing capabilities. Through industry interviews, it

was learned that there is currently very limited value-added processing. For example, within the poultry supply chain—the vast majority of poultry products leaving the region are in the form of fresh/frozen products. Interviewees cited the fact that there was very limited downstream processing (e.g., using poultry/meat as an input to making frozen entrees, lunch meat, etc.) in the region or even the state. Fostering and engaging this capacity within the region is a unique development opportunity to enhance the cluster’s value-chain. Similarly, from an animal feed perspective, poultry producers also described situations where they are buying feed/meal from out-of-state feed companies who are making the feed using grain/soybean inputs obtained from Indiana farmers.

Advanced Manufacturing—Furniture

Indiana Uplands furniture cluster includes firms engaged in designing and manufacturing household, office, and institutional furniture (all materials), kitchen cabinets, other casework, and custom architectural woodwork and millwork. Note, this cluster definition has been revised in this current analysis to include individual sectors from the lumber and wood products area that are highly aligned with the region’s furniture industry. Key regional firms include Kimball International, MasterBrand Cabinets, OFS, and Best Home Furnishings.

Cluster Performance

With more than 9,000 jobs, the Indiana Uplands region’s furniture cluster is the largest, private-sector-oriented cluster in the region (Table 7). The Uplands is considered to be one of the nation’s key furniture manufacturing regions as demonstrated by its extreme specialization of 17.33—the furniture industry is 17 times more concentrated in the region than it is in the U.S. overall. With this extreme level of specialization comes concern over cyclicity. The furniture cluster in the Uplands region has seen similar growth over the total 2012-2019 period to the nation, with the region’s cluster growing 10.2 percent while the cluster grew 9.7 percent nationally. However, the cluster was impacted by COVID-19 related job losses more than the overall U.S. industry, declining 7.2 percent in the region between 2019 and 2020, compared to a national decline of 5.1 percent. As with the other regional niche specialization clusters, the furniture industry is not only specialized from an employment perspective but is also concentrated geographically in DuBois County.

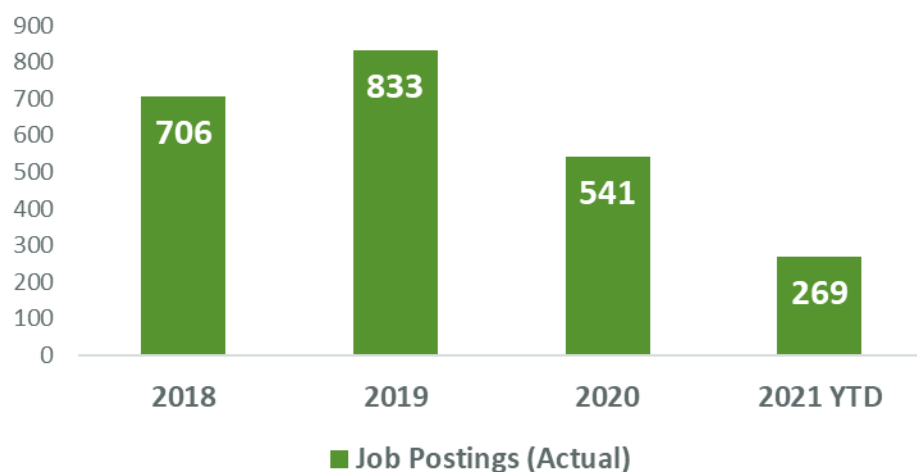
Table 7. Economic Summary for Furniture Cluster

ROI Cluster	2020 Metrics					Recent Jobs Performance		
	Establishments	Employment	Employment Concentration (LQ)	Productivity (GRP/Emp)	Average Wage	% Change 2012-2019	% Change 2019-2020	% Change 2012-2020
Furniture	139	9,016	17.33	\$74,369	\$43,967	10.2%	-7.2%	2.3%
<i>U.S. Performance</i>				\$87,176	\$47,903	9.7%	-5.1%	4.1%

Source: TEconomy Partners analysis of Enhanced U.S. Bureau of Labor Statistics CEW data (from Emsi, Datarun 2021.2).

The demand for talent to propel the growth of the furniture cluster is sizeable. Between January of 2018 and June of 2021, there were 2,060 unique job postings in the region (see Figure 13). Leading job titles in demand are illustrated in Figure 14.

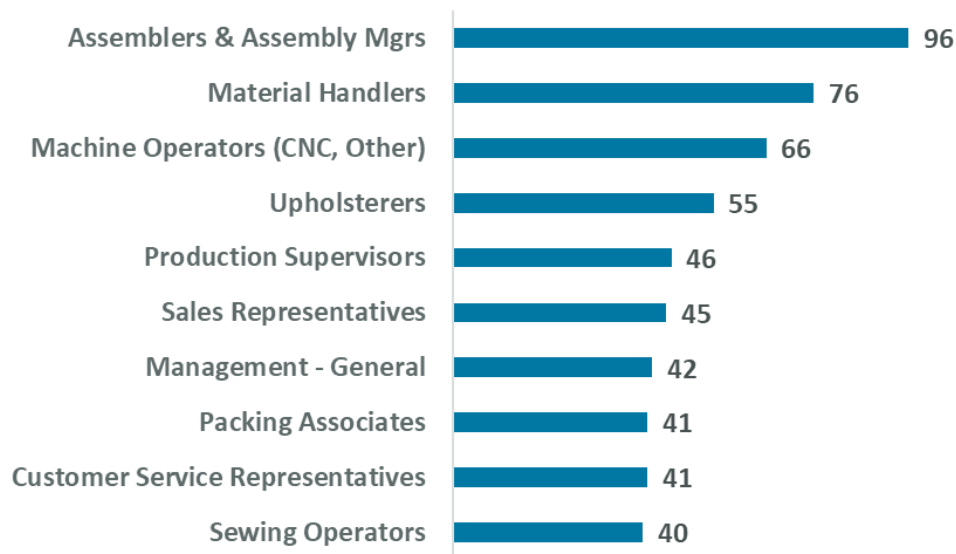
Figure 13. Regional Furniture Job Posting Trends



Source: TEconomy Partners' analysis of Emsi, JPA Database, Q2 2021.

Note: The individual years in trend analysis will not sum to cumulative totals due to unique postings that span across individual years.

Figure 14. Leading Furniture Job Titles in Demand



Source: TEconomy Partners' analysis of Emsi, JPA Database, Q2 2021.

Note: Emsi limits information on job titles and corresponding numbers of postings, limiting the ability to provide comprehensive totals by categories.

Cluster Opportunity

A hallmark of the Indiana Uplands' furniture industry is its custom nature and design integrity. For example, Kimball International is the region's fourth largest patent holder, with more than 80 design patents issued or pending since 2021. In addition, three other companies involved in the furniture vertical in the region are also active in patenting. While the cluster's employment mainstays are the two large wood office furniture and kitchen cabinetry manufacturers, the cluster has continued to diversify and expand its footprint. Furthermore, similar to the automotive/heavy vehicle equipment industry, the

ability for the industry cluster to adopt and implement new innovations related to Industry 4.0 technologies will dictate its ability to drive levels of productivity and remain globally competitive.

Industrial Support Services—Transportation, Distribution, and Logistics

The transportation, distribution, and logistics (TDL) cluster is primarily identified by NAICS 42 – Wholesale Trade (Distribution), the freight-related (i.e., not including the passenger-related or pipeline-oriented) components of NAICS 48 – Transportation, and NAICS 49 – Warehousing. It also includes specific components related to packaging, warehouse equipment, and logistics consulting. Firms in this cluster provide freight transport and logistics services (e.g., trucking and warehousing companies) and wholesale distribution operations (both third party and manufacturer owned). Major Uplands firms include Meyer Logistics, Styline Logistics, Nancy Baer Trucking, KeHE Distribution, and numerous local/regional branches of major national firms.

Cluster Performance

The TDL cluster in the Indiana Uplands region accounts for 7,500 jobs (Table 8). The cluster includes many smaller companies, with the average establishment size of 12 employees—with the 640 establishments the largest number of establishments of any Uplands cluster, by far. The current level of specialization based upon the cluster’s location quotient places the region at 67 percent of the national average concentration. The TDL cluster’s employment has grown over the 2012-2020 period at 6.5 percent, but lagged U.S. growth of 15.7 percent. From a wage perspective, the TDL cluster, at an annual average wage of more than \$52,500, pays less than some of the high-tech-oriented clusters in the region, but better than most of the other manufacturing-based clusters and more than \$8,000 higher per year than the region’s average wage.

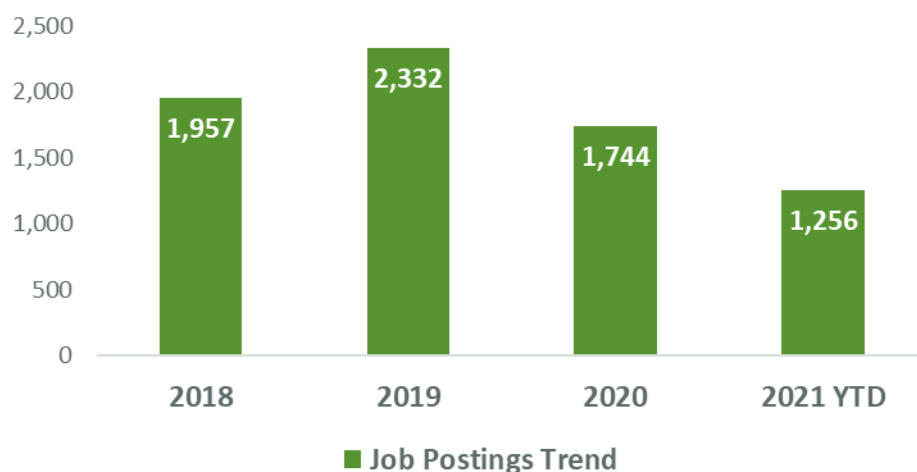
Table 8. Economic Summary for Transportation, Distribution, and Logistics Cluster

ROI Cluster	2020 Metrics					Recent Jobs Performance		
	Establishments	Employment	Employment Concentration (LQ)	Productivity (GRP/Emp)	Average Wage	% Change 2012-2019	% Change 2019-2020	% Change 2012-2020
Transportation, Distribution, & Logistics	640	7,500	0.67	\$133,784	\$52,748	7.4%	-0.8%	6.5%
<i>U.S. Performance</i>				\$161,245	\$68,447	16.0%	-0.3%	15.7%

Source: TEconomy Partners analysis of Enhanced U.S. Bureau of Labor Statistics CEW data (from Emsi, Datarun 2021.2).

The demand for talent to propel the growth of the TDL cluster is sizeable. Between January of 2018 and June of 2021, there were 6,522 unique job postings in the region (see Figure 15), more than any other industry cluster examined. Leading job titles in demand are illustrated in Figure 16.

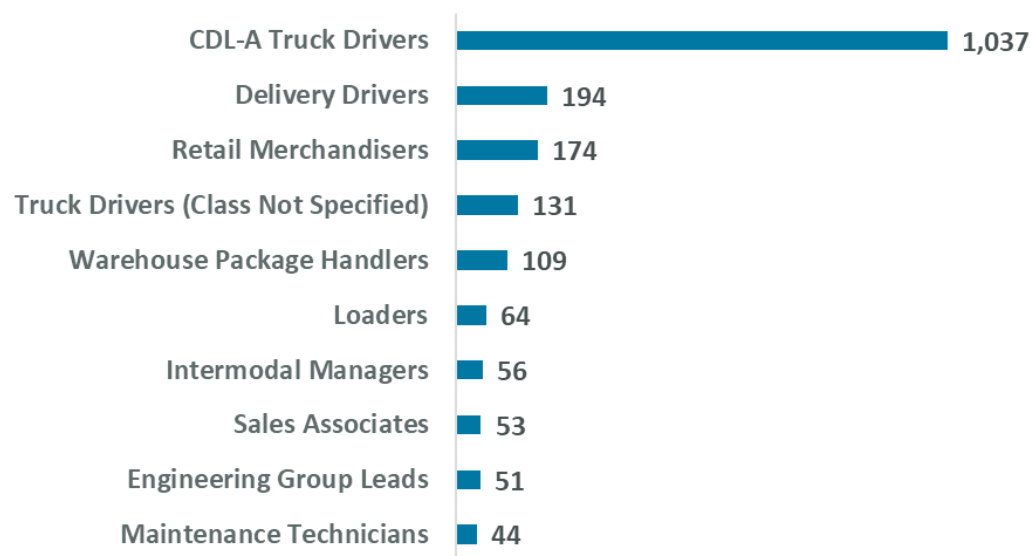
Figure 15. Regional Transportation, Distribution, and Logistics Job Posting Trends



Source: TEconomy Partners' analysis of Emsi, JPA Database, Q2 2021.

Note: The individual years in trend analysis will not sum to cumulative totals due to unique postings that span across individual years.

Figure 16. Leading Transportation, Distribution, and Logistics Job Titles in Demand



Source: TEconomy Partners' analysis of Emsi, JPA Database, Q2 2021.

Note: Emsi limits information on job titles and corresponding numbers of postings, limiting the ability to provide comprehensive totals by categories.

Cluster Opportunity

It is important to note that roughly half (51 percent) of the Uplands TDL cluster is in wholesale distribution, much of which supports other key clusters previously discussed. Hence, the reason why TDL is considered to be an industrial support services cluster and vital to the growth of other industry clusters across the region. In other words, the current TDL cluster appears to focus on fulfilling an otherwise unmet industrial support service need by the food processing, automotive/heavy vehicle equipment, furniture, and to a lesser degree, national security/defense clusters, thereby providing a

support capability to the primary industry clusters rather than a stand-alone strength. By national standards, in order to compete for a major TDL site location, a region needs at least two high volume lanes intersecting and, ideally, one or more intermodal connection points. Even with the completion of the I-69 Corridor, the Uplands infrastructure will not rise to that level of capacity.

As a result, the Uplands should focus its efforts on retaining the TDL capacity that exists to ensure the continued support services that will be required for the attraction and growth of the primary industry clusters, but not focus on TDL as an opportunity for independent growth apart from the other clusters.

Quality of Place—Hospitality and Tourism

The quality of place industry grouping reflects the unique context of the hospitality and tourism cluster. By its nature, it can be an economic base activity, attracting visitors and their spending from outside of the region. It, however, also plays a key role in defining the region’s attributes and enhancing quality of life for the region’s residents.

Hospitality and tourism is a broadly defined cluster. The Indiana Uplands hospitality and tourism cluster includes hotels, tourism infrastructure, and visitor attractions. Key employers in the region include the French Lick Springs Resort & Casino, Jasper Inn & Convention Center, and Brown County Art Colony. Additionally, the major national hotel chains have locations throughout the region.

Cluster Performance

The hospitality and tourism cluster exceeds 2,800 jobs across the region but was hit hard during the global pandemic as was the industry across the world (Table 9). The cluster in the Uplands region saw slightly less growth over the 2012-2019 period when compared to the nation, with the region’s cluster growing 12.2 percent while the cluster grew 14.8 percent nationally. Furthermore, the cluster was impacted by COVID-19 related job losses more than the overall U.S. industry, declining 22.3 percent in the region between 2019 and 2020, compared to a national decline of 21.7 percent. While the cluster is important to the Indiana Uplands quality of place, it is 24 percent less concentrated than the nation, with an L.Q. of 0.76. Finally, the average wage is only \$25,908, as a result of the industry being highly seasonal and often a part-time employer. This wage level falls below the average wage of \$44,667 for the region.

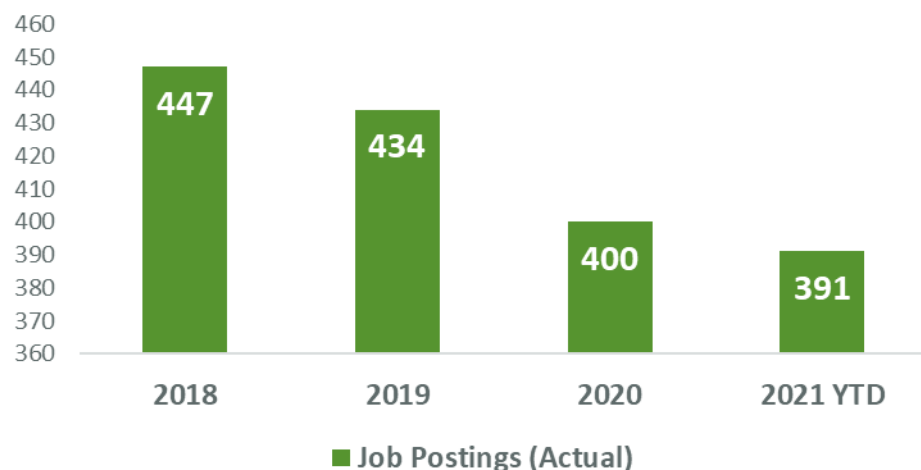
Table 9. Economic Summary for Hospitality and Tourism Cluster

ROI Cluster	2020 Metrics					Recent Jobs Performance		
	Establishments	Employment	Employment Concentration (LQ)	Productivity (GRP/Emp)	Average Wage	% Change 2012-2019	% Change 2019-2020	% Change 2012-2020
Hospitality & Tourism	197	2,809	0.76	\$74,992	\$25,908	12.2%	-22.3%	-12.8%
<i>U.S. Performance</i>				\$87,176	\$47,903	14.8%	-21.7%	-10.0%

Source: TEconomy Partners analysis of Enhanced U.S. Bureau of Labor Statistics CEW data (from Emsi, Datarun 2021.2).

The demand for talent within the hospitality and tourism cluster is sizeable. Between January of 2018 and June of 2021, there were 1,535 unique job postings in the region (see Figure 17). Leading job titles in demand are illustrated in Figure 18.

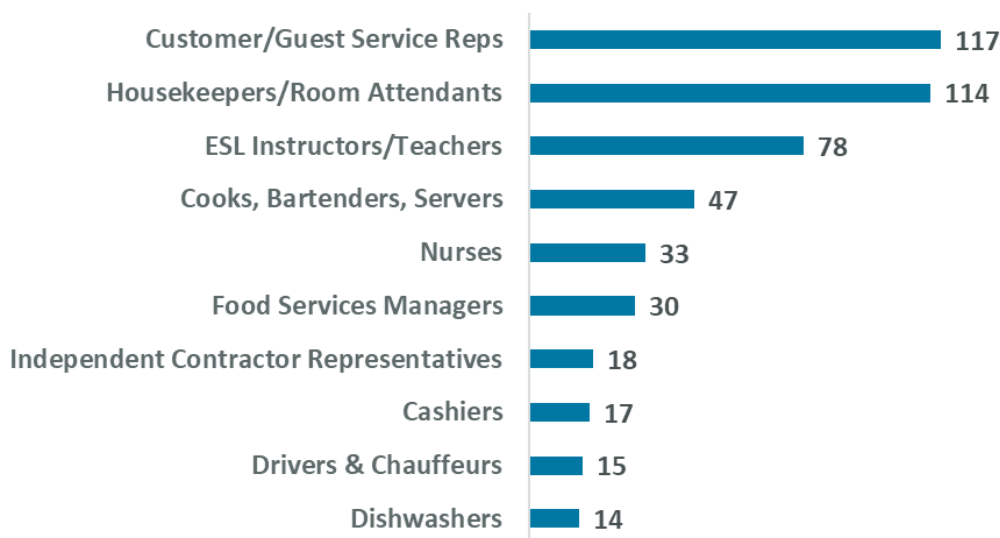
Figure 17. Regional Hospitality and Tourism Job Posting Trends



Source: TEconomy Partners' analysis of Emsi, JPA Database, Q2 2021.

Note: The individual years in trend analysis will not sum to cumulative totals due to unique postings that span across individual years.

Figure 18. Leading Hospitality and Tourism Job Titles in Demand



Source: TEconomy Partners' analysis of Emsi, JPA Database, Q2 2021.

Note: Emsi limits information on job titles and corresponding numbers of postings, limiting the ability to provide comprehensive totals by categories.

Cluster Opportunity

Two specific efforts will likely continue to cause changes in the Indiana Uplands hospitality and tourism cluster. First, the continued concerted effort to expand the tourism-related offerings of the region will increase the size and employment of the cluster. Second, the extension and completion of the I-69 Corridor could have both positive and negative effects on the cluster, especially the hotel components of the cluster. The completion of the I-69 Corridor to Indianapolis will spur the development of additional hotel properties along the interstate. A new property has already opened at the interchange near the WestGate Technology Park/NSA Crane. While this will lead to additional employment for

counties along I-69, to the extent that these new properties serve visitors who currently stay in Bloomington/Monroe County, it would be a zero-sum for the region as a whole.

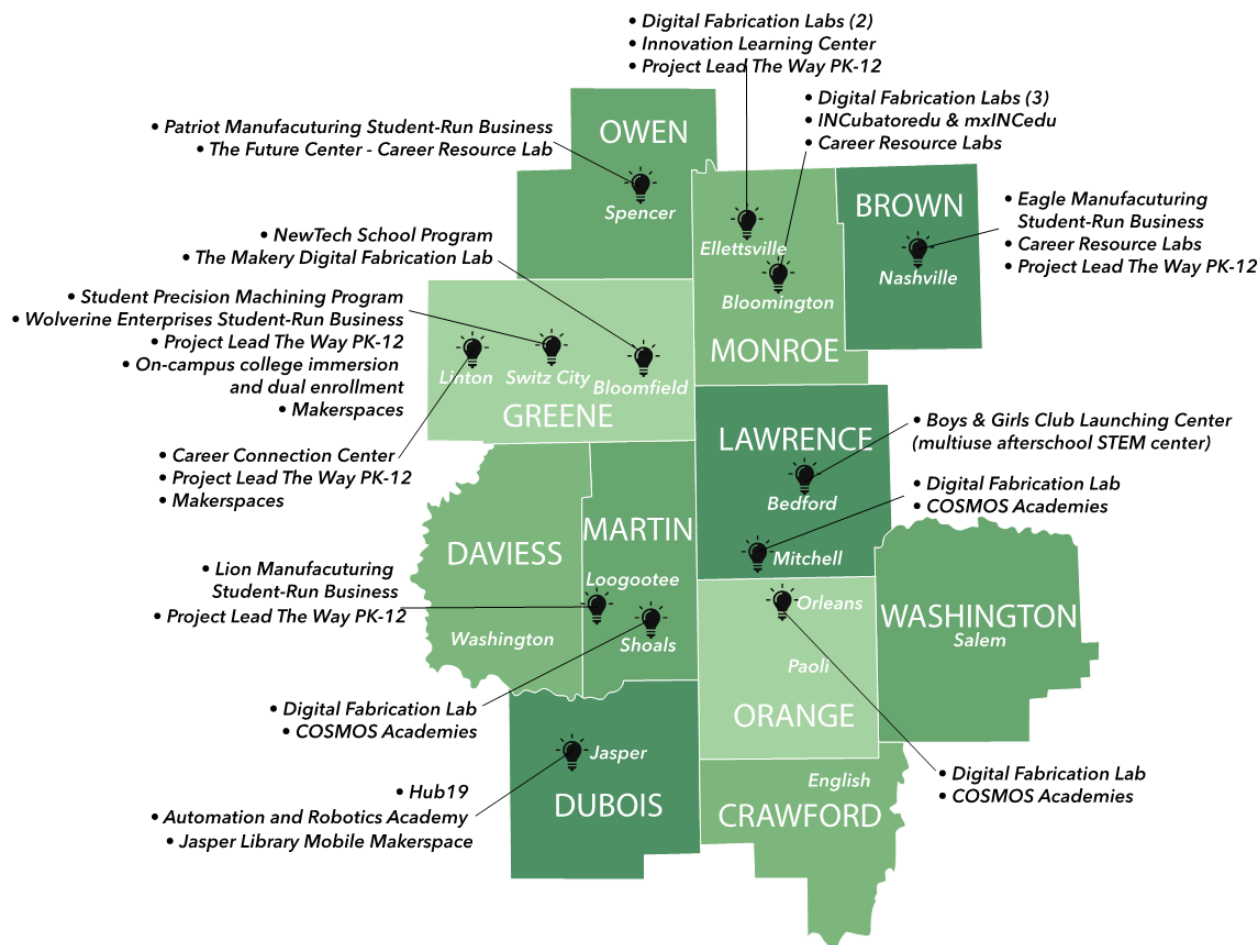
The Talent Context

Civic leaders also recognized in 2014 that the recommended industry cluster initiatives would not have a high likelihood of success unless there was an adequate workforce available to support and retain these growing industries. Until educational and community leaders understood and agreed upon the economic and occupational importance of these clusters, they were not likely to receive much attention or support from the regional system of education and training because their experience told them that many of these clusters were (a) not a viable industry or career path in the first place or (b) its jobs were uniformly unattractive. These perceptions had to be met head on and diffused. While work was underway at the state level, including engaging regional works councils to assist in developing demand-driven workforce solutions at the local level, more needed to be done specifically within the Uplands to align and leverage disparate workforce efforts.

As a result, the second bold initiative of the 2014 economic development strategy focused on advancing workforce development/talent through career immersion initiatives that aligned with federal, state, and local efforts. As the following analysis will detail, this strategy has created numerous pipeline programs and initiatives that have yielded significant results.

For example, ROI, in partnership with PK-12 school districts across the Uplands, has focused strategic investments across a wide variety of talent development/career immersion programs that are aligned with the needs of the region's industry clusters (Figure 10).

Figure 10. PK-12 Career Immersion/Talent Development Initiatives*



Activities (Number of Programs):

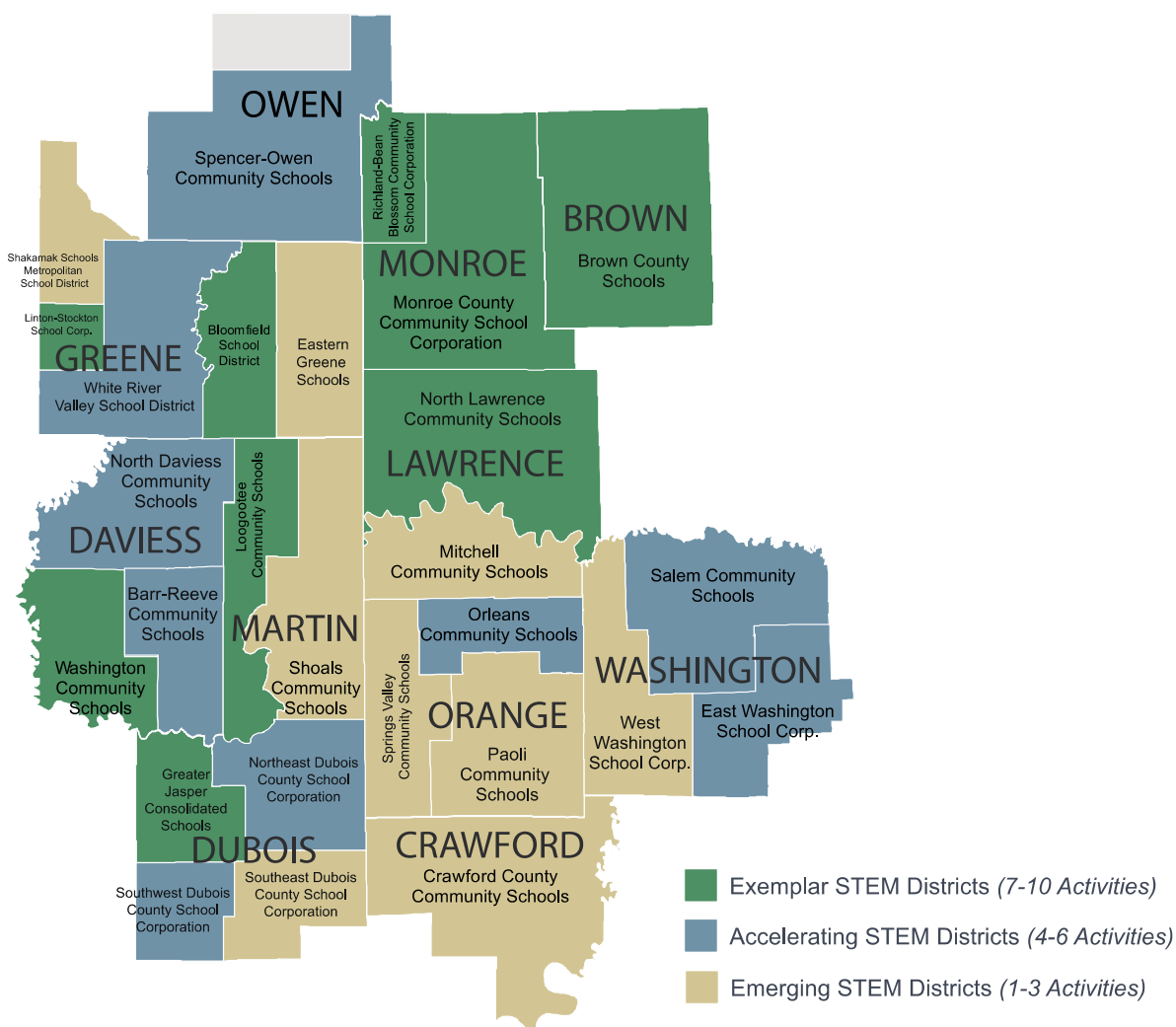
- Digital Fabrication Labs and Makerspaces (13)
- Career Centers (6)
- New Project Lead The Way Implementation, All Levels PK-12 (5)
- Student-Run Businesses (4)
- Academies (4)
- New Tech School District (1)
- College Immersion Program (1)
- Entrepreneurship PK-12 Programming (1)
- Centralized Countywide Education & Workforce Hub (1)

*ROI funded initiatives only

Source: Regional Opportunity Initiatives, Inc.

In addition, significant efforts have been brought forth to immerse STEM education across the region's school districts to better align with the region's workforce demands (Figure 11).

Figure 11. Uplands School District STEM Immersion Efforts



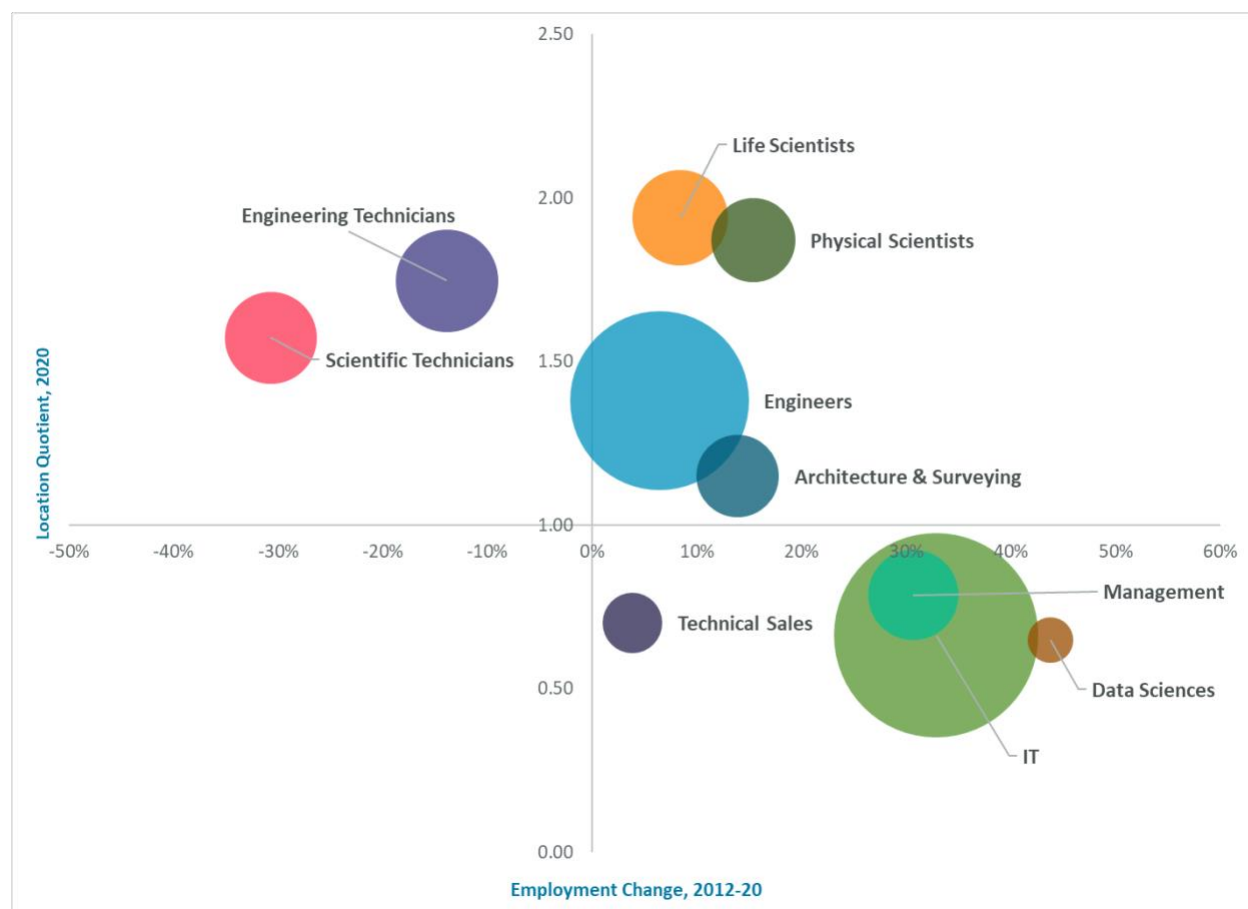
STEM Engagement Activities (Number of School Districts):

- PLTW Launch (15)
- PLTW Gateway (15)
- PLTW Engineering (18)
- PLTW Computer Science (13)
- PLTW Biomed (14)
- DOE STEM Certification (7)
- DOE STEM Acceleration (15)
- ROI STEM Fellows (23)
- ROI Digital Fabrication Labs (6)
- ROI Pathways (8)

Source: Project Lead The Way (PLTW), ROI, Indiana Department of Education, 2021

However, this critical work must continue as the industry demand continues to grow. STEM job growth has occurred across major occupation groups that drive the Uplands industry clusters since 2012. Positions related to IT, engineering, physical science, and life science are in great demand as evidenced by the job openings reported for each cluster in the prior analysis, as well as illustrated in Figure 12.

Figure 12. Indiana Uplands Growth in Major Occupational Groups, 2012 – 2020

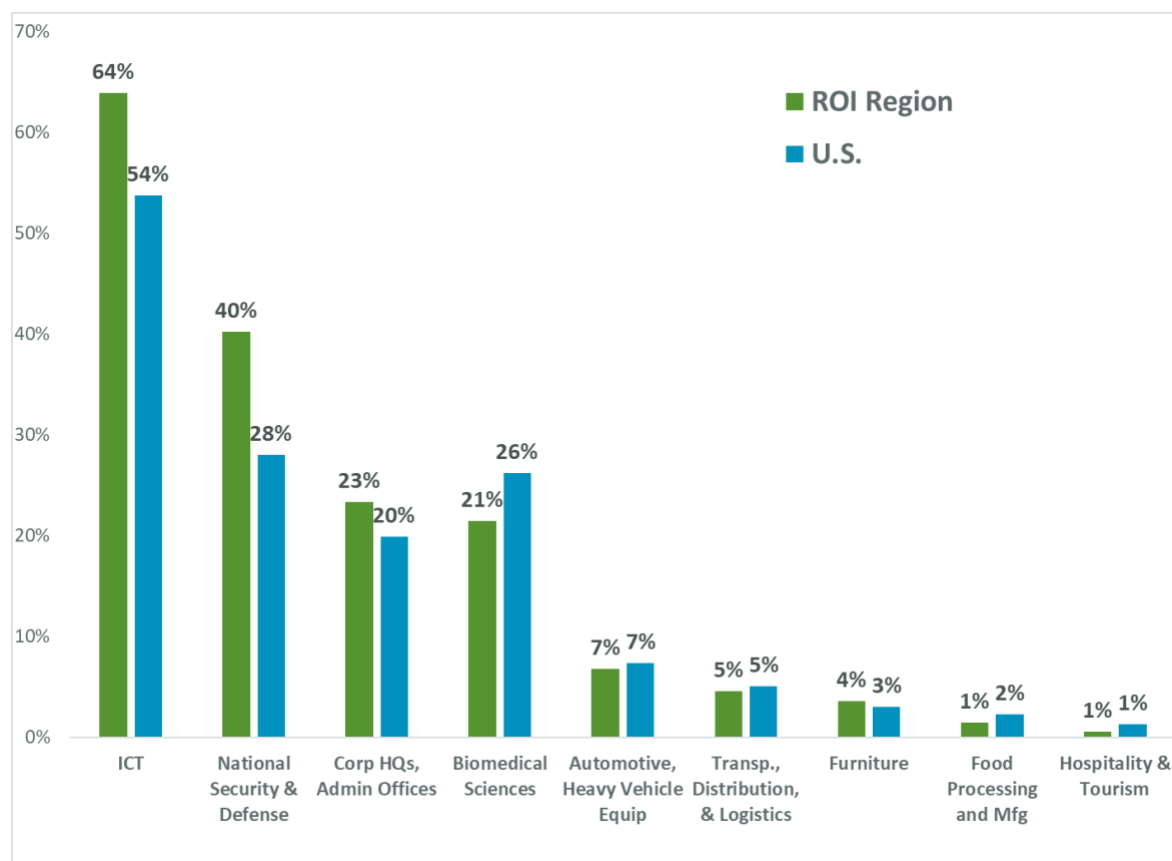


Note: While definitions can vary, STEM occupations generally include computer and math; architecture and engineering; life and physical sciences; as well as managerial occupations related to these areas. Selected sales occupations requiring technical STEM expertise are also included. TEconomy is utilizing the STEM occupational definition adopted by the U.S. Bureau of Labor Statistics (BLS) for analyses presented herein.

Source: TEconomy's analysis of Emsi, Q2 2021.

A number of the Uplands region's targeted industry clusters are especially STEM-intensive in talent demand/deployment, exceeding the national concentration (Figure 13). In particular, ICT and National Security and Defense industry clusters outpace the nation's share of cluster employment in STEM jobs by double digits.

Figure 13. Indiana Uplands Share of Cluster Employment in STEM Jobs*, 2020

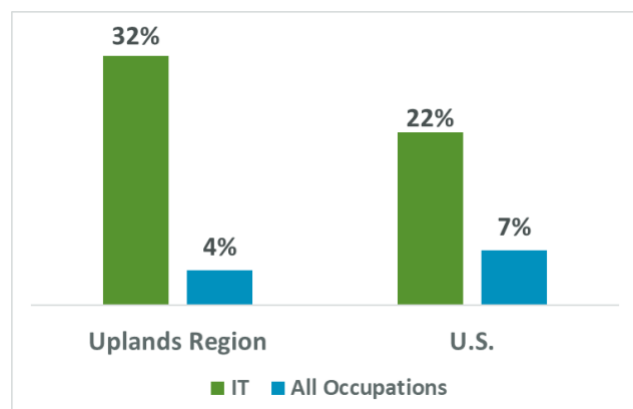


Note: While definitions can vary, STEM occupations generally include computer and math; architecture and engineering; life and physical sciences; as well as managerial occupations related to these areas. Selected sales occupations requiring technical STEM expertise are also included. TEconomy is utilizing the STEM occupational definition adopted by the U.S. Bureau of Labor Statistics (BLS) for analyses presented herein.

Source: TEconomy Partners' analysis of Emsi, Q2 2021.

There is a particularly high demand for IT workers within the Uplands region. The growth of the Uplands IT workforce has not only outpaced the nation but far surpasses the growth rate of all occupations (Figure 14).

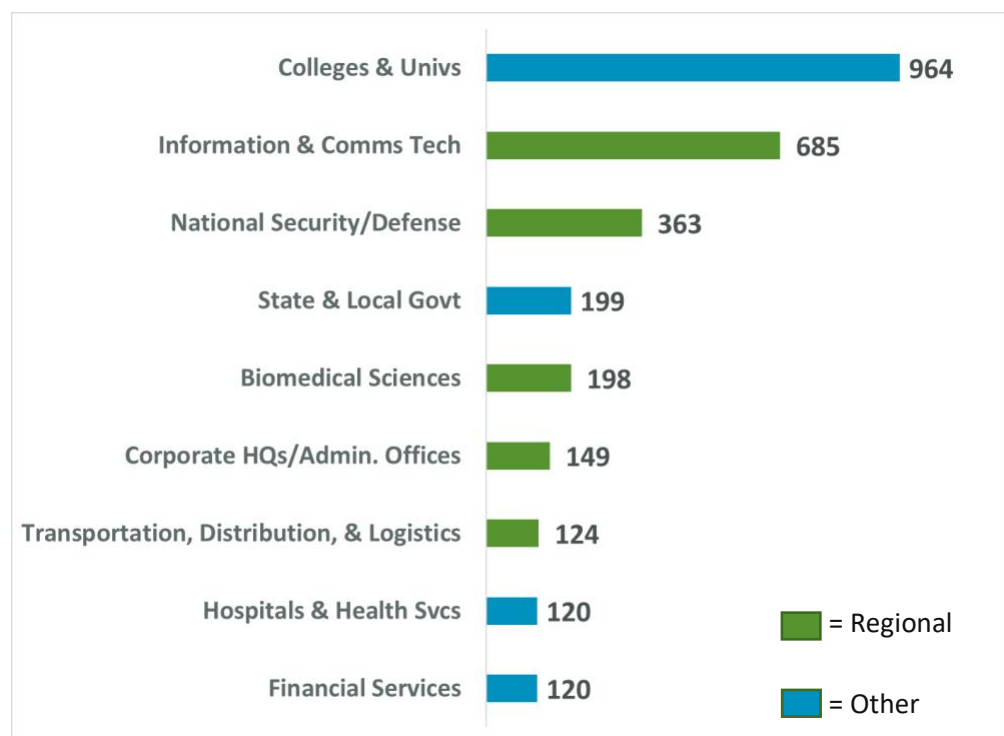
Figure 14. Employment Growth in IT Occupations, 2012-2020



Source: TEconomy Partners' analysis of Emsi 2021.2 data set.

As a cross-enabling skill set, IT professionals are in demand across numerous industry verticals, which makes the competition for the employees even tougher in the Uplands region (Figure 15).

Figure 15. IT Employment Across Uplands Regional Industry Clusters and Other Sectors, 2020



Source: TEconomy Partners' analysis of Emsi 2021.2 data set.

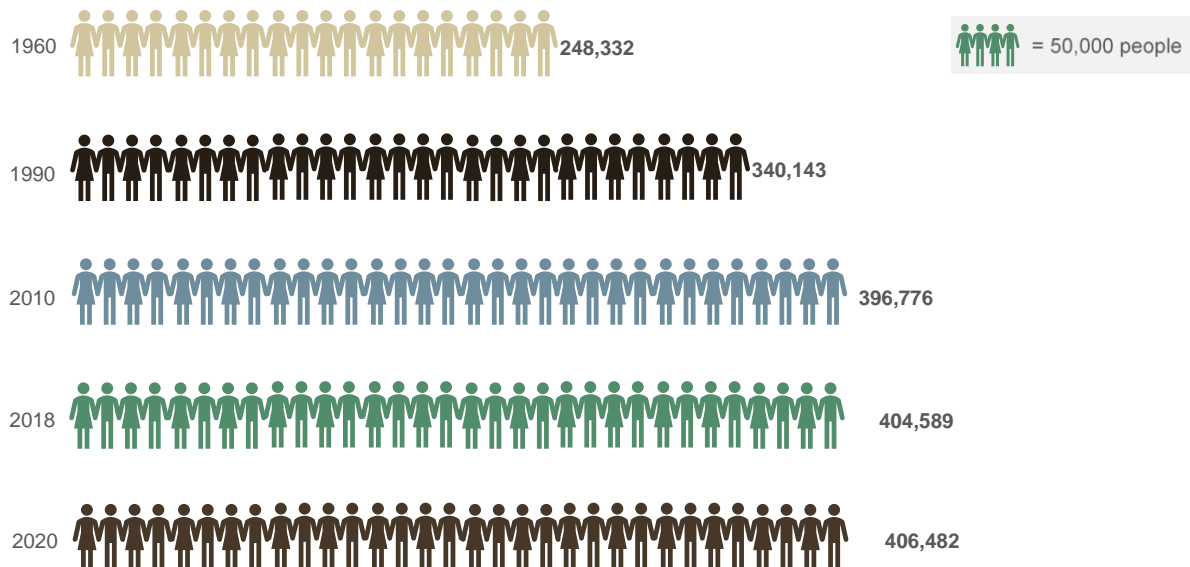
The Demographic Context

While the civic leaders were focused on catalyzing industry clusters and developing a pipeline of future skilled talent, they were not focused on growing the regional population. The reality was that while the Uplands' population was not keeping pace with the state or nation because regional employment was in decline, talent demand was assumed to be able to be fulfilled with talent retention and without the need for talent attraction.

Today, with the explosive growth experienced by a number of industry clusters, it is recognized that industrial capacity is being constrained by access to talent, and the only way to relieve this capacity constraint is to be able to attract talent to the region.

The problem is that Uplands has not been increasing its population base at a rate that fulfills the unmet demand for talent. Over the past decade, the Uplands' population has grown at a rate of 2.4 percent (Figure 16). By comparison, the nation's population grew 7.4 percent over the same time period, and the State of Indiana grew 4.7 percent.

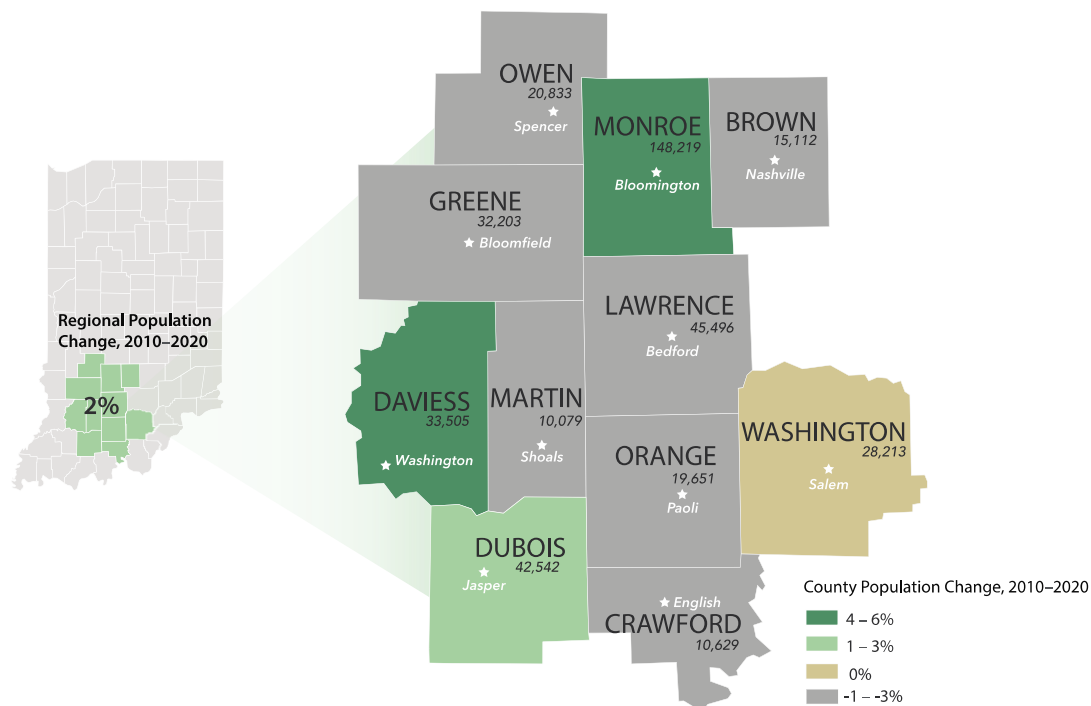
Figure 16. Indiana Uplands Regional Population Trends



Source: STATS Indiana

The rate of population growth is only exacerbated when it is examined on a county-by-county basis. As Figure 17 illustrates, only three counties in the Uplands, Monroe, Daviess, and Dubois, experienced net growth between 2010 and 2020. Washington County's population was stagnant, and the remaining 7 counties experienced a declining population base.

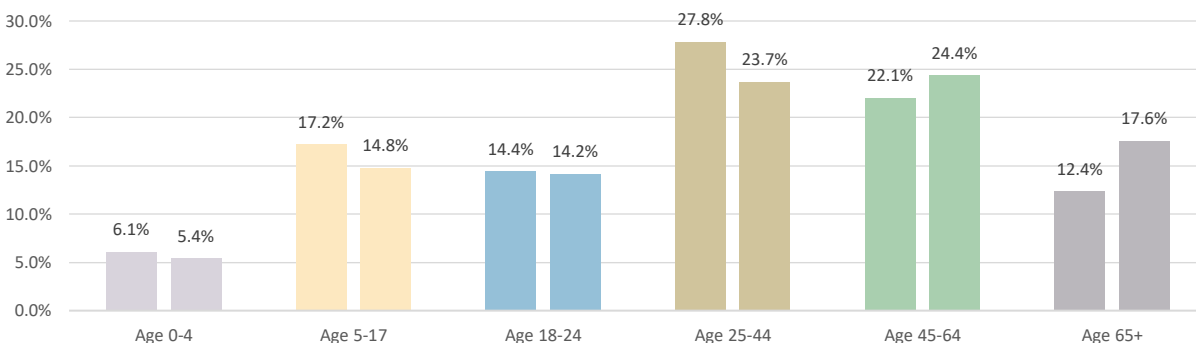
Figure 17. Indiana Uplands Population by County



Source: STATS Indiana

As Figure 18 illustrates, the population that does exist has also been aging over the past twenty years, with a larger share (42 percent) being over the age of 45 in 2020 than in 2010 (34.5 percent). Even more troublesome, the two age groups that saw the sharpest rate of change were in the age group of 65+, the age group that is predominantly no longer in the workforce (5.2 percentage point increase), and the 25-44 year olds, the age group that is driving new employment growth (4.1 percentage point decrease).

Figure 18. Regional Population by Age, 2000 and 2020



Source: STATS Indiana

The concern now facing the region is that if the Indiana Uplands is unable to attract talent to the region over the coming decade, it will be difficult to maintain the health and vibrancy of its industrial base, which in turn will impact the future prosperity of the Uplands' communities.

Indiana Uplands Updated Economic Development Strategic Framework

If the Indiana Uplands is to succeed in creating economic prosperity for all, it must ensure its competitive position through four means:

- The region must have **industries that remain globally competitive by constantly innovating**, not only the products that they make but also the technological processes that they use to make them.
- Catalyze the region's efforts to **support startups and scale-ups**, particularly in technology-oriented, high-growth industries.
- Deeply integrate the business community into the region's **talent development, retention, and attraction** efforts. The private sector can and must play a vital role in developing the talent pipeline, enhancing retention rates, and expanding efforts to attract talent.
- **Foster a high-value quality of place**, one that is attractive to the knowledge-economy workforce and attracts talent to the region by ensuring the required lifestyle amenities are accessible and that the region's assets are promoted.

The Indiana Uplands region's vision is captured in the following statement, which is both bold as well as realistic.

In the Indiana Uplands, our people, employers, and communities thrive.

We deliver demand-driven, regionally-aligned strategies that magnify the potential of our technology-drive industry sectors – advance manufacturing, national security and defense, and life sciences – and key employers to attract talent, lead through innovation, and compete globally. By leveraging our natural assets, world-class institutions, and welcoming culture, the Uplands and its residents will prosper, and its interconnected communities grow.

Positioned to meet the evolving needs of its region and state, the Indiana Uplands is a region on the rise!

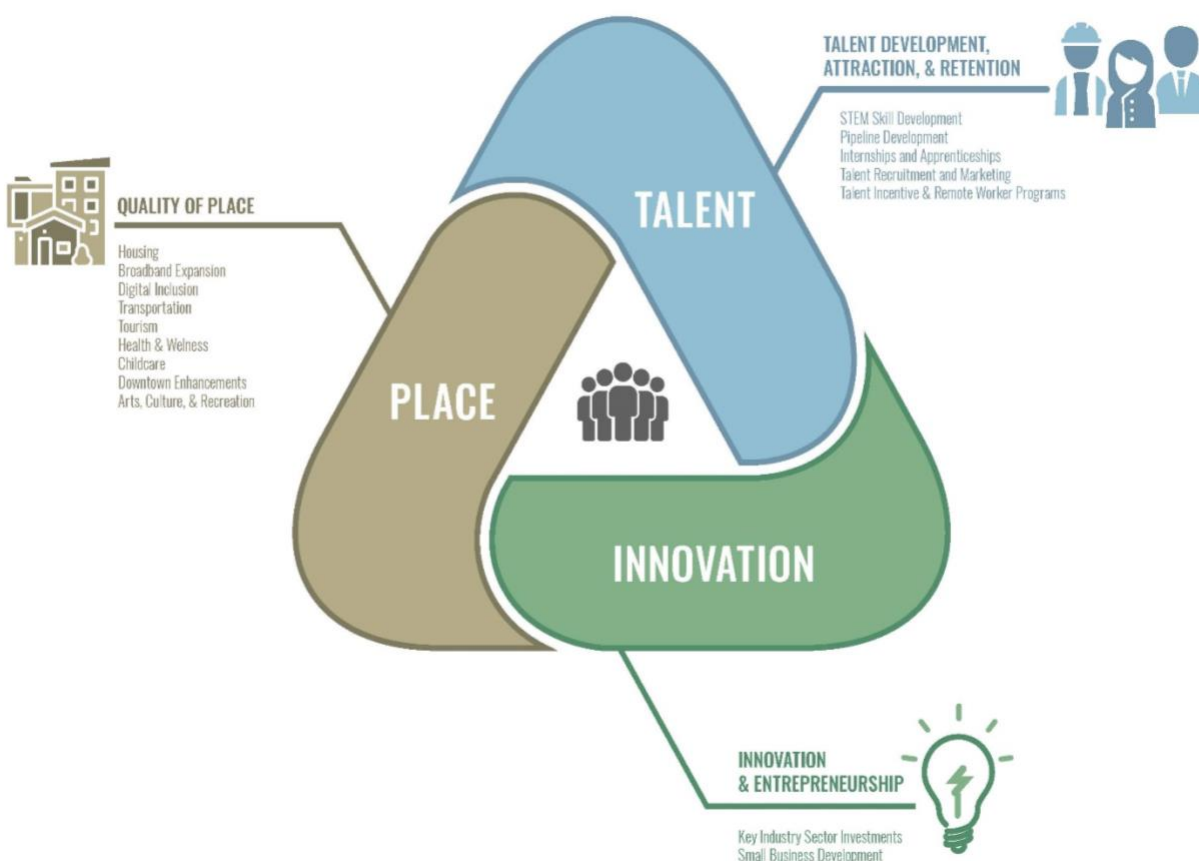
By achieving this vision, the Indiana Uplands will help ensure the region's future economic vitality. Anticipated economic and societal impacts that will be realized through the successful implementation of this economic development strategy include:

- Better paying jobs with higher growth potential,
- Ability to weather future economic challenges,

- Future generations that reach their full potential by supporting educational attainment opportunities around career pathways that support regional industry growth, and
- Improved quality of life that is attractive not only to current residents but also those living elsewhere.

Generating these outcomes does not happen organically but rather through a series of intentional, strategic, and proactive decisions. The region's economic development strategy should include a focus on public-private partnerships that capitalize on the Indiana Uplands region's comparative advantages while ensuring that future investments are focused on building the environment that will help ensure the region's economic vitality for years to come (Figure 19).

Figure 19: Indiana Uplands Region's Economic Development Strategy



Source: Regional Opportunity Initiatives, Inc.

It is proposed that ROI and its strategic partners advance a set of three strategies and an associated set of 16 actions to leverage and complement existing efforts while seeking to overcome remaining challenges and help catalyze long-term economic growth and community prosperity across the region (Table 19).

Table 19. Recommended Strategies to Drive Economic Growth and Community Prosperity in the Indiana Uplands

Strategy	Targeted Actions to Pursue
Strategy 1 Continue to Scale and Differentiate the Indiana Uplands’ Targeted Industry Clusters by Supporting the Growth of Existing Innovative Firms and Fostering the Creation of New Companies	Action 1. Drive economic growth by creating aligned sector cluster strategies that leverage the region’s comparative advantages.
	Action 2. Create vibrant industry networks to address common needs of the region’s different targeted industry clusters.
	Action 3. Foster deeper relationships between targeted industry and anchor research institutions to drive innovation into regional companies.
	Action 4. Further foster a regional entrepreneurial ecosystem to help diversify the economy and take advantage of the region’s emerging IT opportunities.
	Action 5. Develop an Uplands branding/marketing campaign focused on the region’s targeted industry clusters and deliver to audiences beyond regional and state boundaries.
Strategy 2 Ensure a Robust Talent Pipeline to Meet the Demands of the Indiana Uplands’ Targeted Industry Clusters and Other Private Sector Anchors	Action 6. Develop a proactive, robust talent attraction program in alignment with the regional branding/marketing campaign in Strategy 1, Action 5, to become a magnet for world-class talent in targeted industry clusters.
	Action 7. Retain the post-secondary talent that is already being developed in the region by proactively linking them to experiential work and learning opportunities and community assets.
	Action 8. Continue to support initiatives like ROI’s Ready Schools to ensure that school districts throughout the region align their PreK-12 curricular and programmatic offerings with industrial, regionally relevant workforce needs. Strengthen the program by adding additional apprenticeship programs in alignment with industry demand.
	Action 9. Further develop career coaching and mentorship programs to help ensure that direct support and career coaching are available for students that are aligned with the career opportunities available in the region.
	Action 10. Support the development of employer aligned training throughout the region connected to key industry sector workforce demands.

Strategy 3 Invest in Key Quality of Life Initiatives	Action 11. Through proactive investments, work to ensure that every Uplands resident or potential resident has attainable housing choices.
	Action 12. Develop a digitally inclusive region by providing assistance and support to allow for access to broadband and devices.
	Action 13: Support rural small business development efforts as a means to fostering quality of place and community livability by leveraging the efforts of ongoing initiatives.
	Action 14. Establish a region-wide tourism campaign that capitalizes on the region's unique scenic, ecological, historical, cultural, and recreational advantages while at the same time continue to enhance these features by making additional investments in anchor projects that improve the region's tourism assets.
	Action 15. Recapitalize the ROI Ready Communities program to provide community development gap funding to a range of important quality of place projects with significant public benefit, including aesthetics and beautification, connectivity and infrastructure, and community cohesion and support. This could include anything from community centers, downtown beautification, trails, childcare, and healthcare projects.
	Action 16. Foster access to healthcare for every Uplands resident

Source: TEconomy Partners, LLC.

Taking advantage of these opportunities, thereby ensuring the Indiana Uplands remains a *Region on the Rise*, requires key strategic investments that will need the broad support and collaboration of the entire region. If successful, new partnerships between the private, public, educational, and civic sectors will emerge that advance the region for decades to come.

Strategy 1: Continue to Scale and Differentiate the Indiana Uplands' Targeted Industry Clusters by Supporting the Growth of Existing Innovative Firms and Fostering the Creation of New Companies

Rationale

Industry clusters drive regional economic development. Industry clusters are geographical concentrations of firms in related industry sectors that conduct business with each other and have common needs for trained workers, infrastructure, and technology. The economic concept dates back in the economic literature to the writings of Alfred Marshall in the late 19th and early 20th centuries.⁵

But the application of industry clusters for economic development is a relatively recent phenomenon triggered by the work of Michael Porter, one of the nation's leading experts in business and regional competitiveness, in the 1990s. Porter helped establish industry clusters as an economic development strategy that offers regions a way to gain competitive advantage by specializing in interrelated industries and evolving those specializations over time.⁶

In just the past two decades, industry clusters have become the centerpiece for regional economic development strategies. As the Brookings Institution explains in a 2018 report:

Today, a basic tenet of good economic development practice is that interventions should be organized around addressing the shared needs of groups of firms. This mindset enables regions to approach economic development not as a succession of reactive and opportunistic business attraction efforts but rather as a series of strategic investments designed to spur self-reinforcing cycles of growth and development. Most regional economic development entities rely on industry clusters as the organizing principles for their work to the point that clusters are practically synonymous with economic development strategy.⁷

Industry clusters have become a powerful means for organizing a region's economic development efforts. Pursuing industry cluster development provides more than just a focus for economic development efforts, it provides an organizing framework. This framework includes the following:

- Rather than assisting one firm at a time, cluster development efforts require solving related problems and addressing the common needs of groups of firms, which is most effectively done

⁵ For a discussion of industry cluster theory, see National Research Council's report on Best Practices in State and Regional Innovation Initiatives, pages 31–34.

⁶ For a discussion of industry clusters for economic development strategy, see Michael Porter, Harvard Business School Professor, "Clusters and the New Economics of Competition," Harvard Business Review, November–December 1998.

⁷ Donahue, Parilla and McDearman, Rethinking Cluster Initiatives, Metropolitan Policy Program, Brookings Institution, July 2018, page 7.

by having individuals leading the effort who have direct industry experience, subject-matter expertise, and economic development knowledge.

- Cluster development makes it essential that a region define its identity, which can be a powerful tool for outreach marketing and attraction efforts.
- Cluster development, because of its broad reach within a region, calls for the importance of public-private partnerships that, in turn, can leverage resources and bring the region together for a common purpose.
- Most important, cluster development brings a new level of accountability to economic development that requires having an impact at a broad scale that can advance the economic well-being and quality of life in a region.

Often overlooked, a focus on industry cluster development also offers regions a strategy for evolving into new growth industries of the future. Regions across the nation have been able to identify specific areas in which they possess the basic ingredients to be successful, making key investments and seeing economic returns. This has happened with biotechnology in San Diego, biofuels in Des Moines, electronics in Austin, medical devices in Warsaw (IN), robotics/computers in Pittsburgh, and semiconductors in Portland. Clusters are a powerful means for organizing a region's economic development effort.

Over time, industry clusters provide regions a competitive edge. "[Regions] can be thought of as developing specialized and distinctive technology capabilities, which give them unique global market opportunities."⁸

The value of a strong cluster is that it spurs growth and competitive advantage. With a vibrant cluster, the typical economic gains are substantial, including the following:

- Rising productivity of companies in the cluster, creating a competitive edge for the region.
- Accelerating pace of innovation resulting in new products and services.
- More frequent startup of new, high-growth-potential businesses.
- Stronger supplier networks, increasing the economic multiplier impact of the cluster for the region.
- Larger pools of specialized workers and education and training programs geared to the particular cluster needs, introducing significant cost savings for firms, and increasing the breadth and depth of employment opportunities for workers in the cluster; and,
- Growing demand for high-wage professional services such as legal, accounting, marketing, management consulting, and finance, as well as for many other support services such as conferences, restaurants, and entertainment.

Actions to scale and differentiate the Indiana Uplands' Targeted Industry Clusters

Action 1. Drive economic growth by creating aligned sector cluster strategies that leverage the region's comparative advantages.

Just as strategic planning is important to an organization because it provides a sense of direction and outlines measurable goals, an economic development strategic plan helps to realize a region's economic vision and take control of its economic future. It can help bring together community residents with private and public sectors, thereby helping residents, businesses, and local governments understand the

⁸ Michael Best, *The New Competitive Advantage*, Oxford University Press, 2001.

economic priorities for a community. Strategic planning is a tool that is useful for guiding day-to-day decisions and also for evaluating progress and changing approaches when moving forward.

Civic leaders understood the benefit of undertaking a regional economic development strategy in 2012, and the Uplands is reaping the economic benefits today as a result. The strategic investments identified in the original plan have led to economic growth and increased community prosperity throughout the region. This is possibly no more evident than with regard to the economic growth of the original strategy's identified targeted industry clusters.

Between 2012 and 2019, the Uplands' economy gained 11,155 jobs, a 7.5 percent increase in employment throughout the region. More than 61 percent of these jobs are attributable to the region's targeted industry clusters (6,825 jobs). Furthermore, while the Uplands experienced a period of economic decline as a result of COVID, losing 5,349 jobs between 2019 and 2020, the targeted industry clusters were more resilient, representing only 35 percent of the region's job loss or 1,892 jobs (806 of them within the hospitality and tourism cluster). (Note, the growth of the industry clusters was summarized and visualized in the prior section in Figure 2.)

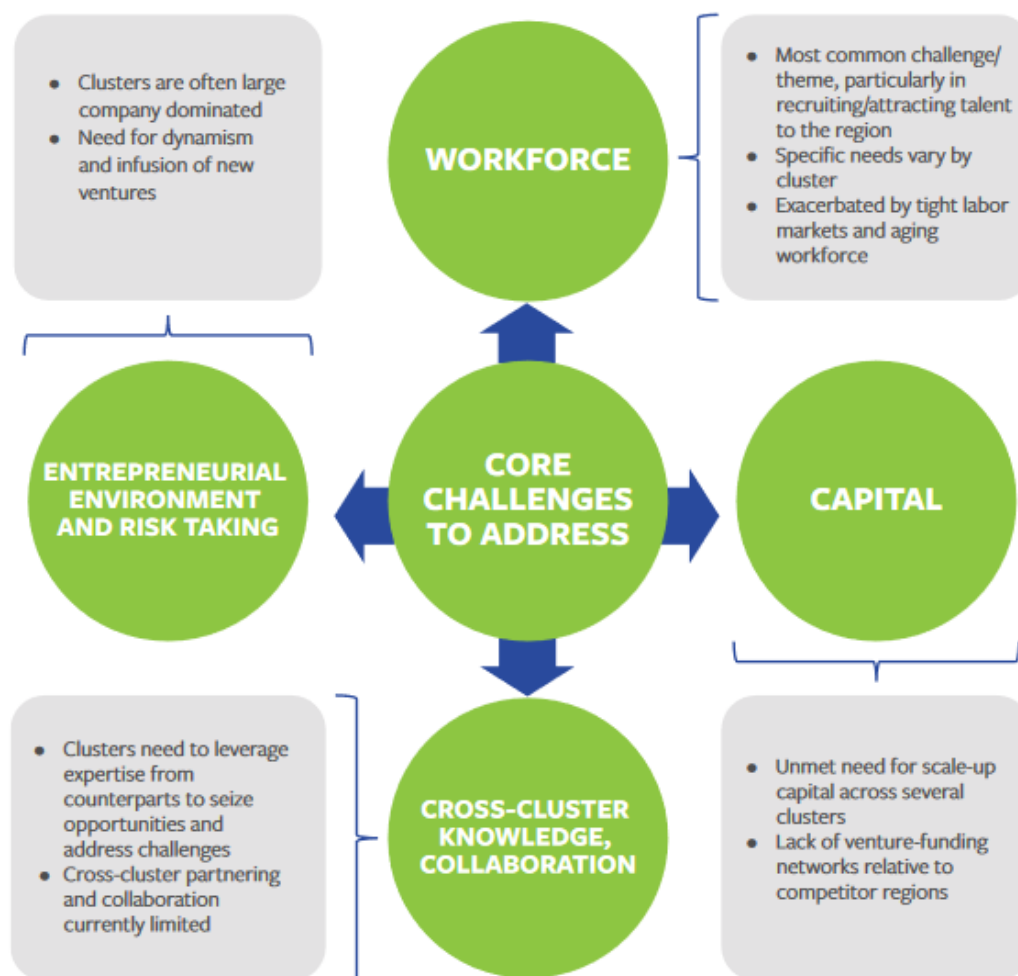
However, the continued growth of these targeted clusters is not guaranteed. Careful and strategic attention is necessary to ensure that these companies can continue to take advantage of comparative strengths of the Indiana Uplands region. As a result, it is recommended that a strategic planning effort be undertaken for each of the identified regional industry cluster targets. Already, a strategic plan has been developed for the defense industry. The Uplands defense sector strategic plan identifies a number of specific actions that are aligned with this updated strategy and can be undertaken to support the further development of the cluster to take advantage of existing and emerging opportunities. These opportunities, by association, are supported by this broader economic development strategy, including the need for the Uplands region to scout and pursue major new initiatives to enhance and diversify the DoD activities in the region, advance a Regional DoD commercialization and Small Business Innovation Initiative, and support the further development of WestGate@Crane, an over 700-acre technology park located approximately one mile west of the Naval Support Activity (NSA) Crane's public access gate, immediately north of the town of Crane, Indiana.

In addition, strategic planning efforts need to be undertaken for the life sciences, advanced manufacturing, and ICT targeted industry clusters that are aligned with this broader economic development strategy but that focus specifically on actions that can address unique needs, such as Industry 4.0 innovations, talent/skill training, the startup and scale-up of new firms, and the growth and retention of key companies.

Action 2. Create vibrant industry networks to address common needs of the region's different targeted industry clusters.

Research finds that, across regions, there are common challenges for growing and scaling industry clusters. Examples of common challenges are illustrated in Figure 19. In working to address challenges in each of these areas, regional industry clusters can help advance business attraction, retention, and expansion in key sectors of the regional economy.

Figure 19. Core Challenges Facing Industry Clusters



Source: TEconomy Partners, LLC.

Across the Indiana Uplands, there is growing optimism about the future of the targeted industry clusters that are driving economic growth. Finding ways to support these clusters of industry by supporting further expansion of existing firms, infusing emerging areas of innovation, attracting related components of the supply chain, and addressing talent demands will create additional economic opportunities.

However, in order to achieve an expanded footprint of the industry clusters, the region must work proactively to develop synergies between the existing companies that comprise the cluster. Networking between industry representatives, R&D leaders, educational providers, intermediary organizations, and the public sector has been a proven staple of economic development for many regions and has improved informally within the Uplands within some industry clusters. However, more can be done to leverage existing synergies and develop new relationships. Whether formalized through collaborative institutes, industry cluster councils, or more ad hoc informal efforts, there should be little doubt that

regular contact and dialogue between industry, academia, public, and nonprofit sectors can be the spark that leads to broad transformative initiatives.

Raising awareness and building relationships is a foundational building block for establishing stronger collaborations. However, the Indiana Uplands currently lacks the region-wide, systemic, reproducible, and sustainable mechanisms that allow organizations to learn about each other's approaches and capabilities. All too often, organizational silos exist that limit how entities understand the opportunities for engagement and collaboration with one another.

Developing individual industry networks for each of the targeted industry clusters requires a tailored approach. Activities should include the following:

- Fostering relationships and synergies among cluster members through networking events.
- Identifying common needs through dialogue with companies and then focusing on shaping ways to provide more common services to the industry cluster, such as addressing technical assistance for modernization, access to markets, business service gaps, etc.
- Serving as the portal/coordinated effort for attraction and expansion opportunities to ensure that seamless and unified information and services are provided.
- Targeting out-of-state supply chain partners who are seeking to expand and, therefore, would be targets for business recruitment efforts.
- Aggregating and then addressing an industry cluster's education, training, and workforce needs to impact curriculum, program development, and experiential learning with K–12 and higher-education institutions, helping education institutions by offering pools of skills needed to be addressed (see Strategy 2).
- Staying abreast of emerging business issues impacting the cluster and providing a base for common education and advocacy with elected officials and others.
- Providing “regional supply chain” services to work with purchasing departments within cluster companies to identify manufacturing or service inputs that are currently provided by providers external to the community that could actually be fulfilled by local suppliers.

While a few regions have been able to develop these value-added networks seemingly serendipitously, most regions spend considerable energy and effort in fostering value-added networks and connectivity among members of their academic, private, and public sectors. While there are numerous models that exist, several different options for catalyzing initiatives include:

- Providing startup funding to regional cluster groups and organizations that establish membership-owned and -driven organizations with an extensive scale of networking.
- Identifying key champions to serve as a catalyst or facilitator to foster relationship building.
- Encouraging formation of sector-advocate organizations.

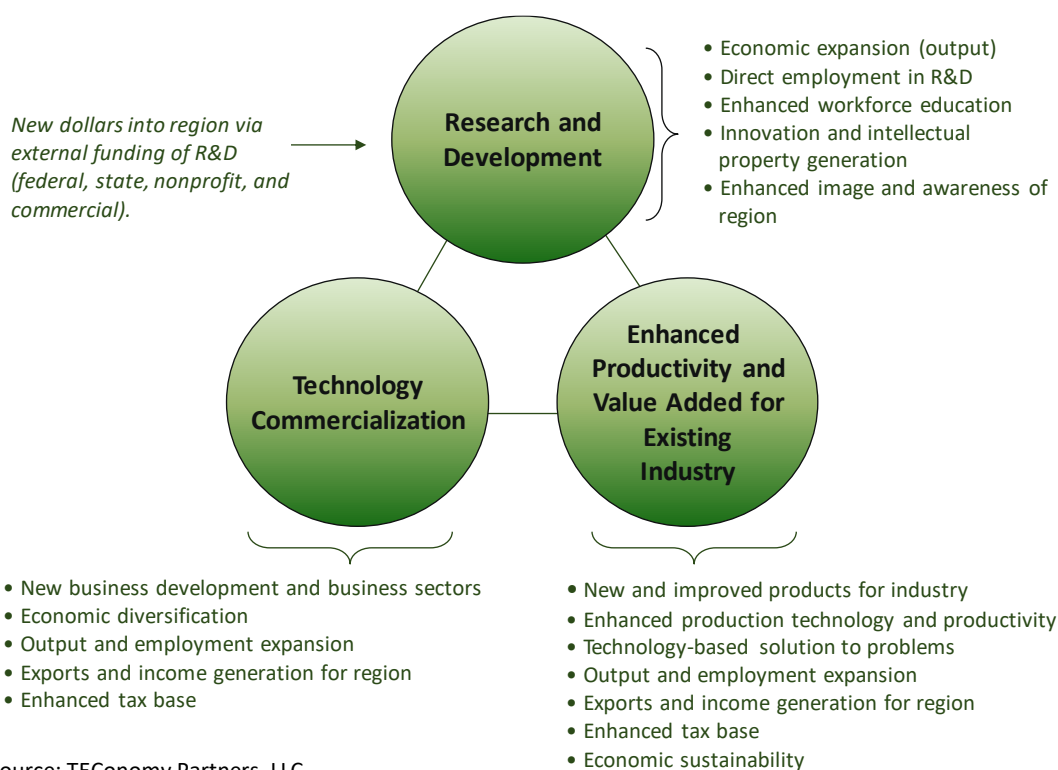
No matter the model, networks and connectivity can help expand the footprint of targeted industry clusters and their related supply chains to create greater economic opportunities throughout the region.

Action 3. Foster deeper relationships between targeted industry and anchor research institutions to drive innovation into regional companies.

As illustrated in Figure 20, innovation and technological prowess are key drivers of economic growth, high-quality jobs, and rising standards of living—explaining not only the differences in economic growth among nations but also at the level of state and regional economies. As the World Economic Forum in its highly touted *Global Competitiveness Report* explains:

In the long run, standards of living can be expanded only by technological innovation.... This requires an environment that is conducive to innovative activity, supported by both the public and the private sectors.⁹

Figure 20. Innovation-Led Development is a Key Driver of Economic Growth



Source: TEconomy Partners, LLC.

Research indicates that the key determinant of the long-term economic prosperity of any region lies within its ability to innovate and enhance economic output based upon that innovation. Generating an economic ecosystem conducive to innovation is increasingly central to the future sustainability of a region's economy.

The U.S. economy has always been carried upon the back of inventiveness and creativity, so the "innovation economy" per se is not a new phenomenon; rather, it is more accurate to say that innovation has increased in importance as the primary impetus of economic growth and

⁹ World Economic Forum, *The Global Competitiveness Report 2010–2011*, page 8.

competitiveness. Two fundamental forces are driving the preeminent importance of technology and knowledge advancement as the determinant of economic success:

1. The first of these is the rapidly accelerating pace of scientific discoveries and the technologies that these discoveries give rise to (advances in biomedical devices, for example, have dramatically improved patient care). The opportunity to speed the discovery and development processes, in concert with the ability to protect and profit from intellectual property (IP), is leading to an innovation race among competing countries, regions, and states.
2. The second fundamental force is the globalization of world markets and the increasing pressure to maintain a high-wage/high-skill employment base through consistently staying ahead in technology and productivity.

Despite the strong advances of NSWC Crane and Indiana University to collaborate with industry in the region, these efforts have been more singular one-offs in nature rather than systemic. There is not a strong fabric of collaboration among and across industry, universities, and NSWC Crane to collectively work together in the Uplands region. While the environment is changing, particularly related to activities at WestGate@Crane, for the region to emerge as a national hub for innovation in its targeted industry clusters, it must have a deeper base of innovation activity that flows from each industry cluster.

In order to build bi-directional and deep collaboration among regional industry, universities, and NSWC Crane, a series of activities and investments should be considered, including:

- Pilot grants for collaborative research projects involving industry, NSWC Crane, and universities in targeted areas to develop sufficient technical information to pursue larger federal research grants.
- Create externships at industry for faculty and Ph.D. students and expand the externship opportunities and visiting faculty at NSWC Crane.
- Support the targeted recruitment of non-tenured research scientists for creating industry-university applied research centers located in the Uplands region in targeted areas of emerging technologies that augment and complement innovation efforts underway and identified needs within the region's industry clusters.

However, the issue is not solely one of a lack of connectivity between NSWC Crane, university, and industry. There is also limited connectivity between larger firms and the small and medium size enterprises within the Uplands, which, in turn, limits the opportunities to develop first customers within the region. As a result, there is an opportunity to strengthen regional capacity by fostering relationships between startups and potential supply chain partners with larger businesses to catalyze innovation and new product development.

It is proposed that, as part of the industry cluster network, entrepreneurs and innovation-oriented existing businesses from around the region be brought together to form cluster innovation networks. Networking activities would include the following:

- Technology and market intelligence workshops,
- Peer-to-peer networks across CEOs and chief technology officers (CTOs),
- Investor forums/pitch competitions,

- Offering skilled technology workers at larger companies the opportunity to connect with the entrepreneurial community, and
- Identifying potential markets for new products, services, or businesses within the patent portfolios of current companies.

These cluster innovation networks would foster supply chain linkages/first customer efforts between the startup community and corporate partners seeking innovative solutions to their most pressing needs. Workshops/networking events would be designed so that corporate stakeholders are engaged in an effort to better understand their most pressing needs, and these needs would then serve as sourced problem statements to the startup community to create linkages and first customer efforts.

Action 4. Further foster a regional entrepreneurial ecosystem to help diversify the economy and take advantage of emerging IT opportunities.

The economic vitality of regional economies depends, in large part, upon their capacity to foster the formation of new entrepreneurial-led businesses and sustain their growth as they scale up and generate new, high-paying jobs in the community. As a result, regions that recognize the benefits of entrepreneurship and the role it plays in today's knowledge-based economy are developing policies and programs to establish an environment that creates, attracts, and retains entrepreneurs and an infrastructure to support them.

Entrepreneurial activity in general, and innovation-based entrepreneurial activity specifically, has not been a strength of the Uplands over the last twenty years. This is an interesting phenomenon since many of its anchor companies that drive the region's economy were themselves entrepreneurial not that long ago. Entrepreneurial activity is specifically critical to the growth of the two identified research-intensive industry clusters in the Uplands, Information and Communication Technologies and National Security/Defense, because entrepreneurs and their management teams provide the critical commercialization knowledge needed to access service/product and capital markets that can turn discoveries into viable businesses. The needs of the defense entrepreneurial community have been thoroughly described and addressed in the industry clusters regional economic development plan, referenced and supported under Strategy 1, Action 1.

However, the opportunity of the Information and Communication Technologies industry cluster has not been fully realized over the past ten years, in large part, because of the lack of an entrepreneurial ecosystem to support these emerging firms.

In more recent years, there have been promising developments to catalyze entrepreneurial IT development in the Uplands. These include:

- **The Mill serves as Bloomington's hub for entrepreneurial activities and is showing good signs of taking root and helping to accelerate formation and growth of startups, just four years since its launch in May of 2017.** The Mill offers co-working space and entrepreneurial programming, including a variety of monthly programs for the entrepreneurial community as well as annual events involving pitch competitions and conferences. Within a year of its opening, the Mill has attracted roughly 25 companies to locate in its facility, with nearly half being involved in IT, and is demonstrating successes among its companies, including attracting a series A round of funding and several exits through acquisition. Momentum has continued to build

with the Velocities partnership with Elevate Ventures, which brought an Entrepreneur in Residence to the Mill. In addition, a new accelerator program was established in 2020.

- **IU Philanthropy Venture Fund is an evergreen fund focused on seed stage investments in IU and IU alumni related startups.** It was initiated in 2018 with a \$15 million endowment and is seeking to reach \$50 million in its investment fund. In its first year of operation, it made 11 investments, all of which were in Indiana, though only one in the Uplands region. Going forward, the Fund expects to make 5-6 investments a year.

Supporting these efforts, as well as other emerging opportunities with a focus on scaling IT companies, can have a significant impact on improving the number of innovation-led startups and emerging companies within the Uplands.

Action 5. Develop an Uplands branding/marketing campaign focused on the region's targeted industry clusters and delivered to audiences beyond regional and state boundaries.

Expanding the economic footprint of a region requires that the region be perceived as a dynamic hub—a place with many job opportunities, a constant flow of innovation, and a supportive business environment. To obtain this reputation, more and more regions are undertaking a branding/marketing campaign that communicates to key audiences, both nationally and internationally, the depth and breadth of the region's assets and the unique resources and opportunities that the region provides for advancing a particular industry cluster.

ROI, as part of its economic and community development efforts, has developed an impressive web presence touting all that the Uplands has to offer from a live/work/play environment (see <https://inuplands.org/>). This web presence needs to be expanded to further “tell the story” of the region's targeted industry clusters and the opportunities they provide.

However, a strong web presence is not sufficient. Proactive outreach and marketing must occur as well. Initial efforts should focus on building regional and statewide awareness of the strengths of the region's targeted industry clusters and the career opportunities that exist. Internal education and awareness-building efforts are key to effectively shaping views of the region. The most frequent and effective marketers of the Indiana Uplands are its local residents and statewide advocates who have ongoing contacts with those outside the region. The internal education efforts should be closely aligned with the overall Indiana Uplands branding campaign and should leverage existing community-building efforts, for example, Ready Schools Program and boot camps that bring employers, schools, parents, and teachers together. Among the efforts to be pursued might include creating a cluster ambassador program to reach schools and civic organizations and holding regular monthly and quarterly events that feature growing collaborations among stakeholders. A key goal is to make meaningful connections between the region's cluster resources and the broader community, especially students and their families, and the overall business community.

Additionally, an internal earned media campaign should be pursued. Articles focusing on the opportunities, strengths, and efforts underway in the region create a significant amount of “buzz.” The placement of such articles requires an active public relations outreach to key publications and active development of news stories. A consistent and regular update of the region's progress towards these industry cluster efforts should be regularly reported in business outlets and the general press.

Once the internal outreach is underway, efforts need to then be focused on external marketing activities. Elements of the external marketing effort could include the following:

- **Active Media:** Developing a consistent and active media presence in major business and technology publications involving infomercials such as special sections and announcements of company accomplishments and generally raising the awareness of the region's brand.
- **Earned-Media Campaign:** Having articles appear in newspapers and magazines nationwide telling the Uplands story will play a key role in increasing the region's visibility. The placement of such articles, however, will require an active public relations effort to develop news stories and reach key publications.
- **National Conferences:** Proactively raise the region's presence at national conferences and trade shows in emerging areas within the targeted industry clusters. Treat these opportunities as if they were trade missions in targeted markets, focusing on companies with linkages to the region's technological strengths, and undertaking reverse trade missions inviting national and multi-national businesses to tour the region.

Strategy 2: Ensure That Talent Strategies are Producing a Talent Pipeline that Meets the Demands of the Indiana Uplands' Targeted Industry Clusters and Other Private Sector Anchors

Rationale

In a global economy, where jobs are outsourced from one continent to another, it is appropriate to ask whether workforce is a relevant competitive factor. Is labor a commodity like a utility, and thus unable to create a significant competitive differentiation or advantage, or can it be unique to a firm or region, like location or intellectual property, and confer a significant competitive advantage?

Workforce can and must be an essential part of any strategy by a firm or region to create a competitive advantage. If a firm does not use its workforce as anything more than a low-skill, low-wage, and high-turnover commodity, it will not generate or retain any type of enduring market advantage in a marketplace that is increasingly emphasizing the use of high-tech tools that add value for suppliers and end customers. So, how does human capital/talent factor into a region's comparative advantage?

Simply put, human capital/talent is one of the few market factors that are locally based and have the potential to create a comparative advantage that can differentiate a region from its competition. A region cannot change its physical location, so its locational advantages are fixed. In contrast, talent is a locally provided and locally managed resource, thus able to be differentiated from other regions. In addition, talent is an essential element in implementing advanced technology solutions. The quantity, quality, and management of talent are competitive factors very much in local control.

In a framework where R&D, entrepreneurship, and strong industry clusters are the engine behind strong regional economies, talent is the thrust that allows this engine to operate. Generally, talent refers to people, their intangible skill sets, knowledge, and social attributes, and their ability to contribute positively to a region. To support regional growth, an economic development strategy must incorporate the supply of talent that is needed for industry to flourish.

As referenced in Strategy 1 and laid out in detail in the prior chapter, the Uplands' targeted industry clusters are driving strong demand for a skilled workforce. Also noted in a recent ROI labor market analysis:

Across the Indiana Uplands economy and in the key growth sectors identified by ROI and its partner organizations, talent fuels both existing firms in the region and potential growth opportunities. Increasingly, meeting the demand for talent is of critical

importance to a regional economy and its firms. This is particularly true for the Uplands.¹⁰

The Labor Market Report notes several key findings:

- The current demand for talent is outpacing population increases and workforce growth.
- Specifically, there is considerable job growth within the three key growth sectors of advanced manufacturing, life sciences, and national security and defense, with demand for talent being unmet by supply.
- Although the region contains three distinct targeted industry clusters, there is considerable overlap in their demand for technical talent and common (employability) skill sets. The industry clusters thus have a collective interest in the kinds of policies and programs that would focus on increasing these skills across the region. The implication for addressing talent demand is that employers in these sectors can collaborate and leverage their combined numbers in efforts around recruitment and talent development.

Discussions with the Uplands' industry leaders reinforced these talent challenges as companies referenced the inability to hire the talent they need to expand their businesses, resulting in untapped markets as their capacity is constrained by labor shortages.

In part, the ability of the Uplands to meet the demand for a higher-skilled, higher-educated workforce depends upon the robustness of its talent pipeline. In this regard, there are positive trends to report. ROI's initiatives in education and workforce are helping the region make the shift towards a more home-grown STEM workforce. These efforts include a robust set of programs for P-12 education, including the Ready Schools Initiative to align curricular and programmatic offerings with the workforce needs of the region; STEM Fellows to build a cohort of qualified teacher leaders; Out-of-School STEM Learning Grants to offer youth the opportunity for hands-on learning in STEM, including efforts such as robotics teams, coding clubs, and makerspaces, among other extracurricular programming; Digital Fabrication Labs for experiential learning within schools; and Graduation and Career Coaches to place recent college graduates into underserved high schools to work as full-time college advisers. ROI is also helping to better connect career development with P-12 through efforts such as Career Pathways program development grants, Educator Boot Camp for teachers, counselors, and school leaders to learn about STEM careers in industry, Work Based Learning for students and adults, and a Career Awareness Campaign engaging industry and sector partners and targeted to students, their parents, and teachers, among others in the community.

It is important to note that there are also a number of additional talent development initiatives taking place across the region, such as:

- Bloomington's Code School, a 10-week accelerated cohort-based program focused on getting people into jobs in the digital economy. The Code School is a partnership of The Mill and Ivy

¹⁰ ROI commissioned report by FutureWorks and Econsult Solutions, Inc. on "Labor Market Analysis for the Uplands Region: A Report on Talent Demand and Supply," August 2019.

Tech and will upskill a total of 75 participants each year. In addition to IT skills in a variety of in-demand technologies, the program also supports career readiness and job placement.

- Lawrence County's *Introduction to Local Jobs and Skills* training classes provide a hands-on rotational model for developing talent locally in relevant high-demand areas.

The comprehensive and multi-faceted approach that ROI and regional partners have taken towards building a robust K-12 innovation ecosystem was a result of the initial economic development strategy that recognized that the development of talent would be a critical component of the region's future success. The need for this focus has not changed. What has changed is the rapid growth of key industry sectors, whose demand now outstrips the ability to source talent solely from local supply. Today, there is also a critical need to attract talent to the region in order to enable the continued growth of the region's targeted industry clusters.

Actions to Ensure that Talent Strategies are Producing a Talent Pipeline that Meets the Demand of the Indiana Uplands' Targeted Industry Clusters and Other Private Sector Anchors

Action 6: Develop a proactive, robust talent attraction program in alignment with the regional branding/marketing campaign in Strategy 1, Action 5, to become a magnet for world-class talent in targeted industry clusters.

Because of the out-migration that has occurred from the Uplands region over the years, particularly when you include those students who attend Indiana University, many individuals with connections and an affinity for the region have undertaken successful careers elsewhere. Due to these individuals' natural affinity and ties to the region, it may be possible to attract them back to the region if an opportunity to do so is presented.

Other regions have pursued efforts to reach out to publicize the quality of career opportunities, quality of place, and even help in matching workers to jobs in their regions. Examples include Project Boomerang in Oklahoma and the Iowa Careers Consortium. In Huntsville, Alabama, home to the Army's Redstone Arsenal, the regional Chamber of Commerce has an active marketing campaign to attract high-skilled workers to the region, focusing on Huntsville as "a smart place." In this effort, it features all of the live-work-play advantages that Huntsville offers to technology and other high-skilled professionals, plus features a "find a job" website that provides information about civilian jobs at Redstone Arsenal and features a job matching service for job seekers and employers. A more hands-on focus to match workers with specific skill sets to employers is the Pittsburgh Digital Greenhouse, which in its early years focused on helping in talent recruitment for firms in Pittsburgh to pursue lab-on-a-chip technology development, and later focused more broadly on electronics and robotics. Within the Uplands region, the Choose Southern Indiana program implemented by Radius Indiana holds promise as a model for scaling throughout the entire region as a talent attraction strategy. Choose Southern Indiana is a relocation incentive program that attracts military veterans and mid-career professionals to the region.

What has been learned from these efforts is the importance of creating a public-private partnership, which develops and maintains dynamic databases of jobs and skilled workers, conducts outreach marketing, and serves as a key point of access for job seekers and employers in selected areas.

To help overcome the talent deficit issues being experienced in the region's targeted industrial clusters, it will be important to attract to the region senior and mid-level professionals demanded by industry. As IT entrepreneurial efforts help drive economic growth, it will be critical to be able to attract talent from outside the region to support these opportunities. The Uplands is uniquely positioned to be able to pursue this strategy. Because of the out-migration of alumni, particularly Indiana University alumni, many individuals who have received their advanced education in the region have pursued successful careers elsewhere, yet many of these people may wish to return to the region if an opportunity to do so was presented. Of particular interest would be those people who have successfully started and managed businesses or who have the technical skills needed by the region's existing and emerging industry clusters.

Key to the success of this attraction program will be the creation of a strong and coordinated marketing campaign as envisioned under Strategy 1, Action 5. It will be critical to develop a long-term marketing campaign to keep alumni, natives to the region, and other industry leaders throughout the nation abreast of all of the exciting initiatives taking place within the region (a regional opportunity portal that hosts employment opportunities as well as internship/experiential learning opportunities related to Action 7 below). While it is recommended that the initiative focus early efforts on alumni of Indiana University due to the sheer number of engaged graduates, it is envisioned that the initiative in time could be expanded to focus on all alumni of the region working in partnership with their respective institutions of higher education.

Action 7: Retain the post-secondary talent that is already being developed in the region by proactively linking them to experiential work and learning opportunities and community assets.

A recent survey of current college students and recent graduates found that most (36 percent) would look for employment in any city or town where they could find a job, while just 13 percent were interested in looking for employment opportunities limited to the city/town where they attended college.¹¹ When asked whether the graduate was interested in remaining in the city they attended college after graduation, there was a roughly even split between yes, no, and unsure options. From an economic development perspective, there is a role to play to convince the "unsure" category of the region's career opportunities.

One way to retain talent is to establish personal relationships with students while they are still in school, whether it be high school, two-year programs, undergraduate, or graduate programs. Experience shows that efforts such as internships and co-op programs can be effective in increasing the retention rate of graduates, reducing their out-migration to other states and regions. For example, ROI's UpSkill Work & Learn initiative is designed to link students to the workforce while still in high school. Additionally, the development of pathways for adult upskilling and reskilling such as the product, supply, and logistics defense-specific associate's degree and the Boston Scientific BioTech Apprenticeship program are two regional examples of targeted efforts to develop talent that is directly linked to employment. There are also a number of other successful development and retention programs throughout the region such as employer internship programs, IU Career Services programming and Handshake platform, and Jobs for America's Graduates (JAG) high school program.

¹¹ Development Counsellors International (DCI), "Go Fish: How to Reel in Tomorrow's Talent," Q2 2018.

Many educational institutions across the nation have recognized the importance of providing experiential learning opportunities to their students. The issue is being able to coordinate the demand of industry with the supply of students. The Uplands needs to be able to scale experiential opportunities in order to help retain students in the region. Such an effort not only will help keep students in the region, but also will expose firms to new skills and approaches as they address their product development needs.

While individual programs are very valuable to the students and companies they serve, a more region-wide systemic and structured internship/co-op initiative could provide a matchmaking service to link targeted industry cluster firms with students across the region's education institutions. These co-ops and internships should be viewed as an integral part of the curriculum. Active training collaborations between educational institutions and companies in the region should underpin these co-ops and internships through (1) use of industry professionals who serve as adjunct faculty to help teach courses, and (2) active industry involvement in the curriculum to meet the demands of the workplace. There is also the potential to develop an accessible web portal that highlights available internship and co-op programs for students and industry.

Many benefits could accrue from an enhanced internship/co-op function, including the following:

- Increasing the perceived value of an education to both prospective students and parents. Parents increasingly desire evidence that their child is receiving both a theoretical and practical set of experiences and an education that will prepare him or her ultimately for the world of work.
- Providing important real-world feedback to curriculum and instruction, helping to ensure that course content, programs of study, and laboratory experiences are high quality.
- Increasing graduate retention rates.

The bottom line is that internships and other experiential learning activities help make students aware of local employers and help local employers recruit future workers. An added benefit is that internships can provide students needed job experience that employers value very highly.

Action 8. Continue to support initiatives like ROI's Ready Schools to ensure that school districts throughout the region align their PreK-12 curricular and programmatic offerings with industrial, regionally relevant workforce needs. Strengthen the program by adding additional apprenticeship programs in alignment with industry demand.

ROI's Ready Schools Initiative is a design-thinking framework to support school districts in aligning their PK-12 curricular and programmatic offerings to the educational and workforce needs of the Indiana Uplands. ROI, to date, has worked with 15 school districts representing 77 schools, 8 counties, and more than 32,000 students throughout the region, and all 15 school districts are implementing plans for locally specific and regionally relevant strategies that are aligned with the region's key industry sectors. Some examples of implemented programming include entrepreneurship programs, student-run businesses, digital fabrication labs, makerspaces, an automation and robotics academy, career resource labs, district-wide project-based learning, Project Lead the Way, and more.

Core principles of the Ready Schools initiative include:

- Every student is engaged in a relevant path to success.
- Students graduate high school ready for post-secondary and career success.
- Meaningful and ongoing collaboration occurs among schools, industry, and community.
- Teaching and learning are grounded in relevancy.
- K-12 schools are aligned around a common vision of student success.
- Schools embrace the significant role they play in achieving regional prosperity.

Finally, just as experiential learning programs are important in retaining students from post-secondary institutions, apprenticeship, and other work-based learning programs can be critical in retaining students within a region upon high school graduation. ROI has been actively involved in developing experiential learning opportunities for high school students.

ROI is currently working with a state collaborative on the development of a modern youth apprenticeship program supported by the Fairbanks Foundation, New America, the Partnership to Advance Youth Apprenticeship (PAYA), and Ascend Indiana. It will be important to ensure that apprenticeship programs are relevant to the targeted industry clusters.

To this end, ROI's UpSkill Work and Learn Initiative offers a viable solution for developing and retaining regional talent. With a focus on concrete skill attainment during high school, transferable credits, practical employment experience, and industry-recognized credentials, students who apply and are selected to participate in UpSkill will have a range of options available to them upon graduation, including direct employment and post-secondary studies. Students apply during their sophomore year in high school and interview with employers before being selected as employees for 2-3 years while also going to high school and completing post-secondary dual credit. The goal is to more deliberately bridge high school experiences, post-secondary careers, and education opportunities.

Action 9. Further develop career coaching and mentorship programs to help ensure that direct support and career coaching are available for students that are aligned with the career opportunities available in the region.

One such model to build upon could be the Ivy Tech Career Coaching and Employer Connections program, which includes individual coaching to develop interests and strengths, tools to explore careers that are tied to the labor market, resources to develop employability skills to become career ready, and support for securing work-based learning experiences. Additionally, IU Bloomington College Advising Corps (IUBCAC) places recent college graduates into underserved high schools to work full-time as college advisors. The advisors work in partnership with teachers and school leaders to ensure that students have a post-secondary plan regardless of their circumstances. IUBCAC focuses on first-generation, underrepresented, and low-income students. The advisors are placed in Uplands high schools that serve a higher percentage of at-risk students and have historically low post-secondary enrollment and completion rates.

In addition, working closely with industry and sector partners, ROI has been active in building career awareness campaigns that focus on the jobs, skills, and occupations that exist within the region. The campaign includes videos focusing on sectors, job exploration, and job shadowing.

ROI just launched its Career Coaching Fellowship to strengthen the skills of individuals serving in career coaching roles throughout the 11 counties of the Indiana Uplands. The inaugural cohort of 20 Career Coaching Fellows was selected from a competitive application process. The goal of the Career Coaching Fellowship is to activate a cohort of individuals across the region who will:

- Provide direct support and career coaching to students and adults aligned with the opportunities available in the region,
- Share research-based innovative practices with their organizations or schools, and
- See an increase in the number of students and adults pursuing and completing relevant pathways that lead to post-secondary opportunities for work in the region or continued education.

The next step in career awareness efforts is to undertake a career coaching and mentorship program that will help ensure that direct support and career coaching are available for high school students and adults that is aligned with the career opportunities available in the region. The purpose of this program is to create a regionally coordinated system in collaboration with post-secondary anchor institutions. Envisioned support includes a liaison role between schools, post-secondary programs, and employers. The ultimate goal will be to have every student in the region benefit from having access to resources that helps them pursue and connect to relevant career paths.

Action 10. Support the development of employer aligned training throughout the region connected to key industry sector workforce demands.

There is opportunity for organizations like ROI to partner with post-secondary anchor institutions and key sector employer partners to develop training that is specifically aligned to regional workforce demands. For example, the Ivy Tech Skills Academy could be a solution for small-scale skills-focused training that would help a company grow its own workforce and would be based on expressed information from employers and labor market data. Additionally, expanding the Ivy Tech Apprenticeship programming to align with the region's known demands will allow for a regional reach and will emulate the success of the biomanufacturing apprenticeship training.

Developing clear linkage that can serve as a bridge to close gaps such as these programs, the Uplands region has the potential to keep up with the pace of the rapidly growing sectors.

Strategy 3: Invest in Key Quality of Life Initiatives

Rationale

For years, regions measured their success in purely economic terms—jobs created, rising incomes and wages, the number of corporate headquarters, or the concentration of high-tech industries. While these measures certainly matter and are indicative of the economic vitality of a region, recently, other measures have entered the picture. Place-making efforts in regions across the nation and the world have emphasized the importance of a robust quality of life.

Regions have invested in everything from better parks and bike lanes to arts and cultural venues, all to help attract and retain talent and bolster residents' happiness. These quality-of-place amenities were once an afterthought—often a philanthropic endeavor by the wealthiest in the region. Now we know that amenities—not just restaurants and bars but the whole package of great cultural and environmental venues and activities—play a key role in drawing the highly-skilled knowledge economy workers to a region, bringing economic growth with them.

Quality of place indicators can paint a unique picture of a particular region. Both potential employers and employees must factor in not only the industrial strengths and research assets of a region but also elements such as recreation, cultural arts, education, housing, crime, environment, and climate. The Indiana Uplands is rich in outdoor recreation opportunities and has a wonderful natural landscape. The region also has made strategic investments in its historical facilities and has a thriving cultural arts scene, driven by IU-Bloomington's world-renowned fine arts programs, in addition to Brown County's Art District. Other recreational and cultural amenities include Jasper's Community Arts and Culture Center, West Baden and French Lick, the Salem Speedway, and Huntingburg's League Stadium.

Despite these advantages, the region suffers from a deficit in terms of the kinds of amenities that younger knowledge workers demand – loft-like or studio apartment rental housing, coffee shops, outdoor cafes, gallery spaces, health clubs, and restaurants. The region does have one sizeable downtown, Bloomington, which has made significant investments to develop a vibrant downtown that is attractive to younger knowledge workers. Other communities, such as Jasper, Huntingburg, and Spencer, are actively pursuing the development of additional amenities. However, most of the rest of the region does not offer the same amenities.

But quality of place issues are not limited to the younger knowledge workers. Families also face deficits in the region when examining housing stock, access to quality child care facilities, pre-schools, early-education programs, and after school programs for their children. There has also been concern expressed regarding the lack of senior housing and assisted living programs for the elderly. And no matter your age, access to healthcare is always top of mind when examining a region's quality of place. These limitations can greatly impact the region's ability to attract and retain the talented workforce its industry demands.

Needless to say, the Indiana Uplands must continue to focus on creating a high quality of life environment for its citizens if true community prosperity is to be obtained.

Actions to Ensure Key Quality of Life Initiatives Receive Investment

Action 11: Through proactive investments, work to ensure that every Uplands resident or potential resident has attainable housing choices.

An ample supply of high-quality, affordable housing is critical for a region's ability to prosper. First and most fundamentally, the existence of housing that is affordable and attractive to a range of households is key to economic growth. Businesses need a diversity of workers to thrive and grow. Those workers, in turn, need a range of housing options. Second, quality housing also helps to anchor and support towns. The existence of dilapidated buildings with unkempt grounds reduces the value of surrounding homes and discourages investment. Improving dilapidated buildings and transforming them into attractive, well-maintained homes may boost confidence in the area's livability and increase property values. Finally, housing provides a critical foundation for individual health, well-being, and educational success. This matters to regions not just on equity grounds but because healthier and more educated residents benefit a region's economy by forming a more robust and productive workforce.

As previously noted, the Indiana Uplands has experienced significant job growth within its targeted industry clusters. However, the region lacks the workforce to support this growing economy. An essential element to attracting and retaining a workforce is adequate housing—adequate in quality, quantity, and cost. Decades of slow to no population growth in many parts of the Uplands has resulted in little to no new construction, which was exacerbated by the housing crash of 2008. As a result, insufficient housing stock is not available today to meet workforce needs. Residential construction remains low as compared to historic standards. While single-family permits have risen since 2012, it has yet to reach pre-recession numbers. In the last several years, the economic outlook for many of the region's communities has been improving, but the housing market has been slow to respond. Thus, housing is becoming a major component of all economic development conversations across the region. Without available, affordable, and quality housing that is close to job opportunities, the region will not be able to attract and retain the people needed to ensure economic prosperity.

Recognizing that housing is a significant challenge across all 11 counties in the Indiana Uplands, ROI commissioned RDG, a comprehensive planning and design consultant with a specialization in housing, to complete both a regional and county-by-county analysis of housing in the Uplands, providing quantifiable targets for housing development in the region by income, type, and location. As a result of this study, several key goals surfaced, including:

1. Develop plans for sharing risk with developers to lower the high cost of new and repaired infrastructure.
2. Develop consistent codes and code enforcement across the region to elevate housing quality.
3. Find nonprofit developers and technical assistance to support housing efforts.
4. Expand housing options, especially for retirees, seniors, and young professionals.
5. Further the development of high-speed internet and quality schools.
6. Find ways to bring developable land to market.

7. Address the current state tax structure that prioritizes owner-occupied versus renter-occupied structures to encourage more rental construction in rural counties.

Action 12: Develop a digitally inclusive region by providing assistance and support to allow for access to broadband and devices.

High-speed broadband internet service has transitioned from a luxury good to an increasingly necessary utility. Rural regions are particularly susceptible to poor broadband infrastructure coverage, however, because they pose a costly business case for providers. The economic case for rural broadband infrastructure, though, is compelling despite its cost: Broadband access and adoption in rural areas are linked to increased job and population growth, higher rates of new business formation and home values, and lower unemployment rates. Unlike with many other types of infrastructure, the long-run benefits of broadband access could grow exponentially, given the potential for innovation and productivity gains it provides.^{12, 13}

Recently, the COVID-19 pandemic has thrust the problem to the forefront of policy discussions. Employers are using remote work as a tool to protect the health and safety of their employees. Similarly, schools are offering online learning or hybrid approaches. Remote work and distance learning are difficult to achieve without a broadband internet connection at home that is fast enough to handle their audio and video requirements. At the same time, increased demand for online services during the COVID-19 pandemic has slowed speeds for those who have access.

Lack of access to broadband internet in rural areas is not a new problem. Low population density and long distances to existing infrastructure make the upfront cost of infrastructure expansion high for providers. Once built, rural areas have lower adoption rates due to lower average incomes, a higher share of the population that is elderly or disabled, and lower average levels of educational attainment. A costly build out combined with low probability of paying for it with customers make some rural places an unattractive business case for broadband service.¹⁴

Recognizing the need to solve the region's broadband problem, ROI, in partnership with the Purdue Center for Regional Development, has created an opportunity for counties in the Indiana Uplands to participate in a regional digital inclusion planning effort to advance broadband and connectivity in their communities and across the region. The study is examining digital infrastructure, devices, and digital literacy in the Indiana Uplands and will be available in late 2021. Preliminary goals include:

1. Engaging with regional leaders to grow economic prosperity through digital inclusion among all businesses resulting in a digital-savvy workforce, increased capital, online presence, and ultimately digital transformation.
2. Building and implementing digital inclusion resources for underserved populations that are affordable and accessible, resulting in a healthier, happier, and more prosperous region.

¹² de Sa, Paul. 2017. "Improving the Nation's Digital Infrastructure." Office of Strategic Planning and Policy Analysis, Federal Communications Commission.

¹³ Gallardo, Roberto, Brian Whitacre, Indraneel Kumar, and Sreedhar Upendram. 2020. "Broadband Metrics and Job Productivity: A Look at County-Level Data." *Annals of Regional Science*. <https://doi.org/10.1007/s00168-020-01015-0>.

¹⁴ Feld, Harold. 2019. "Solving the Rural Broadband Equation at the Local Level." *State and Local Government Review* 51(4): 242-249.

3. Expanding access to high-performing, affordable broadband.
 - a. A stretch goal is for eighty-five percent (85%) of Uplands residents to have access to 100/100 Mbps service by 2030.
4. Building a strong and inclusive digital ecosystem resulting in a responsive and engaged region.

Approximately 18% of the Indiana Uplands does not have access to advertised 100/20 Mbps service, let alone the State's aspirational goal of serving 100/100 Mbps. Uplands providers have stepped up to provide needed access to Uplands residents, investing millions of dollars into fiber expansion. Uplands providers are also applying to the Indiana Next Level Connections program for funding to deploy broadband infrastructure to unserved users, which includes households, businesses, and anchor institutions. The Indiana Uplands has received over \$12 million in Next Level Connections funding from Rounds 1 and 2. Letters of Intent were due on Round 3 during the development of this plan. Uplands providers requested over \$61 million in funding from Round 3.

As a result of these planning efforts and follow-on work, several key recommendations have surfaced regarding how to create a more digitally inclusive region, including:

- Supporting a “Make Ready” Program, in collaboration with the rural electric cooperatives, to install new or make upgrades to existing electric utility poles that can carry internet fiber optic cable to rural areas.
- Developing a Fixed Wireless Solution by installing, as a pilot project, a fixed wireless solution for the “last mile” from the end of a Smithville Fiber Hub located in Owensburg, Indiana. If successful, this project could be replicated in other rural areas where deploying fiber to the home is costly due to low population density.
- Creating a Regional Digital Help Hotline hosted by Ivy Tech. This program would provide Tier 1 (basic) support to residents of the Indiana Uplands through a hotline managed by Ivy Tech Bloomington and staffed by IT students.

Action 13: Support rural small business development efforts as a means to fostering quality of place and community livability by leveraging the efforts of ongoing initiatives.

Small towns and rural areas can benefit from fostering a vibrant small business and entrepreneurship ecosystem, as rural small businesses have been found to generate wealth that stays in the community, builds local leadership, and even contributes to population health.¹⁵ For decades, towns have engaged in downtown revitalization strategies as a tool for nurturing rural small business development and economic growth. Main Street programs and small business support efforts have championed place-based revitalization strategies to leverage the density and proximity of rural commercial corridors to cultivate vibrant “hubs” that foster locally owned businesses, create employment centers for residents, and contribute to a sense of quality of place identity that retains residents and attracts new ones.

The Indiana Uplands already has several tools at its discretion to work to support rural entrepreneurial endeavors throughout the region. The federal Small Business Administration (SBA) has Small Business Development Center (SBDC) offices across the country, which offer mentorship and other training opportunities for small business. In Indiana, the federal program is delivered through the Indiana Small

¹⁵ See Brookings: <https://www.brookings.edu/research/rural-small-businesses-need-local-solutions-to-survive/>

Business Development Center Network, which is comprised of 10 regional offices. The Indiana Uplands is served by the South Central Indiana SBDC, which is hosted by Ivy Tech Community College – Bloomington within Ivy Tech Bloomington’s Cook Center for Entrepreneurship. The capacity for this regional SBDC to provide value-added business services to entrepreneurs throughout the region is only constrained by the resources it has for additional staff. The Uplands should consider further support of this effort in order for additional entrepreneurs throughout the region to take advantage of its one-on-one counseling and training efforts.

USDA’s Cooperative Extension Service (CES), delivered through Purdue University, serves as a resource for community development educational efforts throughout the State of Indiana. With offices in every county, Purdue Extension can provide valuable programming to promote economic growth within rural settings. For example, recognizing that entrepreneurship development is an elusive concept for many community leaders who have traditionally relied upon recruitment as their primary economic development strategy, Purdue Extension has developed the Creating a Regional Entrepreneurial System Together (CREST) program to assist communities and regions in transforming their economies through the development of key components required for a high-quality environment for entrepreneurship. CREST provides a framework for communities to foster a culture of entrepreneurship that will permeate all the elements that contribute to a community’s quality of life. Similar to the SBDC program, the capacity for Purdue Extension to provide value-added services to community leaders and entrepreneurs throughout the region is only constrained by the resources it has for additional staff. County Extension Offices are supported by a blend of federal, state, and county funding. The Uplands should consider further support of Extension efforts for Community Development Agents in order to help support entrepreneurial efforts across the region.

In addition, vibrant downtowns contribute to a healthy business and entrepreneurial ecosystem. The Uplands already has several tools to support rural entrepreneurial endeavors. Uplands community leaders can capitalize on existing programs through the Indiana Office of Community and Rural Affairs, such as Indiana Main Street, to create vibrant downtowns that are attractive to businesses and residents alike. Recast Cities is an existing program administered by Radius Indiana in its 8-county region that works with local leaders to identify businesses that are ready to expand into their own storefront space in vacant or underutilized downtown spaces. CDFI-Friendly Bloomington also works to attract regional and national CDFI funding to address entrepreneurship and affordable housing opportunities throughout the region. These programs can work in concert to provide a holistic approach to supporting downtown small business as a pathway to improving quality of place.

Action 14: Establish a region-wide tourism campaign that capitalizes on the region’s unique scenic, ecological, historical, cultural, and recreational advantages while at the same time continue to enhance these features by making additional investments in anchor projects that improve the region’s tourism assets.

Specialized recreational development with significant tourism benefits is already occurring in the Uplands, with activities such as mountain biking, hunting and fishing, and golf at highly acclaimed privately developed courses in French Lick. In addition, there are numerous historical and cultural offerings readily available, as well as a luxury resort and casino complex. These activities are widely spread over the region, thereby offering multiple and varied tourism and recreational opportunities

throughout the Uplands. Tourism is drawing primarily from the larger regional metropolitan markets of Cincinnati, Louisville, Indianapolis, Lexington, Nashville, St. Louis, and Chicago. However, because of the world class amenities, particularly around the fine arts programs at IU-Bloomington and the resort/golf amenities at West Baden and French Lick, the region has been able to attract national/international events, all of which provide opportunities for investors/business leaders from other localities to experience and learn about the region and its business opportunities.

Currently, the marketing of the region from a tourism/destination standpoint is rather fragmented with, a number of discreet and siloed activities (e.g. Visit Bloomington and Visit French Lick). Radius Indiana has also launched Discover Southern Indiana, a region-wide tourism website and campaign that has shown early successes, but it only encompasses 8 of the Indiana Uplands counties.

Much as there is a need to establish a targeted industry cluster brand and marketing campaign and tie it to talent attraction, so too is there a need to develop a region-wide tourism campaign that accurately reflects all that the region has to offer. Furthermore, through more effective marketing, the hospitality and tourism industry cluster will have the chance to grow and prosper, thereby bringing economic benefit and growth to the more rural regions of the Uplands.

A unified regional economic development organization needs to be tasked with developing an 11-county-wide tourism/hospitality branding/marketing campaign and then working with the variety of other existing tourism organizations in the region to develop collaborations and a unified message.

In addition, the region should always be considering how it can enhance the tourism features of the Uplands by making additional investments in anchor projects that enhance the region's quality of life. For example, currently, there is an opportunity before the region to create the Monon South Rails-to-Trails in collaboration with the One Southern Indiana RDA. The proposed trail of more than 60 miles can connect eight municipalities in five counties and invite the population of the Louisville MSA into the Uplands' outdoor recreation market. Funds are needed for acquisition of the corridor as well as for design and construction. The region needs to be prepared to support this and other anchor tourism projects like this as they present themselves.

Action 15. Recapitalize the ROI Ready Communities Program to provide community development gap funding to a range of important quality of place projects with significant public benefit, including aesthetics and beautification, connectivity and infrastructure, and community cohesion and support. This could include anything from community centers, downtown beautification, trails, childcare, and healthcare projects.

As part of its overarching efforts to improve the economic and community prosperity in the Indiana Uplands, ROI established the Ready Communities Grant Program. The grants provided communities and organizations across the Uplands with resources to strategically develop programs that build quality of place, grow regional capacity for workforce development and attraction, and improve the attributes and amenities that make the Indiana Uplands a desirable place to live, work, and play.

The Ready Communities competitive grant program empowered counties and communities to strategically plan for, develop, and implement projects and programs that are in high demand. The IU Center for Rural Engagement also collaborated with communities, leveraging IU assets such as the

Eskenazi School of Art, Architecture + Design, to assist in identifying and developing compelling plans for grant investment, which also provided enhanced opportunities for faculty and students in the Uplands region. To date, ROI's Ready Communities initiative has awarded \$2.9 million in grants supporting a total of 17 projects in nine counties focused on aesthetics and beautification enhancements, connectivity infrastructure development, and community cohesion and support initiatives.

The original funding allocated to this program has been deployed. However, the entirety of needs has not yet been met. Therefore, it is critical that the Ready Communities Grant Program be recapitalized to provide gap funding to important quality of place projects with significant public benefit. In addition, consideration should be given to creating additional funding categories to ensure specific identified needs are met, including access to childcare and after school activities – a growing unmet need for many families in the region.

Action 16. Foster access to healthcare for every Uplands resident to help ensure they are productive members of society.

The overall health of a region's citizens impacts economic growth in a number of ways. For example, a healthier workforce reduces production losses due to worker illness, increases the productivity of adults as a result of better nutrition, mental health, and addiction reduction, and lowers absenteeism rates and improves learning among school children. For these reasons, any regional economic development plan must also be focused on working to ensure the healthy living of its citizens.

Therefore, it is critical that the Uplands region focus efforts on developing an interconnected, robust healthcare network that increases access to quality physical and mental healthcare for all citizens across the region. Potential initiatives to pursue that would improve the region's quality of place include:

- Developing a coordinated regional initiative to address substance use and mental by creating a formalized regional consortium that will provide streamlined and expert services across all 11 counties.
- Establishing the Uplands Remote to provide little to no-cost telehealth services from local and regional providers that are known and trusted in the region. Services will include general and mental health using one user-friendly interface.
- Creating the Uplands Wholistic Care, which will deploy trained nurses throughout the region, thereby increasing access to care, addressing social determinants of health, and increasing the level of allied healthcare by employing certified nurses and engaging with nursing students to attract them to rural employment.
- Developing the Building a Healthier Workforce, Pathways to Healthcare Jobs workforce development initiative that is directly tied to secondary and post-secondary institutions to help fill the need for immediate and long-term allied healthcare careers across the region.
- Creating the Moms and Babies Initiative to provide needed pre- and post-natal care options for mothers across the region in response to the fact that both poor maternal health outcomes and infant mortality rates in the Uplands are at concerning high rates. The Moms and Babies Initiative is targeted to fill gaps in the Nurse Family Partnership (NFP) as well as coordinate care for the expansion of NFP.