TECONOMY PARTNERS LLC

Putting Tech to Work in Critical Industries:

Indiana's Potential as a Global Leader for Technology Application and Adoption

Performed For: TechPoint
Performed By: TEConomy Partners, LLC

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Contents

Putting Tech to Work in Critical Industries: Indiana's Potential as a Global Leader for Technology Application and Adoption

The technology sector in the broadest sense includes both traditionally defined technology industries as well as the embedded presence of technology workers and competencies responsible for deploying technology applications within other key industry clusters. Tech is increasingly an embedded core competency driving economic growth across most sectors of importance to the state economy. To understand technology penetration across the economy, the study predominantly uses occupational data to define "core tech" and "tech-enabled" occupations, providing in-depth assessment and comparative analysis of tech penetration in Indiana's major industries and business sectors.

Traditional economic development perspective:
where are the industries primarily responsible for supplying technology solutions across the state?

Innovation ecosystem perspective: *what are the specialized talent and tech deployment applications that cut across the state's industries?*

Tech Platforms & Competencies

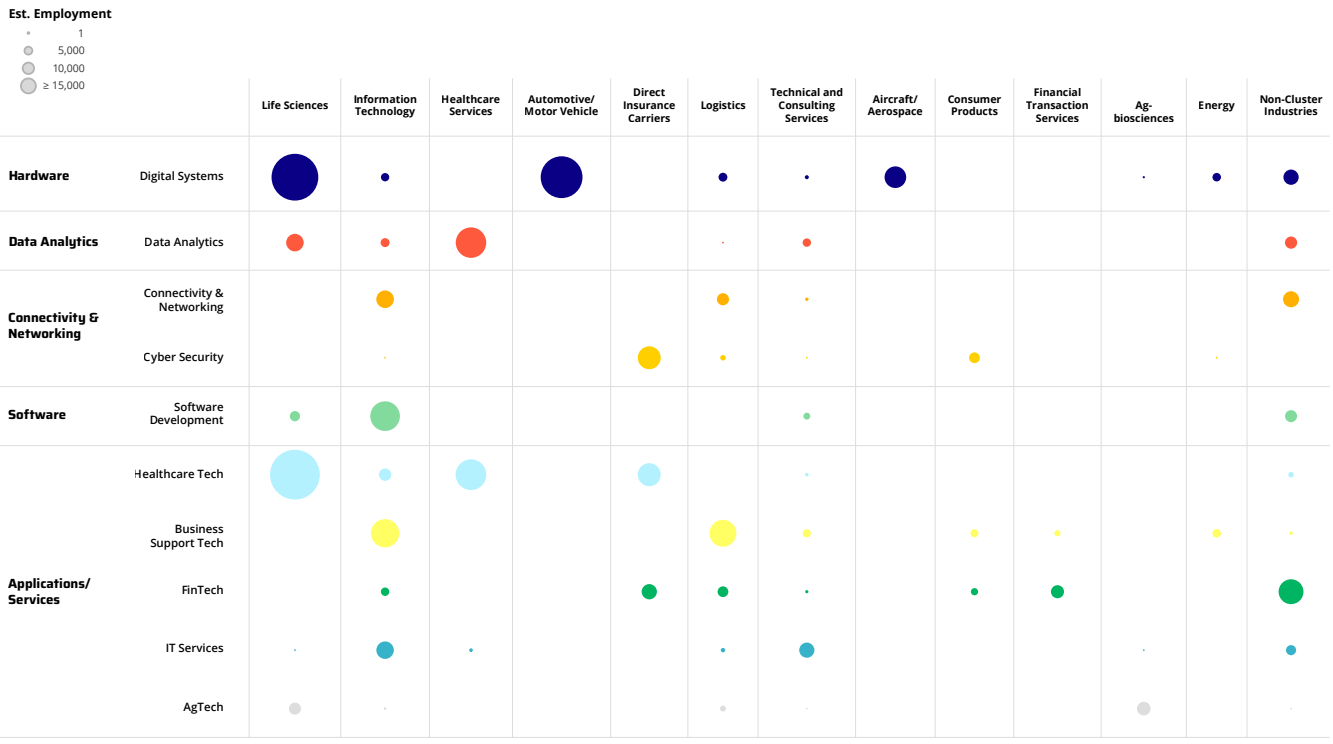
Indiana's Advanced Industry Clusters

	Tech (IT + Services)	Agbiosciences	Life Sciences	Advanced Manufacturing	Other Advanced Industries
Hardware					
Software					
Analytics & Data Sciences Applications					
Networking & Connectivity					

Key Findings:

Indiana is experiencing significant expansion in tech employment in selected tech fields such as information technology (20% growth from 2015-2021) and in technical and consulting services (21% growth from 2015-2021).

- The presence of a robust base of advanced industry clusters is generating a large-scale demand for core-tech and tech-reliant talent, including within health and life sciences, agbiosciences, advanced manufacturing (e.g., automotive, aerospace, polymers, metals, etc.), logistics, and more.
- Indiana's leading universities and technical colleges – including three R1's (Purdue University, Indiana University, and Notre Dame) – are notable in their educational output of in-demand tech-oriented talent, with graduate output and growth rates above those of the nation overall.
- There is a particularly high concentration of engineering and tech-reliant talent in the state, with the likely education and skills necessary to enable technology adoption and advancement across Indiana's advanced industries.
- Taken together, these strengths present Indiana with a unique opportunity to position itself as a global leader in technology application and adoption in critical industries – a place **"where tech gets put to work."**



Key Recommendations:

Indiana's tech "horizontals" in terms of deployment and integration of applications across key advanced industry clusters appear to be where the state's best opportunities for increasing tech impacts lie. That's especially true given that nearly every key sector of Indiana's economy lags the nation in its share of tech and tech-enabled employment, which suggests that these industries are likely behind the curve in terms of tech deployment versus their national counterparts.

As noted in a recent McKinsey study, industrial sectors that embrace a transition to tech-enabled applications and skills are poised to reap significant economic impacts. While this represents a different tech workforce and industry adoption strategy than those driving growth of traditional IT and computing industry sectors, reorienting Indiana's tech focus towards this strength could have outsized impacts on the state's competitive position, as well as its ability to attract and retain leading talent.

Representative impact for companies undergoing a comprehensive tech-enabled transformation across archetypes[1] (% increase)

	Automotive OEMs or suppliers	Aerospace OEMs	Individual distributors	Industrial components or suppliers
Revenue growth	0-1	0-1	10-35	1-4
Gross margin expansion	2-5	2-5	3-7	3-7
EBITDA expansion	2-5	2-5	6-12	5-9

1 Impact shown is representative for each company archetype, based on McKinsey experience; actual impact will vary based on company finances and starting position.

TechPoint, while continuing to grow Indiana's presence as a hub for tech industries, must also leverage its knowledge and skills to perform new work, and support the activities of other industry CICP initiatives, in assuring Indiana is optimally positioned to accelerate the deployment of competitiveness enhancing tech across Indiana's core advanced industry sectors.

- **Convening technology leadership across sectors:** TechPoint's recent acquisition of the Indiana CIO Network is a critical first step in ensuring technology leaders from across sectors collaborate to drive technology adoption. TechPoint should ensure the Indiana CIO Network continues to expand such that it includes representatives from an array of advanced industries who can guide high-level discussions about strategic directions, deliver connections between key stakeholders, and inform the types of technology skills and applications that are most needed by Indiana's industries today and the future.
- **Focusing on cross-cutting technology skills:** TechPoint has long worked to attract and retain skilled tech talent. It recently launched "Mission 41K" to inclusively grow the state's tech workforce by 41,000 by 2030 through a number of partnerships and collaborations. As it continues working towards the Mission 41K goal, TechPoint should maintain its focus on the tech-enabled workforce present throughout Indiana's advanced industries and tech-skills most pervasive and most in-demand in the state, including the development and refinement pathways to advanced industry employment for entry-, mid-, and high-level skills as well as potential re-skilling and upskilling pathways.
- **Developing insights on technology deployment and applications:** In recent years, TechPoint's CICP colleagues at Conexus Indiana have surveyed its stakeholders to better understand attitude towards and investments in digital technologies in the advanced manufacturing and logistics sectors. TechPoint should consider working closely with Conexus and other CICP branded initiatives on future surveys in order to build on Conexus' work in a way that accounts for all of Indiana's advanced industries. Doing so could help enable insights that better connect the state's tech-reliant industries with local tech startups, helping to advance the state's pipeline of high-growth companies.
- **Enhancing, creating, and deploying programs:** TechPoint recently joined several partners in launching Hardtech Indiana, an effort to foster connections between entrepreneurs and ecosystem partners in order to encourage startup activity associated with the deployment of technology in advanced manufacturing and logistics. TechPoint should continue to support these efforts while also considering—alongside industry, workforce, and economic development stakeholders—what additional programming is needed to encourage "putting tech to work" in Indiana. These programs should be informed by best-practices and be based on findings uncovered by convening tech leadership, leveraging existing tech skills pathways worked already carried out by TechPoint and other CICP initiatives, and from survey insights. Such programs should include continued ecosystem development between technologies demanded from the advanced industries and technologies that are nationally and globally competitive. Enhancing TechPoint's marketing and storytelling on both such technologies and technology applications in advanced industries would also help drive long-term perception change for Indiana's economic development and talent attraction and retention endeavors.

Indiana is presented with a unique opportunity to position itself as a global leader in technology application and adoption in critical industries – a place where tech gets put to work. There is no doubt that core competencies in multiple technology areas are, and will increasingly be, essential drivers of economic competitiveness. For Indiana, core competencies in "tech" – from an R&D, business application, and workforce skills perspective – will only become more important to the state's economy as digital tools and their advanced application become ever more pervasive and central to the business operations of every industry. Because the future prosperity of Indiana's economy is largely dependent on the ability to embed and leverage emerging tech applications such as advanced data analytics and Manufacturing 4.0 technologies within key industry clusters, understanding and identifying the current established and emerging capabilities of the state is essential.

Abstract

This study examines Indiana's tech sector and the degree to which tech is increasingly an embedded core competency driving economic growth across most sectors of importance to the state economy. To understand technology penetration across the economy, the study predominantly uses occupational data to define "core tech" and "tech-enabled" occupations, providing in-depth assessment and comparative analysis of tech penetration in Indiana's major industries and business sectors. It is found that:

- Indiana is experiencing significant expansion in tech employment in selected tech fields such as information technology (20% growth from 2015-2021) and in technical and consulting services (21% growth from 2015-2021).

- The presence of a robust base of advanced industry clusters is generating a large-scale demand for core-tech and tech-reliant talent, including within health and life sciences, agbiosciences, advanced manufacturing (e.g., automotive, aerospace, polymers, metals, etc.), logistics, and more.

- Indiana's leading universities and technical colleges – including three R1's (Purdue University, Indiana University, and Notre Dame) – are notable in their educational output of in-demand tech-oriented talent, with graduate output and growth rates above those of the nation overall.

- There is a particularly high concentration of engineering and tech-reliant talent in the state, with the likely education and skills necessary to enable technology adoption and advancement across Indiana's advanced industries.

Taken together, these strengths present Indiana with a unique opportunity to position itself as a global leader in technology application and adoption in critical industries – a place "where tech gets put to work." It is concluded that TechPoint, while continuing to grow Indiana's presence as a hub for tech industries, must also leverage its knowledge and skills to perform new work, and support the activities of other industry CICP initiatives, in assuring Indiana is optimally positioned to accelerate the deployment of competitiveness enhancing tech across Indiana's core advanced industry sectors.

Introduction

Technology (tech) is a critical component of the United States and Indiana economies, driving innovation, productivity, and economic growth. Tech (primarily comprising the digital technology sector) comprises a large-scale industry sector of its own, filled with companies focused on developing and selling innovative software, hardware, and tech services. However, tech also comprises a suite of tools and capabilities that have become an increasingly embedded competency across almost every business sector. Digital technology is able to revolutionize the way that businesses operate, enabling them to automate processes, streamline operations, mine data for valuable business intelligence, and reach new markets.

Tech competencies are so fundamental to economic performance, and future economic growth prospects, that it is imperative that all concerned with state and regional economic development have an understanding of the forces at play and the tech competencies embedded in their geography.

"Tech" encompasses all the tools, systems, and processes that are used to create, store, process, and share information. Increasingly, it also encompasses the use of information to empower automation and autonomous business operations, leveraging the power of advanced sensing, analytics, machine learning, and artificial intelligence to create intelligent functional systems.

When considering tech from an economic development perspective there are three primary domains that stakeholders must understand to position their economies for growth:

1. The status and core competencies of the tech sector itself – comprising companies whose primary business activities are in hardware development, software, networking, and data processing.

2. The degree to which tech is embedded and being deployed as an enabling driver of business operations in other sectors of the economy – sectors leveraging the power of tech to improve their products, processes, and competitiveness.

3. The availability of a pipeline of tech talent with the education and skills required to meet the needs of the primary tech sector and tech-enabled industry demands. The development, deployment, and maintenance of tech-enabled systems across industries absolutely depends on the availability of skilled human capital.

There is no doubt that core competencies in multiple technology areas are, and will increasingly be, essential drivers of economic competitiveness. For Indiana, core competencies in "tech" – from an R&D, business application, and workforce skills perspective – will only become more important to the state's economy as digital tools and their advanced application become ever more pervasive and central to the business operations of every industry. Because the future prosperity of Indiana's economy is largely dependent on the ability to embed and leverage emerging tech applications such as advanced data analytics and Manufacturing 4.0 technologies within key industry clusters, understanding

and identifying the current established and emerging capabilities of the state is essential.

Since its inception, TechPoint has been focused on growing the technology sector and meeting diverse needs across the tech industry ecosystem. There is deep tacit knowledge of the sector embedded in TechPoint and its long-standing services supporting sector growth. Today, however, TechPoint recognizes that the Fourth Industrial Revolution that is underway makes tech not only important to the economy as a distinct sector of its own, but also critically important to the future economic performance of all other major industries across the state. Tech deployment lies, for example, at the heart of future competitiveness across Indiana's highly concentrated and specialized manufacturing sector, and it is increasingly central to the operation of advanced logistics industries.

Similarly, major service industries in Indiana – such as in healthcare, insurance and financial services, and wholesale trade – will see their operations increasingly driven by the integration of digital tools, technologies, and smart connected systems. Moving forward, there is a distinct need for TechPoint to understand the tech demands across sectors and strategically examine the role it can play not only in enabling growth in the tech sector itself, but also in enabling the deployment of advanced tech as a core driver of economic progress across other major sectors of the Indiana economy. This report provides intelligence designed to assist TechPoint as it considers strategic actions to address evident needs and opportunities.

Growth opportunities in technology sectors can include both traditional technology industry verticals as well as the deployment of tech within other key industry clusters (horizontals).

To understand the specific aspects of the tech sector that are most important to Indiana, a four-part ontology is helpful for defining the "tech" sector, which represents a large, diverse, and growing portfolio of infrastructure, products, and services.

TEConomy uses the following ontology for segmenting "tech" innovation and analyzing its context within key industry clusters:

- **Tech Hardware**, composed of areas such as high-performance computing hardware, IoT devices, sensors, and other physical products that enable large scale data processing and analysis.

- **Tech Software**, composed of the software tools and products used and leveraged by industry, including platforms such as Software-as-a-Service (SaaS) products and 3rd party data processing and analytics software tools.

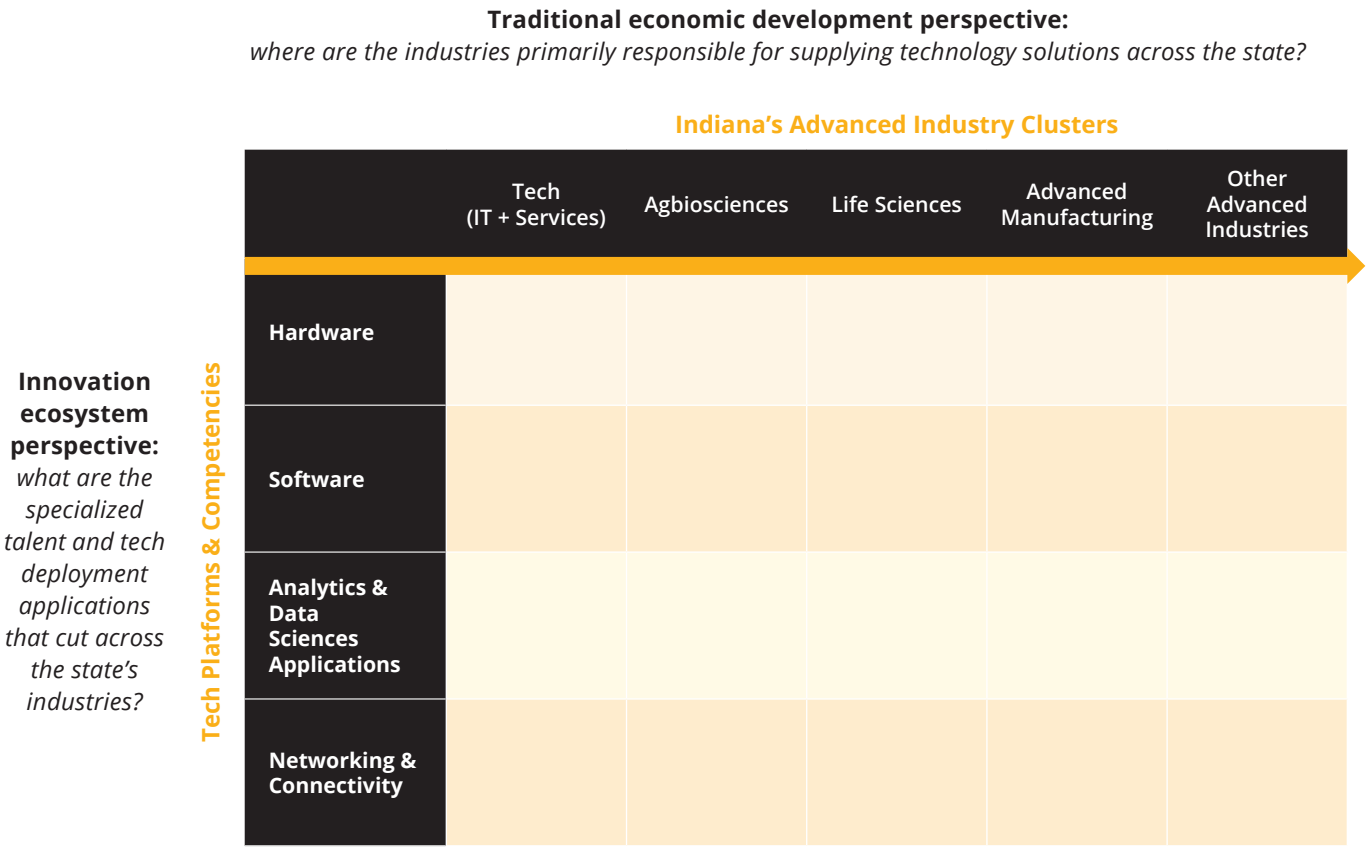
- **Data Processing & Analytics**, including the methods and toolkits used by companies to gather, manage, analyze, and share insights from large databases and, increasingly, real-time flows of data from IoT and other distributed sensor and data gathering systems. Recognizing that there is some overlap with other tech segments such as software, this segment represents the machine learning and other advanced analytics approaches and tools used to gain insights from large amounts of data including areas such as A.I. and data storage and retrieval.

- **Networking & Connectivity**, including the wired, wireless, and distributed infrastructure that supports high speed transfer of data and communications with various connected devices and services, including areas such as cloud and fog computing and low latency data transfer.

The technology sector in the broadest sense includes both traditionally defined technology industries as well as the embedded presence of technology workers and competencies responsible for deploying technology applications within other key industry clusters. Because of the multifaceted role technology plays as both an industry driver itself as well as an enhancement of existing industry activity, TEConomy's analysis uses multiple perspectives for analyzing specializations within tech-oriented industry sectors. It is critical that analyses examine not only the industry and innovation capabilities which indicate technology specializations, but also explore the talent and skills embedded within industries as proxies for the active deployment of technology-driven applications.

As a result, the role of technology in driving industry competitiveness can be envisioned as a matrix (Figure 1) where the key technology-driven competencies form the rows while the columns represent the needs and

Figure 1. Dual Approach to Understanding Specialization of "Tech" Industry Sectors



Source: TEConomy Partners, LLC

deployment of technologies by Indiana's leading industry sectors and clusters. The intersection of the rows and columns serves to identify the key "tech" areas that enable digital competitiveness in Indiana's core advanced industry clusters.

As noted by multiple studies, the cross-cutting nature of the technology industry, its applications, and the workforce that enables tech represents a key pillar for regional economies as they continue to evolve over the next decade. As a recent McKinsey study on the future of IT and business notes:

> *Advances in AI, machine learning, robotics, and other technologies have increased the pace of change tenfold. By 2025, we estimate that 50 billion devices will be connected to the Industrial Internet of Things (IIoT), while 70 percent of manufacturers are expected to be using digital twins regularly (by 2022). Some 70 percent of new applications will use low-code/no-code (LC/NC) technologies by 2025, up from less than 25 percent in 2020. The global metaverse revenue opportunity could approach $800 billion in 2024, up from about $500 billion in 2020. This proliferation of technological innovations means we can expect to experience more progress in the next decade than in the past 100 years combined, according to entrepreneur and futurist Peter Diamandis.*[1]

Understanding where Indiana has key strengths in both its technology industry "verticals" as well as its technology competencies across the workforce can serve to highlight areas for investment and expansion of initiatives to position the state for the future.

1 *"Tech at the edge: Trends reshaping the future of IT and business."* McKinsey, October 21, 2022. Accessed at: https://www.mckinsey.com/capabilities/mckinsey-digital/our-insights/tech-at-the-edge-trends-reshaping-the-future-of-it-and-business

The occupational mix of Indiana's industry clusters is less focused on "core tech" workers than the nation, but the state boasts a high concentration of "tech-reliant" engineering workers who actively leverage and deploy technologies.

Indiana's technical workforce plays a critical role in boosting technology capabilities across the state's economy in both traditional technology sectors and within the state's other industries. To better understand the specifics of tech-oriented workforce dynamics, TEConomy segmented occupations into "core tech" and "tech-reliant" occupations.

- **"Core tech" occupations** are defined by CompTIA and focus "on the sectors involved in making, creating, enabling, integrating, or supporting technology, whether as a product or service."

- **Tech-reliant occupations**, as defined by TEConomy, encompass a variety of STEM/STEM-adjacent occupations in engineering, science, and technical labor categories that are anticipated to represent the primary users/consumers of tech products and services within the economy.

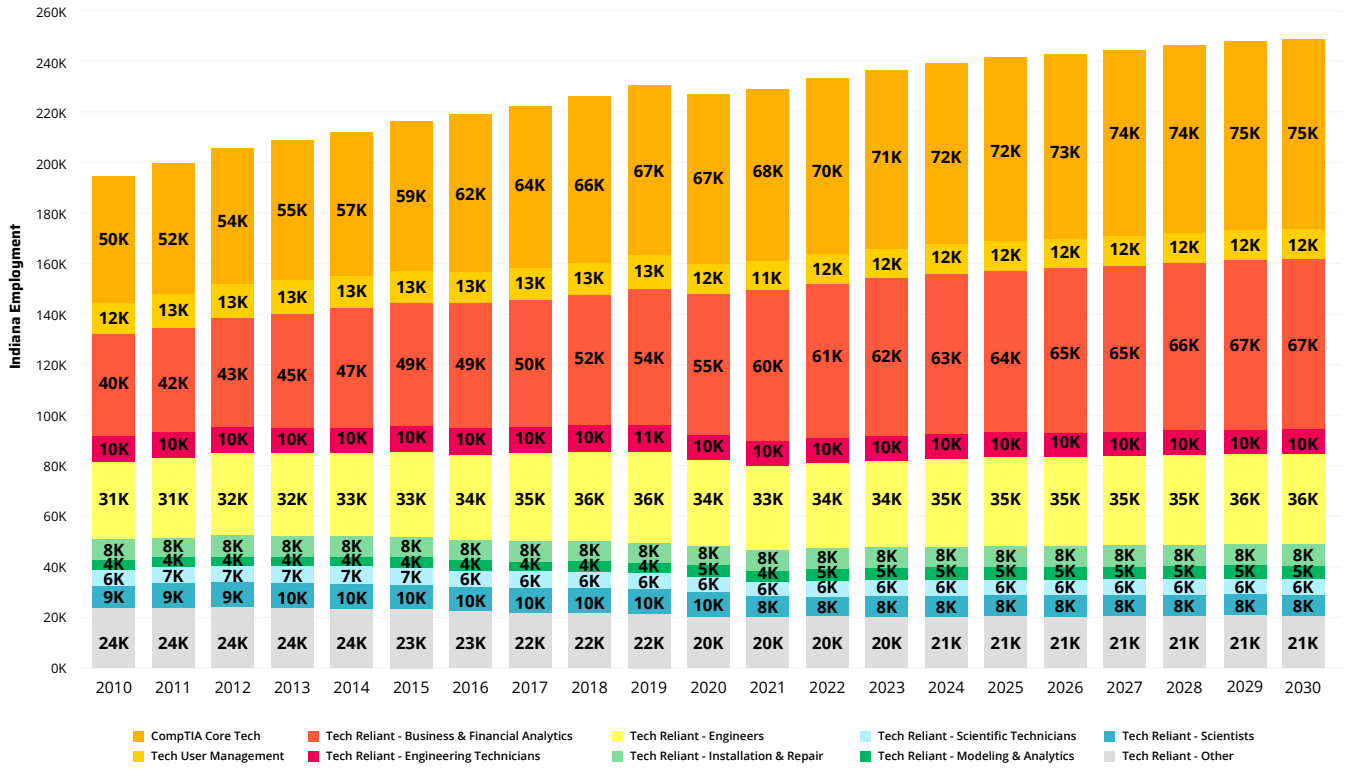
    - Subcategories of tech-reliant occupations include: tech user management, business & financial analytics, modeling & analytics, engineers & engineering technicians, scientists & scientific technicians, tech device/infrastructure installation & repair, and other tech-reliant occupations.

Since 2010, Indiana has seen growth in both core tech and tech-reliant occupations, with further growth projected over the course of the next decade (Figure 2). Indiana's tech-related workforce is driven largely by core tech occupations, tech-reliant business and financial analytics roles, and engineering occupations. From 2010 to 2030, the sectors with the fastest real and projected growth include business and financial analytics (66% growth), core tech occupations (49% growth), modeling and analytics (38% growth), and engineering (16% growth). **Despite the anticipated growth, however, Indiana's expansion in core tech and key tech-reliant occupations is anticipated to slightly lag the projected trends in national growth through 2030.**

Indiana's leading occupations in technology-oriented fields suggest strengths in tech-enabled engineering and industrial production labor segments, but lower levels of specialization in traditional technology roles. Core tech occupations, as well as many business & financial analytics occupational segments, have experienced strong growth from 2015-2021 but are not yet specialized relative to the national occupational employment mix. Core tech occupations are projected to track most closely with national growth trends, with Indiana lagging slightly – however, given most core tech occupations are not currently specialized in the state, growth needs to outperform national rates to gain ground. Trends also show low levels of projected growth in scientist and scientific technician occupations for Indiana, which could be concerning given their critical importance to many key industry sectors in the state.

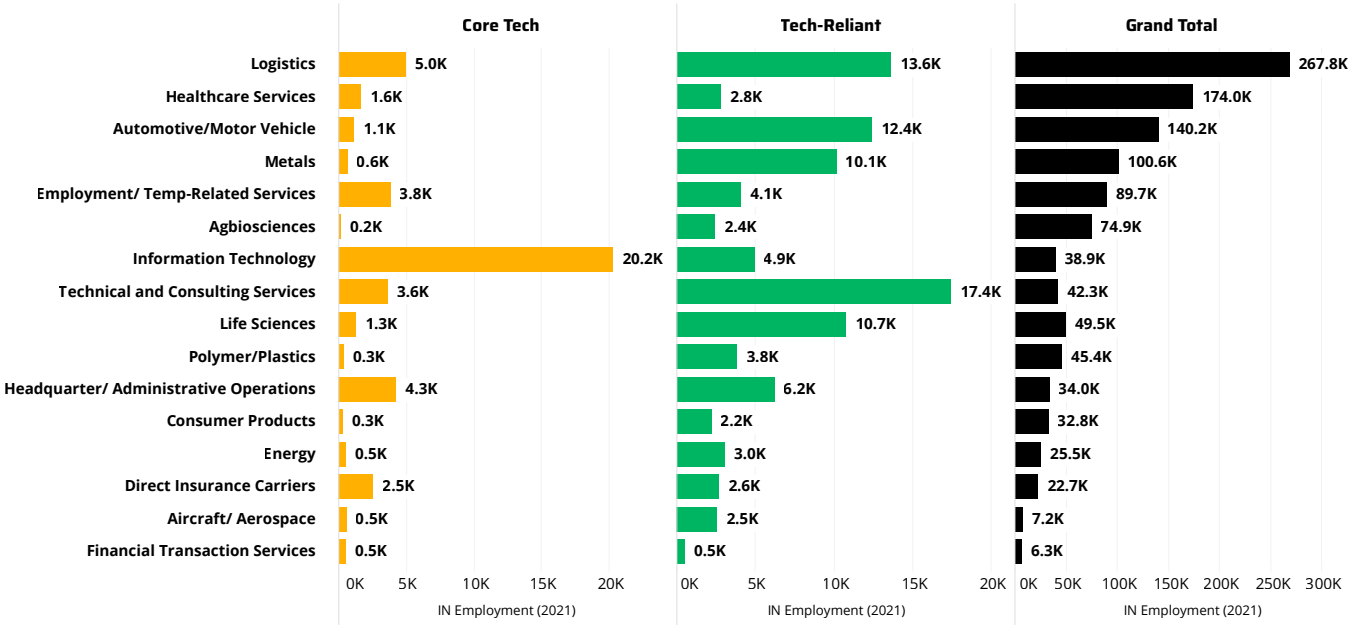
The plurality of the state's core tech workforce exists within the information technology industry, but other sectors such as logistics and headquarter operations also

Figure 2. Past and Projected Employment for Core Tech and Tech-Reliant Occupations



Source: TEConomy Partners analysis of Lightcast data release 2022.3

Figure 3. Total Core Tech and Tech-Reliant Workers Across Indiana's Largest Industry Clusters



Source: TEConomy Partners analysis of Lightcast data release 2022.3

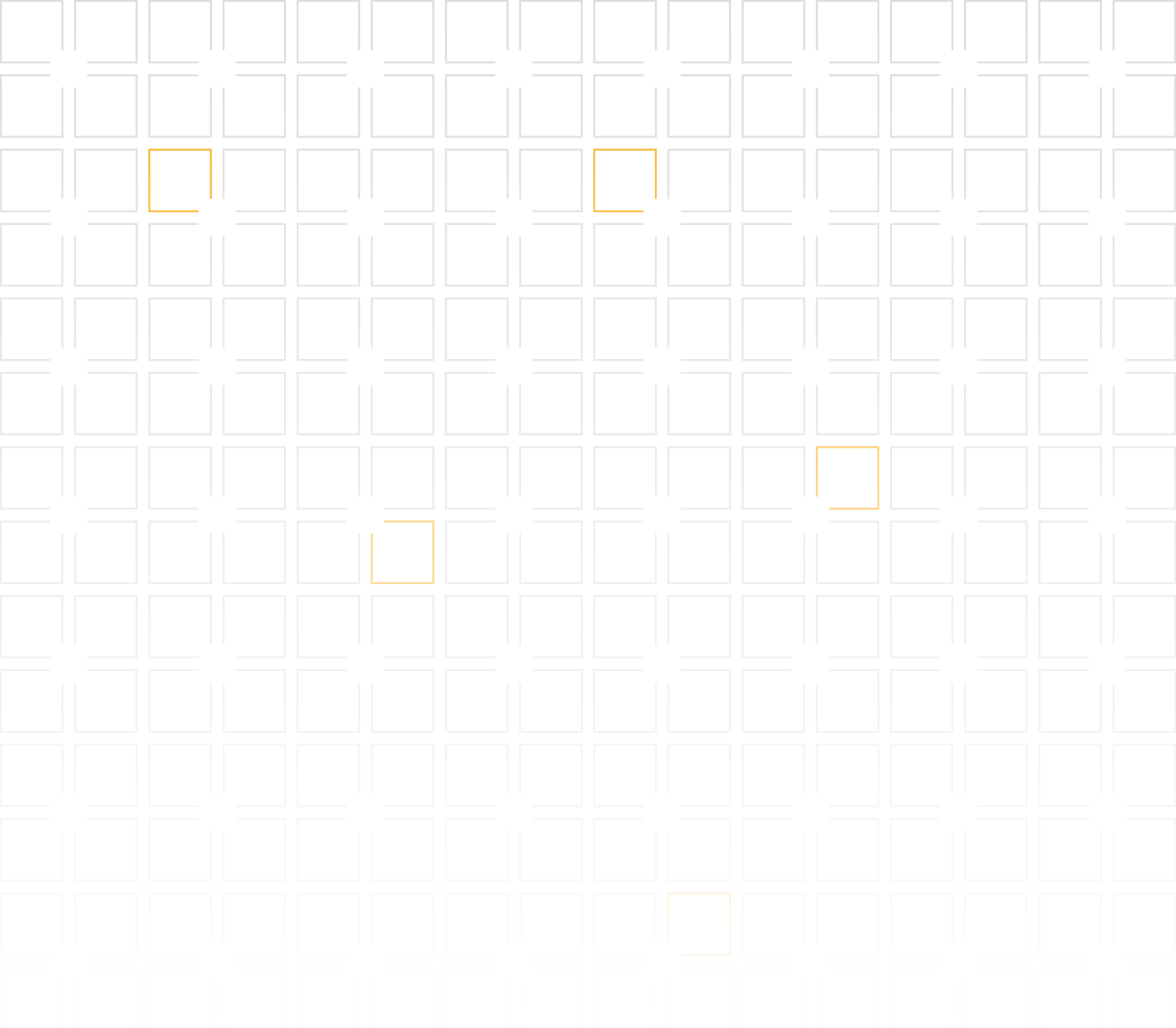
Table 1. Presence of Core Tech and Tech-Reliant Occupations in Indiana's Key Clusters (2021)

Industry Cluster	IN Share: Core Tech	% Point Diff. (IN-US)	IN Share: Tech-Reliant	% Point Diff. (IN-US)
Logistics	1.9%	-0.6%	5.1%	-1.1%
Healthcare Services	0.9%	0.0%	1.6%	-0.3%
Technical and Consulting Services	8.6%	-1.1%	41.2%	0.0%
Agbiosciences	0.2%	-0.1%	3.3%	0.0%
Employment/Temp-Related Services	4.2%	-0.9%	4.6%	-1.1%
Information Technology	52.1%	-1.5%	12.6%	0.2%
Headquarter/Admin. Operations	12.5%	-0.5%	18.2%	-1.4%
Metals	0.6%	-0.1%	10.1%	-2.8%
Life Sciences	2.6%	-3.7%	21.7%	-8.3%
Energy	2.1%	-0.3%	11.9%	-3.4%
Automotive/Motor Vehicle	0.8%	0.0%	8.9%	-1.5%
Direct Insurance Carriers	11.1%	-0.9%	11.6%	-1.1%
Polymer/Plastics	0.7%	-0.2%	8.4%	-1.7%
Consumer Products	0.9%	-0.4%	6.7%	-2.5%
Aircraft/Aerospace	7.5%	-3.0%	35.1%	0.2%
Financial Transaction Services	7.5%	-0.6%	7.6%	-1.0%

Source: TEConomy Partners analysis of Lightcast data release 2022.3

employ a significant core tech workforce (Figure 3). In many of the state's largest industry clusters (e.g., logistics, automotive/motor vehicle manufacturing, and metal manufacturing), there are large numbers of tech-reliant workers but less evidence of core tech talent significantly gaining as a share of the overall workforce.

Overall, the occupational employment mix of Indiana's industry clusters is less focused on core tech and tech-reliant workers than the nation as a whole (Table 1). This is especially evident in the life sciences, where Indiana has occupational employment that is significantly less focused on core tech and tech-reliant workers than the nation. However, in some highly related industry clusters such as agbiosciences and healthcare services, Indiana's share of tech-oriented workforce is very close to the US average.

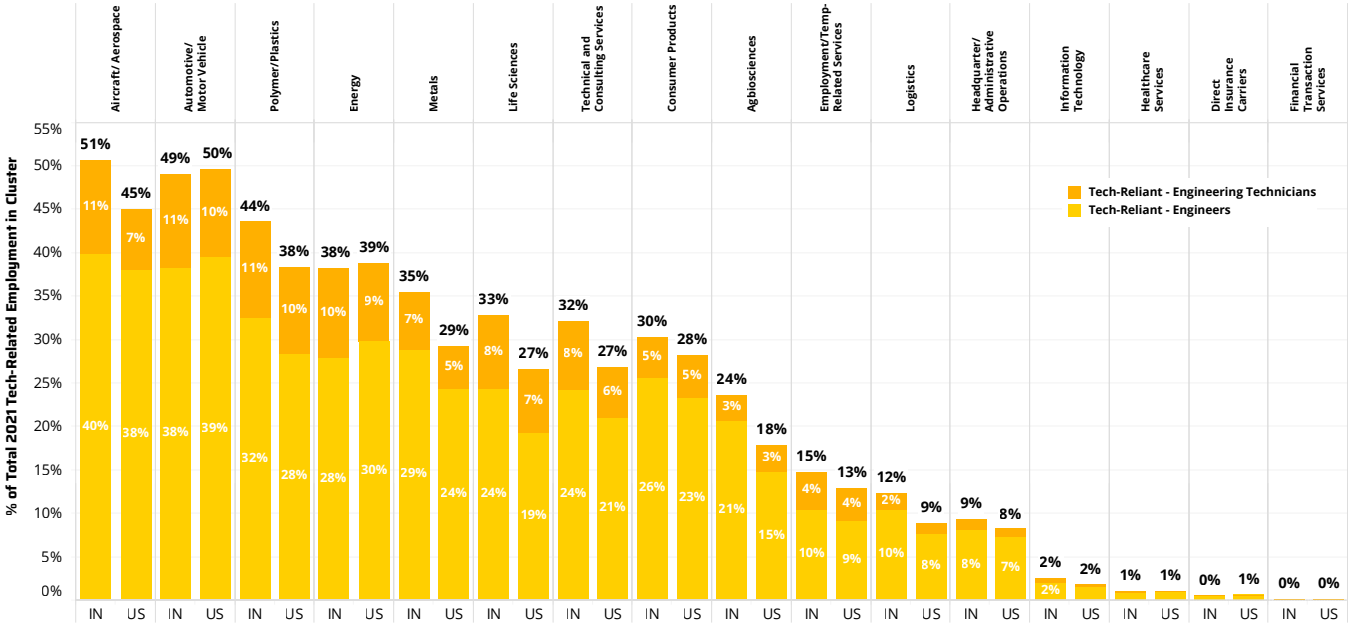


Demand for tech workers is strong across Indiana's industry clusters, with evidence of an increasing talent supply pipeline from state institutions.

Although Indiana's leading industries tend to be less technology-intensive than the nation, a closer look at occupational mix within tech-related employment finds comparatively high Indiana concentrations in engineers and engineering technicians (Figure 4).

The industries with the most engineering roles as shares of total tech-related employment include advanced manufacturing fields (e.g., aircraft/aerospace, automotive and motor vehicle, polymers and plastics) and the life sciences. Across each of these sectors, the share of total tech-related employment in engineering is also greater than the nation. **Based on the state's industry cluster profile, workers in these tech-reliant engineering and technician fields are the primary labor force through which technology diffusion and integration is likely to occur in Indiana as opposed to more traditional IT labor forces.**

Figure 4. Percentage of Total 2021 Tech-Reliant Employment in Engineering Occupations



Source: TEConomy Partners analysis of Lightcast data release 2022.3

With a focus on identifying problems, finding solutions, and implementing and adopting technologies in a practical way, STEM skills such as engineering skills are an essential part of the knowledge economy and a signature capability for Indiana. Across industries, engineers and engineering technicians can create new solutions and products that improve business operations by working in collaboration with other professionals.

As an indicator of demand for tech workers, the volume of job postings for core tech occupations has continued to rise in Indiana despite relatively constant average monthly hires, indicating a persistent need for workers from industry. An analysis of Lightcast's Jobs Postings data for core tech and tech-related occupations finds further evidence of growth in the state's tech sector, with a recent spike in postings activity in 2022, which suggests labor supply in core tech occupations may be becoming a major constraint. There is also evidence of a notable rise in postings advertising full-time remote positions in core tech occupations since 2021, encompassing over 25% of all postings in October 2022.

Roughly one-fifth of the state's job postings in core tech occupations are found in professional, scientific, and technical services, with high levels also found in finance and insurance and manufacturing (Table 2). Leading companies with at least 1,500 unique job postings for core tech fields from January 2015 to September 2022 include Elevance Health, IU Health, Accenture, Deloitte, Humana, Cummins, Eli Lilly, Salesforce, Raytheon, and General Dynamics.

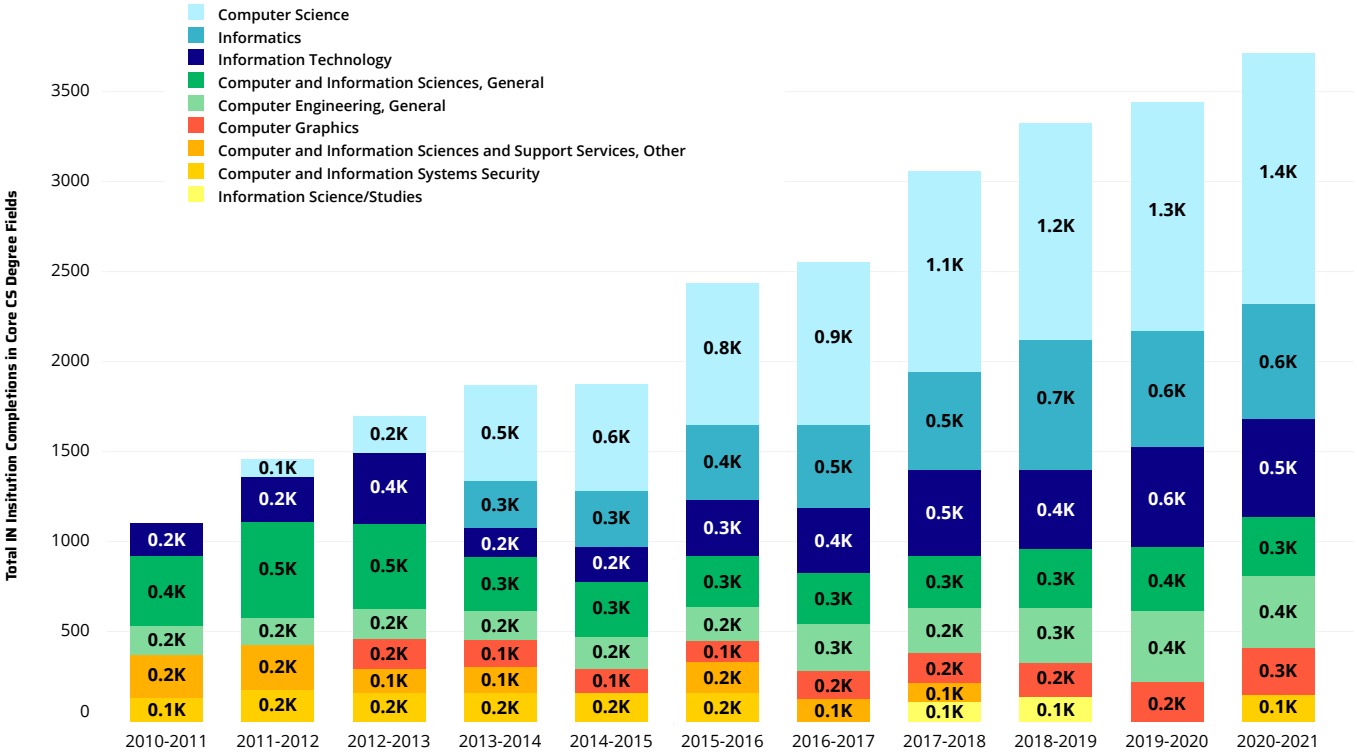
Within its universities, Indiana has experienced a rapid rise in degree programs focused on computer science since 2015, including growth in fields such as IT, informatics, computer engineering, and computer graphics (Figure 5). Particularly notable here is Indiana's growth relative to the nation. **Indiana is developing tech-talent at a rate faster than the nation** (3.2x growth since 2010, compared to 2.6x for the nation), representing further opportunities to grow the state's technology-oriented industries.

Table 2. Leading Industries Represented in Indiana's Core Tech Job Postings Activity (min. 10k Unique)

Industry Sector (2-Digit NAICS)	Unique Postings	# of Employers Competing	Annual Median Advertised Salary	# of Salary Observations
Professional, Scientific Technical Services	40,939	2,641	$85,888	3,625
Finance and Insurance	29,054	461	$107,392	1,824
Manufacturing	27,143	1,042	$73,600	1,229
Health Care and Social Assistance	12,382	595	$49,536	996
Information	10,956	477	$93,568	1,201
Total Across All Industries	204,496	10,837	$73,088	20,718

Source: TEConomy Partners analysis of Lightcast data release 2022.3 Note: Unique Postings and Employers competing figures are from January 2015 – September 2022

Figure 5. Degree Program Titles for IN Computer & Info Sci Programs with >100 Annual Graduates at the Bachelor's or Higher Level



Source: TEConomy Partners analysis of NCES IPEDS Database

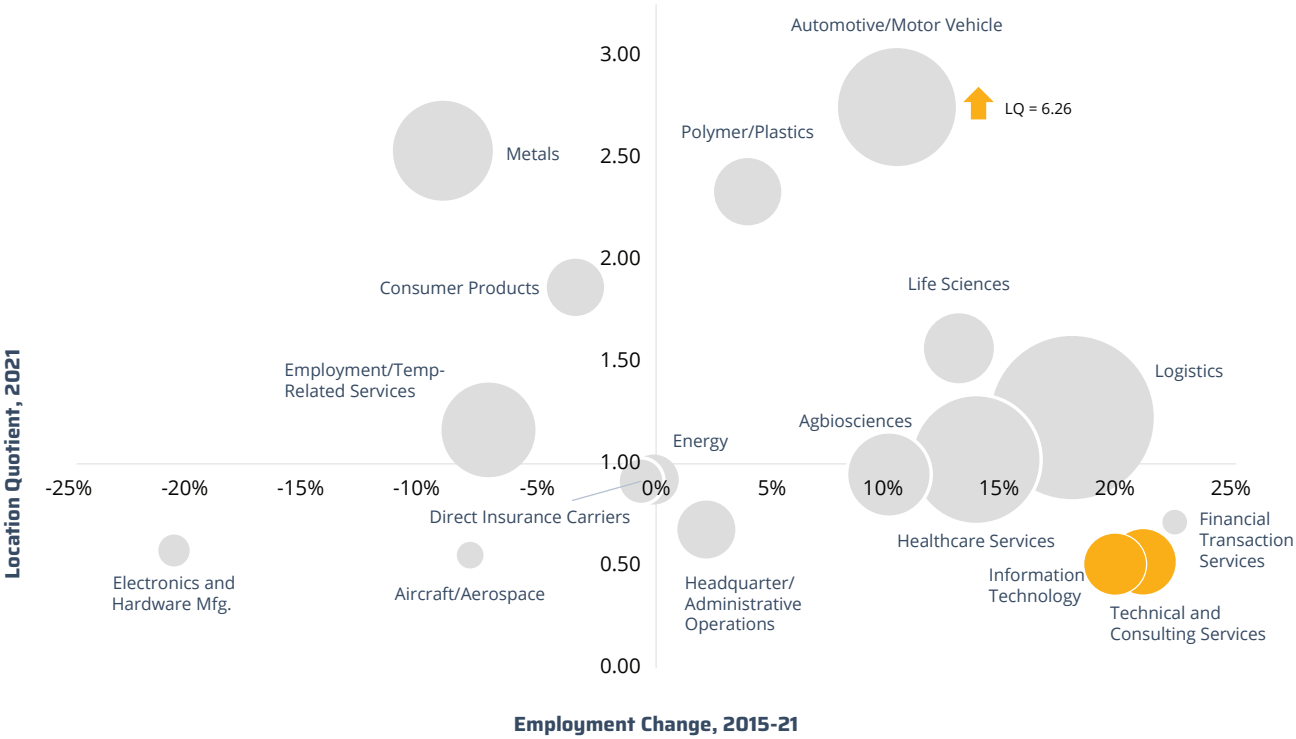
However, graduate retention amongst IT and computing degree students remains a persistent issue, with evidence from the Census' Post-Secondary Employment Outcomes (PSEO) data for Indiana institutions suggesting longer-term retention rates of approximately 59% for in-state employment capture of all computer and information sciences degree graduates who found employment 1 year after graduation.[2] This in-state retention of employed computer and information sciences graduates appears to fall to approximately 57% after 5 years and approximately 53% after 10 years, suggesting the state sees further "leakage" of experienced talent over time.[3] Notably, Indiana also appears to have grown its engineering talent pipeline at a rate faster than the US, highlighting this set of graduates as a potential talent pool to leverage in considering tech workforce strategies.

2 TEConomy analysis of Census' Post-Secondary Employment Outcomes (PSEO) data for participating Indiana institutions
3 TEConomy analysis of Census' Post-Secondary Employment Outcomes (PSEO) data for participating Indiana institutions

Indiana is experiencing employment growth across many of its leading advanced industries, with fast growth in tech "verticals" like IT and technical/consulting services.

Indiana is home to many large and fast-growing industry clusters where the state has a competitive strength (Figure 6). While core-tech and tech-reliant workers exist across industries, Indiana's traditional tech industry verticals are primarily found within the two clusters highlighted in blue in Figure 6: information technology and technical and consulting services.[4] Since 2015, trends show that these sectors represent two of Indiana's three fastest growing sectors in terms of employment, reflecting the pivotal role of these industries as key suppliers of technology products and services that are driving recent economic growth.

Figure 6. Employment Change (2015-2021) and Location Quotient (2021) Across Key Clusters



Source: TEConomy Partners analysis of Lightcast data release 2022.3

4 Another key industry vertical included in some definitions of "tech" is electronics and electronics hardware manufacturing, which TEConomy also examined and can be found in Figure 6 and Table 3. Although the electronics and hardware manufacturing industry is comparatively small and declining in performance, an analysis of detailed subsectors finds some bright spots around Instruments and Related Products Manufacturing for Measuring, Displaying, and Controlling Industrial Process Variables, and Electronic Connector Manufacturing. Companies active in these sectors in the state are focused on manufacturing products for industrial sensing and CNC machinery as well as electronic instrumentation and components suppliers.

Despite the strong growth, Indiana's "core" tech clusters are smaller than many of the other leading industry sectors in the state and are not yet specialized drivers of competitive advantage for Indiana's economy. These clusters also represent a relatively small base of employment (as indicated by the size of the bubble), and they do not demonstrate a high concentration versus national normative levels, as measured by their location quotient being less than 1.0. Indiana's primary tech sectors each have a location quotient of roughly 0.5, which suggests that employment in these fields is roughly half as concentrated in Indiana as one would expect for the nation. For other clusters, Indiana has an extremely high concentration of employment – for example, automotive/motor vehicle manufacturing where employment is more than six times as concentrated for Indiana as the US.

While Indiana's growth in technology-focused industries is encouraging, it is also notable that major tech subsectors like information technology and electronics and hardware manufacturing have lagged overall US growth over the 2015-2021 time period (Table 3). However, Indiana experienced employment growth across many advanced industries while also seeing its national share of employment increase over this period. Indiana experienced employment growth faster than the US average across eight industries, led by financial transaction services, energy, automotive manufacturing, and technical and consulting services.

Table 3. Percentage Point Difference in Employment Growth for Indiana and US in Select Industries

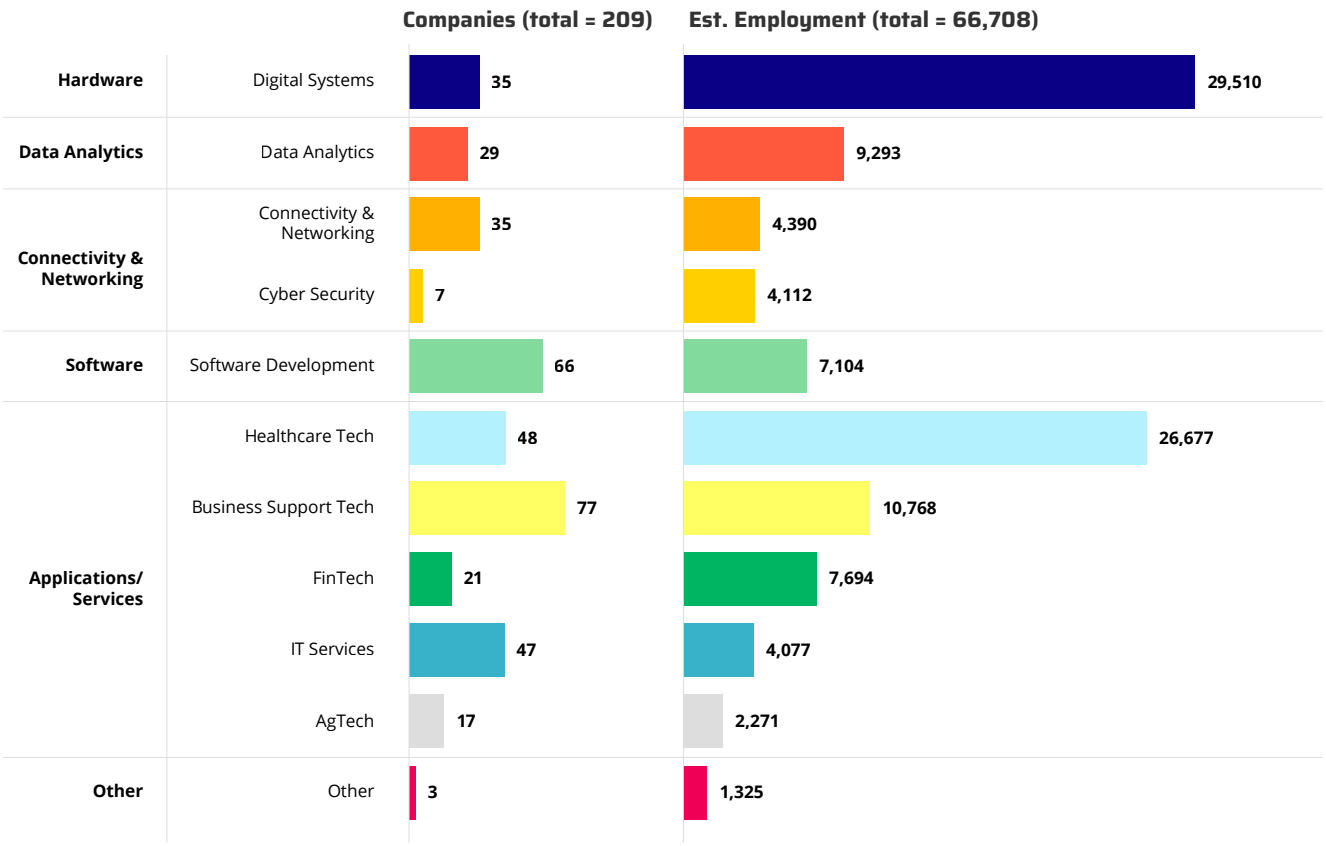
Industry Cluster	Relative Growth vs. USA (2015-2021)	Total IN Employment (2021)	IN Employment Growth (2015-21)	IN Location Quotient (2021)
TOTAL PRIVATE SECTOR	**-1%**	**2,631,404**	**3.2%**	**1.00**
Financial Transaction Services	17%	6,301	22.4%	0.71
Energy	8%	25,457	-0.1%	0.92
Automotive/Motor Vehicle	6%	140,152	10.4%	6.26
Technical and Consulting Services	6%	42,666	21.0%	0.52
Logistics	5%	267,772	17.9%	1.23
Healthcare Services	4%	174,040	13.8%	1.02
Agbiosciences	2%	74,851	10.0%	0.95
Polymer/Plastics	0%	45,398	3.9%	2.34
Direct Insurance Carriers	-1%	22,750	-0.7%	0.91
Metals	-2%	100,600	-9.2%	2.54
Headquarter/Admin. Operations	-4%	34,043	2.2%	0.68
Consumer Products	-5%	32,841	-3.5%	1.87
Aircraft/Aerospace	-7%	7,202	-8.0%	0.55
Employment/Temp-Related Services	-10%	89,736	-7.2%	1.17
Life Sciences	-10%	49,135	13.0%	1.57
Information Technology	-11%	38,868	19.8%	0.51
Electronics and Hardware Mfg.	-19%	9,979	-20.8%	0.57

Source: TEConomy Partners analysis of Lightcast data release 2022.3

Analysis of companies in Indiana's key clusters finds pervasive activity in industry "horizontals," as firms are applying, deploying, and integrating technology across their operations.

Understanding the breadth of technology applications across industry clusters is often difficult due to the broad scope and lack of public-facing metrics documenting successful technology adoption.

Figure 7. Highlights of Company and Estimated Employment Totals by Technology Competencies



Source: TEConomy Partners, LLC

To assess the extent to which Indiana's companies are deploying tech applications to improve business operations, TEConomy utilized a customized database approach to defining technology competencies within Indiana's leading firms and clusters, beginning with information on 1,180 companies from TechPoint's pre-existing industry database. TEConomy's analysis then refined this list to focus on "core companies" that include TechPoint's board membership, companies receiving venture capital (as noted in Pitchbook), members of CICP-affiliated organizations, and other recognizable firms. TEConomy used web-searches, LinkedIn, Dunn & Bradstreet, Pitchbook, and other sources to derive employment estimates for "core companies" and to understand their technology competencies.[5] For each company, TEConomy tagged competencies based on industry clusters (the sectors and markets where companies are actively involved), the technology ontology (ways that companies are deploying or advancing innovation, see page 3), and estimated employment size in key Indiana sites or locations.

The "core companies" used in the technology competency analysis represent a substantial amount of employment – approximately 66,700 employees across 209 firms – and looking across the ontology of technology platforms and competencies helps inform key focus areas of state's tech industry (Figure 7). Applications and services (e.g., business support tech, IT services, healthcare tech) and software development emerge as areas with significant company and employment activity. While accounting for relatively few total companies, hardware, manufacturing, and digital systems appear as key drivers of technology employment. Meanwhile, key areas of focus for Indiana's IT sector include software development, IT services, marketing and sales tech, business process tech, data analytics for decision-making support, cloud hosting and digital infrastructure.

Figure 8 highlights areas of cross-cutting activity among both technology competencies and markets served. Technologies related to digital systems and manufacturing stand out in employment, especially in the life sciences and automotive sectors. Activity in information technology is particularly cross-cutting, with technologies serving diverse sectors such as healthcare, general business, finance, and agriculture. These areas crosswalk to a presence of employment within nearly all other industry sectors, such as information technology, logistics, insurance, and other non-cluster industries.

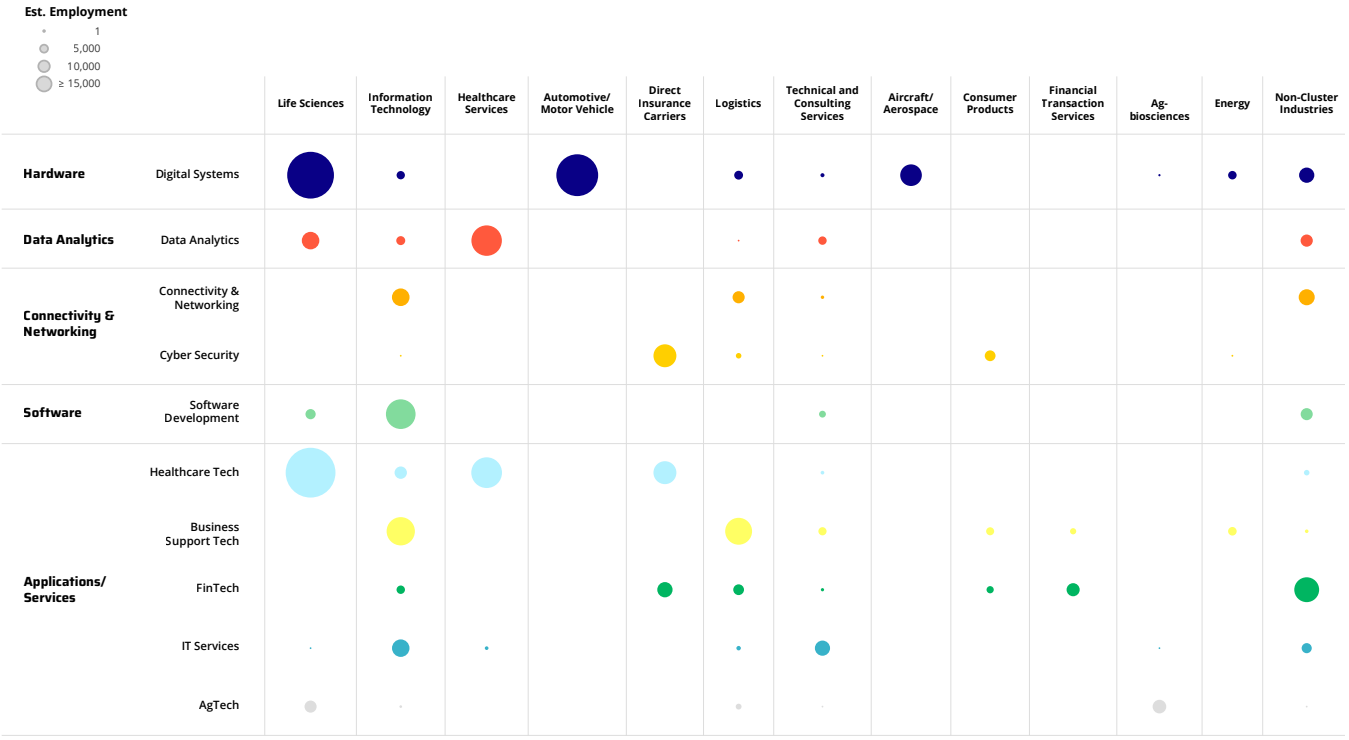
To go deeper with the technology competency analysis, TEConomy also explored key themes across areas of technology deployment, adoption, and development in five broadly defined industry clusters that are most relevant to Indiana and the CICP. By looking across companies within a sector, TEConomy can work to identify the themes that are most important to companies – generally speaking – in Indiana's leading industries, including: advanced manufacturing, agbiosciences, human health and life sciences, logistics, and finance and insurance.

Technology has permeated across Indiana's advanced manufacturing industry, with computational analytics increasingly important to one of the advanced manufacturing sectors with significant technology adoption, the state's "mobility systems, power, and propulsion" cluster. As identified in a recent report for CICP and the Indiana Economic Development Corporation (IEDC),[6] this cluster represents a key strategic sector for advancing Indiana's economy and GDP growth over the coming decade. This sector includes leading firms, such as Cummins, Rolls Royce, Allison Transmission, and important elements of this cluster include the design and development of on-road and off-road vehicles, passenger, commercial, and recreational vehicles, as well as maritime and aerospace applications. In this sector, technology adoption is underpinning the advancement of alternative and renewable power systems (mobile and static) and propulsion (electricity, hydrogen, and hybrid powertrains), with both light and heavy-duty applications,

5 This methodology is intended to paint a picture of competencies in the state's technology sectors, but TEConomy warns against overinterpreting the results of the analysis. First, the analysis focuses on only a limited number of core-companies, and not the entirety of Indiana's technology-oriented economy. Second, in instances where a company is tagged with multiple categories, employment values are double, or triple counted. Third, some employment numbers are inflated due to inability to disaggregate company employment. For example, Eli Lilly has 13k employees and is marked as Digital Systems, derived from the original "Mfg. Tech" tag.

6 TEConomy Partners. 2022. "*BUILDING AN ECONOMY OF THE FUTURE: Indiana's Strategy for Advancing GDP Growth and Economic Prosperity. Phase II: Strategy and Action Plan.*" Prepared for Bradley B. Chambers, Secretary of Commerce, State of Indiana and CEO, Indiana Economic Development Corporation.

Figure 8. Crosswalk of Employment Totals by Technology Competencies and Markets Served



Source: TEConomy Partners, LLC

and in developing new and refined battery systems. Across companies, technology proficiency is increasingly necessary to drive autonomous systems and advanced automotive systems and components.

Elsewhere in advanced manufacturing examples of technology applications are plentiful: companies are implementing tech related to the "Industrial Internet of Things," using digital systems, digital hardware and sensing, analytics, and security technologies. Robotics are becoming increasingly important for parts of the manufacturing processes (e.g., welding, painting). Researchers are harnessing advanced propulsion technologies and alternative energy sources, while other businesses are using technology to develop advanced composites, polymers, and nanomaterials. For production workers, the usage of co-bots, simulations, and virtual and augmented reality (VR/AR) have become a valuable part of training and technical services in advanced manufacturing fields. In the agbiosciences (see sidebar), technology adoption and utilization is also pervasive across the various segments of the state's agbiosciences industry, which has areas of strength and assets in ag-tech related fields as well as potential opportunities to drive industry collaboration and connectivity. Major firms in Indiana's agbiosciences industry are integrating data sciences into their traditional R&D, while tech in the startup space largely targets producers through integrated agriculture service offerings.[7]

Substantial technology adoption is also occurring in fields related to human health and life sciences – however, Indiana is facing stark competition for talent in these roles. Technology is critical to Indiana's success in the life sciences, a broadly defined category that includes pharmaceutical development (including pharmaceuticals and biologics, with both human and veterinary applications), diagnostics, vaccines, and medical devices

7 For more, see TEConomy Partners (2023) "The Intersection of Agbioscience and Tech: AgTech and Ag-Analytics as Opportunity Spaces for Indiana"

Highlights of Technology Adoption Across the Agbiosciences

- **Plant Sciences and Crop Protection:** Leading companies like Corteva, Beck's, AgReliant, and Taranis are using advanced data analytics, AI/ML, and computer visioning and image processing analysis for various basic and applied plant science applications, including genetics/genomics, commodity crop improvement, and crop protection. Companies are also using controlled environment phenotyping, with capabilities for fully automated growing and imaging for agronomic purposes.
- **Animal Health and Nutrition:** Leading companies such as Elanco, Envigo, BiomEdit, and Verility are growing their focus on big-data solutions for applied microbiome research, including data sciences and applied statistics for usage in bioinformatics, clinical analytics, etc. In this sector, there is also an increasing emphasis on technologies for companion animals and their health and nutrition needs.
- **Value Added Food and Nutrition:** Leading companies such as Tate and Lyle, Red Gold, ADM, and Cargill are increasingly using automation in food processing and milling production supply chains, with growing usage of robotics in warehousing and distribution. In these fields, technology and analytics surrounding food inputs and product traceability, transparency, safety are paramount.
- **Agricultural Equipment, Technologies, and Systems:** Leading companies such as Advanced Agrilytics, Intelinair, Solinftec, and Bee Corp are on the cutting edge in developing platform technologies involving AI/ML for integrated agriculture (agronomy, soils, water, environments). Indiana is also home to a growing base of businesses focused on connected/smart agricultural implement (e.g., Autonomous systems, robotics, drones and AgTech applications).

and connected systems. Featuring leading firms like Eli Lilly and Roche Diagnostics – among others – Indiana's health and life sciences sector is emphasizing the role of data analytics and other information-technology related services with health-technology applications. In Indiana's esteemed pharmaceuticals sector, there is evidence of a variety of technologies being adopted, including digital bioinformatics, automation/robotics, modelling/analytical/formulation sciences, and "sciences as a service." The digitalization of Indiana's medical devices sector finds enhanced usage of the Internet of Things, wearable technologies, and remote monitoring of health conditions. Big data and advanced analytics around healthcare services, including healthcare logistics, is also increasingly prevalent in the broad health and life sciences fields.

As one of Indiana's leading cross-cutting industries – and among its largest employers – there is also a considerable amount of technology adoption occurring in the logistics sector, featuring a range of platform technologies and consulting/service providers with technology offerings. In logistics, leading companies like KAR Global, enVista, and 3BG Supply are using digital systems and data analytics for logistics, with applications across sectors. Big data, AI/ML, and software applications are commonly used for monitoring and reporting shipping lifecycles, regardless of what's being moved – whether it is humans, animals, plants, parts, or finished products. A review of the database finds a growing frequency of automation and robotics in Indiana's logistics sectors, with companies responsible not only for adopting technologies, but also helping to bring these innovations to market and working with companies around the globe on implementation. This space is seeing a rise in startups and other business concepts leveraging technology to deliver last-mile solutions and personalized transactions.

Indiana's finance and insurance sectors, as well as many other headquarters operations in the state, are heavily focused on using enterprise technologies, with less emphasis on the development of new technology-related products or services. Recent analysis by TEConomy for CICP and IEDC finds that insurance has the potential to be a strategic sector for Indiana, building off its strengths in mutual insurance companies, health insurance innovations, and in developing specialized technologies and services for

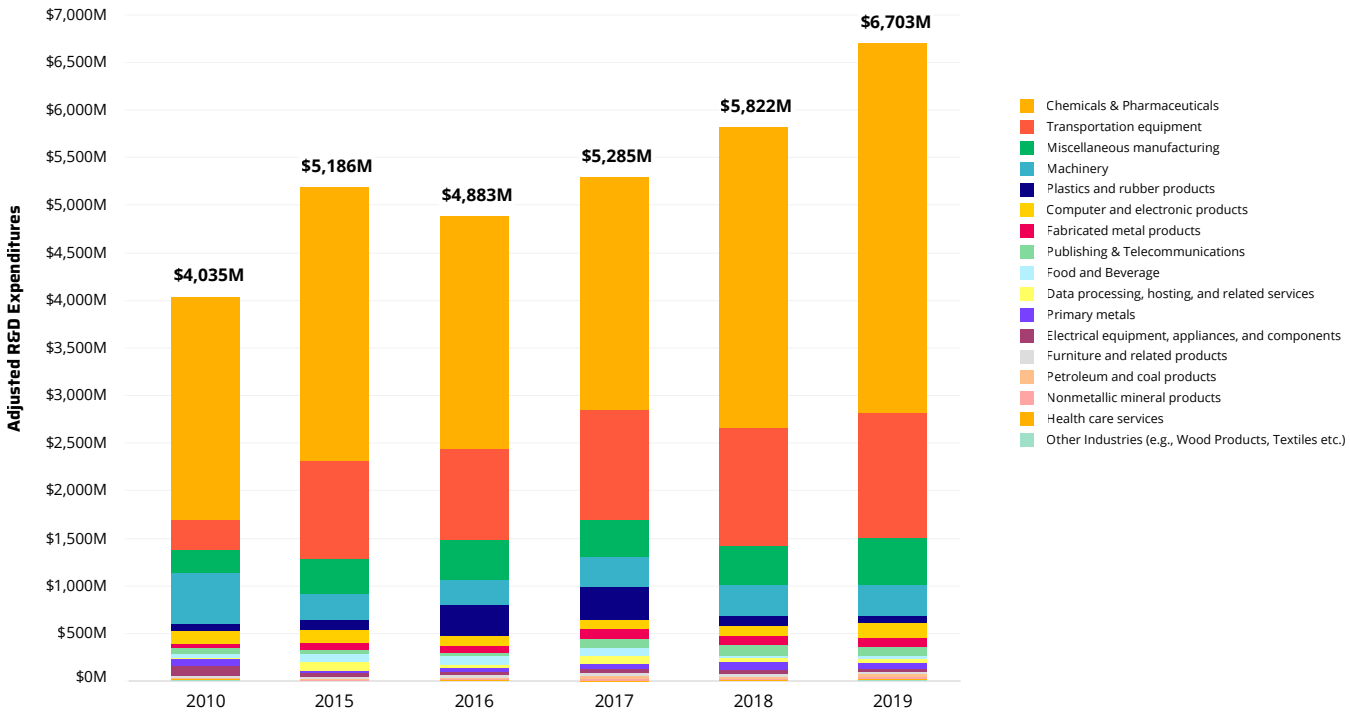
insurance. Major firms in the finance and insurance space, such as Elevance Health, One America, and Zotec Partners, are applying data sciences, advanced analytics, and cloud engineering technologies, to name a few, as part of their work. With applications for fields like fintech or healthtech, there is also a growing presence of cloud hosting and digital infrastructure operations in the state.

Indiana's Core IT industry is also growing rapidly, with key areas of focus including software development, IT services, marketing and sales tech, business support/ process tech, data analytics for decision-making support, cloud hosting and digital infrastructure. While software development and services are key areas of focus for Indiana's IT sector, critical coverage areas include marketing and sales tech, business support/process tech, data analytics for decision-making support, cloud hosting and digital infrastructure. This thematic summary of core companies uncovers technology competencies across major clusters, including advanced analytics and data sciences across industries, integration of digital systems in manufacturing and logistics, IoT, AI/ML and robotics.

There is evidence of increasing R&D investment among the state's existing advanced industries, and an emerging pipeline of new activity.

An additional sign of innovation occurring across Indiana's key clusters can be seen through investments in research and development among the state's established industrial base. As seen in Figure 9, **industrial R&D spending within tech-related industries has grown since 2016 by nearly 37%**, exceeding $6.7B in 2019, the year of most-recent data. Notably, **Indiana's rate of growth outpaced the nation** by over 16 percentage points during this period, buoyed by leading advanced manufacturing industries such as pharmaceuticals, transportation equipment, machinery, and electronics products.

Figure 9. Industrial R&D in Indiana for Select Advanced Industries (2015-2019, $ values in millions)

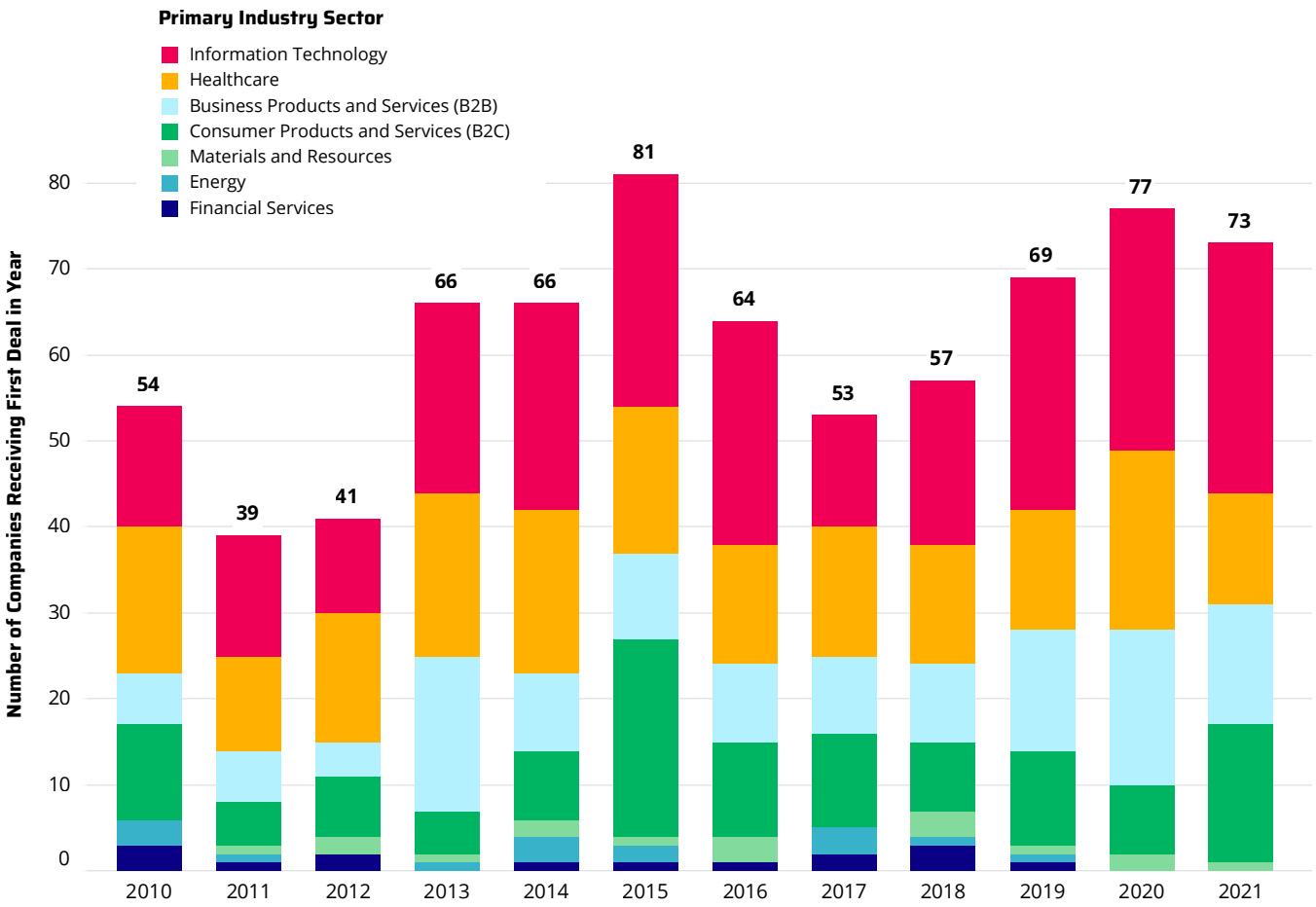


Source: TEConomy Partners analysis of NSF Business R&D Survey

Six industries in Indiana saw R&D expenditures greater than $100M in 2019, which speaks to the variety of advanced manufacturing industries participating in research and development across the state. This growth in research and development is surely connected to the growing base of core-tech and tech-reliant employment documented earlier, and can be a key leading indicator that these industries are leveraging internal resources towards the piloting and deployment of tech-enabled productivity enhancements.

Indiana is also seeing increasing levels of venture capital investment and a growing pipeline of new technology-oriented companies (Figure 12). In each year since 2013, Indiana has seen at least 50 startups receiving a venture capital deal for the first time, with 740 companies receiving deals in total since 2010. It is evident that startups in the information technology space are driving deal flow in Indiana, with many other startups appearing in other sectors that are also driven by technology applications (such as healthcare or B2B products). Recent activity also highlights a significant amount of in-state venture capital funding available for IT-related startups, but much higher overall investment levels in technology companies from out-of-state investors (particularly in later stage deals).

Figure 10. Indiana Companies by Year of First Deal and Primary Industry Sector (2010-2021)



Source: TEConomy Partners analysis of Pitchbook Data

Putting Tech to Work in Critical Industries: Indiana's Potential as a Global Leader for Technology Application and Adoption

Ultimately, TechPoint and Indiana are faced with a unique opportunity to define what the "tech sector" truly means. While the state's core tech sector of information technology and technical/consulting services employees remain a relevant and important part of the state's economy, this analysis shows that the relevant workforce is not limited to a select few traditional tech industries. Instead, Indiana's strengths exist across an applied engineering and tech-reliant workforce that is working to innovate and deploy tech within the state's advanced industry clusters.

This white paper provides TechPoint with insight regarding the areas where Indiana's companies currently excel across technological domains, the skills of the state's technological workforce, and areas of cross-cutting expertise. Moving forward, this analysis suggests that Indiana should view technology as both a skills-based and industry-based opportunity. As TechPoint seeks to expand its focus with a renewed mission to help serve as a bridge across sectors, there are reasons for excitement not only for growth prospects for the state's core technology industry, but also for other advanced industry sectors that use and deploy significant tech, such as the life sciences, advanced manufacturing (especially mobility and propulsion), logistics, agbiosciences, and finance and insurance fields.

Indiana's tech "horizontals" in terms of deployment and integration of applications across key advanced industry clusters appear to be where the state's best opportunities for increasing tech impacts lie. However, nearly every key sector of Indiana's economy lags the nation in its share of tech and tech-enabled employment, which suggests that these industries are likely behind the curve in terms of tech deployment versus their national counterparts. **Initiatives such as the Manufacturing Readiness Grant program in Indiana are very much on-point in terms of encouraging investment in tech deployment in manufacturing, but it will be important that this type of support extend into other strategic industries, such as insurance, and that workforce initiatives are available to provide supporting skills for advanced tech deployment.**

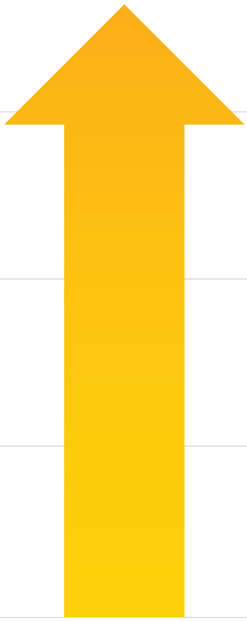
As noted in a recent McKinsey study, industrial sectors that embrace a transition to tech-enabled applications and skills are poised to reap significant economic impacts (Figure 11).[8] While this represents a different tech workforce and industry adoption strategy than those driving growth of traditional IT and computing industry sectors, reorienting Indiana's tech focus towards this strength could have outsized impacts on the state's

8 *"Why industrials should pursue a tech-enabled transformation now,"* McKinsey, November 7, 2019. Accessed at: https://www.mckinsey.com/industries/industrials-and-electronics/our-insights/why-industrials-should-pursue-a-tech-enabled-transformation-now

Figure 11. Potential Impacts of Tech Adoption in Industrial Sectors

Representative impact for companies undergoing a comprehensive tech-enabled transformation across archetypes[9] (% increase)

	Automotive OEMs or suppliers	Aerospace OEMs	Individual distributors	Industrial components or suppliers
Revenue growth	0-1	0-1	10-35	1-4
Gross margin expansion	2-5	2-5	3-7	3-7
EBITDA expansion	2-5	2-5	6-12	5-9



Source: McKinsey & Company

competitive position, as well as its ability to attract and retain leading talent.

It is likely that the key limiting factor for tech growth in Indiana will be access to an accessible and expanding talent pipeline. Substantial growth in job postings across multiple tech occupation categories suggests robust and growing demand for tech talent – talent that is in very high demand across the nation. Working in Indiana's favor is the above average output, and growth in output, of core computer science, IT, analytics, engineering, and other talent from Indiana's higher education sector – but, as noted in the recent report for IEDC, the graduate output from Indiana's colleges and universities **needs to be retained in-state** if it is to have the desired effect on industry trajectories.

Recent research from Brookings shows that concentrations of tech workforce employment have historically driven success in the tech sector, and although tech jobs have geographically spread-out in recent years in response to the labor market conditions that resulted from the pandemic, they remain highly aggregated in key metros.[10] Like most Midwestern metropolitan areas, the study notes that the Indianapolis MSA – Indiana's key metro area and employment center for tech talent – was not considered a "superstar" or "rising star" in tech employment, and despite growth, experienced no gains in its national competitive share of tech job employment over the 2015-2022 period. One key factor that can drive aggregation of tech talent is consistent access to pipelines of talent such as leading university programs and centers. Given the presence of significant talent and innovation assets at its public and

9 Impact shown is representative for each company archetype, based on McKinsey experience; actual impact will vary based on company finances and starting position.

10 "*Superstars, rising stars, and the rest: Pandemic trends and shifts in the geography of tech*," Brookings Institution, March 8, 2022. Accessed at: https://www.brookings.edu/research/superstars-rising-stars-and-the-rest-pandemic-trends-and-shifts-in-the-geography-of-tech/

private universities, if Indiana wants to develop a leading tech industry cluster it needs to find ways to expand its tech talent pipeline while at the same time identifying ways to improve its retention from higher education pipelines as a key means of aggregating a base of talent which can in turn attract the presence of tech industry companies.

There is evidence that the state has recognized this need for a critical mass of talent and begun to deploy resources to improve the state's tech talent profile. In another 2021 landmark report focused on the geographic distribution of AI and related tech innovation and talent, Brookings highlights the Indianapolis region as one of the "potential AI adoption" metros, a group of 87 metro regions in the U.S. which have developed some AI research and commercialization capacities, but at levels well below the average of the 36 most established "hub" metro areas in the country.[11] In particular, they note the preliminary steps that the region has taken to respond to the need for embedded industry applications in tech at major corporate locations through its multi-year strategy, AnalytiXIN, which is focused on organizing around use cases and adoption, coordination across the three major universities in the state, and perhaps most importantly, prioritizing AI and data science education both at the university and K-12 level. Brookings' report also identifies the Bloomington region as one of 21 national federal research and contracting centers for AI and tech-related projects, further highlighting the state's potential to build on its competitive position through advancing its tech talent footprint.

Given the exciting work being performed in Indiana's advanced industries, there are opportunities to grow interest in cross-cutting industry applications as a way to expand the state's tech workforce. For example, a 2021 employment survey by the consulting firm Gartner finds that 65% of employees said the pandemic had made them rethink the place that work should have in their life, and 56% said it made them want to contribute more to society.[12] As a result of this mindset, traditional industries with a significant impact on society – whether they relate to mobility, or health, or machinery – have an opportunity to attract technology workers from across the nation, especially as shakeout is occurring across many established IT companies.

To help meet the needs of advanced industries and better scale efforts to build the state's cross-cutting tech workforce, it is recommended that TechPoint undertake a strategic initiative around technology adoption/applications – "Putting Tech to Work" – that serves as a complement to TechPoint's ongoing efforts to grow the state's tech industry. The state's industry and occupational mix make it clear that engineering talent represents one of the state's key assets, with evidence that technology-enabled value added to traditional manufacturing, logistics, and other production industries will be driven by this workforce. Indiana has the opportunity to leverage its unique STEM-reliant and engineering-focused workforce, together with existing advanced industries, to build competitive advantages in tech deployment within the industrial operations that underpin many of state's key employers and clusters.

As part of a "Putting Tech to Work" strategic initiative, TechPoint should explore:

- **Convening technology leadership across sectors:** TechPoint's recent acquisition of the Indiana CIO Network is a critical first step in ensuring technology leaders from across sectors collaborate to drive technology adoption. TechPoint should ensure the Indiana CIO Network continues to expand such that it includes representatives from an array of advanced industries who can guide high-level discussions about strategic directions, deliver connections between key stakeholders, and inform the types of technology skills and applications that are most needed by Indiana's industries today and the future.

- **Focusing on cross-cutting technology skills:** TechPoint has long worked to attract and retain skilled tech talent. It recently launched "Mission 41K" to inclusively grow the state's tech workforce by 41,000 by 2030 through a number of

11 "*The geography of AI: Which cities will drive the artificial intelligence revolution?*," Brookings Institution, September 2021. Accessed at: https://www.brookings.edu/research/the-geography-of-ai/

12 Gartner (January 2022) "Employees Seek Personal Value and Purpose at Work. Be Prepared to Deliver." https://www.gartner.com/en/articles/employees-seek-personal-value-and-purpose-at-work-be-prepared-to-deliver

partnerships and collaborations. As it continues working towards the Mission 41K goal, TechPoint should maintain its focus on the tech-enabled workforce present throughout Indiana's advanced industries and tech-skills most pervasive and most in-demand in the state, including the development and refinement of pathways to advanced industry employment for entry-, mid-, and high-level skills as well as potential re-skilling and upskilling pathways.

- **Developing insights on technology deployment and applications:** In recent years, TechPoint's CICP colleagues at Conexus Indiana have surveyed its stakeholders to better understand attitude towards and investments in digital technologies in the advanced manufacturing and logistics sectors. TechPoint should consider working closely with Conexus and other CICP branded initiatives on future surveys in order to build on Conexus' work in a way that accounts for all of Indiana's advanced industries. Doing so could help enable insights that better connect the state's tech-reliant industries with local tech startups, helping to advance the state's pipeline of high-growth companies.

- **Enhancing, creating, and deploying programs:** TechPoint recently joined several partners in launching Hardtech Indiana, an effort to foster connections between entrepreneurs and ecosystem partners in order to encourage startup activity associated with the deployment of technology in advanced manufacturing and logistics. TechPoint should continue to support these efforts while also considering—alongside industry, workforce, and economic development stakeholders—what additional programming is needed to encourage "putting tech to work" in Indiana. These programs should be informed by best-practices and be based on findings uncovered by convening tech leadership, leveraging existing tech skills pathways worked already carried out by TechPoint and other CICP initiatives, and from survey insights. Such programs should include continued ecosystem development between technologies demanded from the advanced industries and technologies that are nationally and globally competitive. Enhancing TechPoint's marketing and storytelling on both such technologies and technology applications in advanced industries would also help drive long-term perception change for Indiana's economic development and talent attraction and retention endeavors.

Overall, Indiana is presented with a unique opportunity to position itself as a global leader in technology application and adoption in critical industries – a place where tech gets put to work. As TechPoint continues to grow Indiana's presence as a hub for tech industries, it should also leverage its knowledge and skills to support the state's other advanced industries in assuring Indiana is optimally positioned to accelerate the deployment of competitiveness enhancing tech across Indiana's core advanced industry sectors.

Appendix A: Listing of Relevant Technology Occupational Segments Used in Workforce Analyses

Tech Workforce Segment	Standard Occupational Classification (SOC) Code	Occupational Description
"Core Tech" Occupations Included in CompTIA Tech Sector Workforce Definitions	11-3021	Computer and Information Systems Managers
	15-1211	Computer Systems Analysts
	15-1212	Information Security Analysts
	15-1221	Computer and Information Research Scientists
	15-1231	Computer Network Support Specialists
	15-1232	Computer User Support Specialists
	15-1241	Computer Network Architects
	15-1242	Database Administrators
	15-1243	Database Architects
	15-1244	Network and Computer Systems Administrators
	15-1251	Computer Programmers
	15-1252	Software Developers
	15-1253	Software Quality Assurance Analysts and Testers
	15-1254	Web Developers
	15-1255	Web and Digital Interface Designers
	15-1299	Computer Occupations, All Other
	17-2061	Computer Hardware Engineers
	49-2011	Computer, Automated Teller, and Office Machine Repairers
Tech User Management	11-3051	Industrial Production Managers
	11-9041	Architectural and Engineering Managers
	11-9121	Natural Sciences Managers
Tech-Reliant - Business & Financial Analytics	13-1081	Logisticians
	13-1111	Management Analysts
	13-1161	Market Research Analysts and Marketing Specialists
	13-1199	Business Operations Specialists, All Other
	13-2011	Accountants and Auditors
	13-2031	Budget Analysts
	13-2041	Credit Analysts
	13-2051	Financial and Investment Analysts

Tech Workforce Segment	Standard Occupational Classification (SOC) Code	Occupational Description
Tech-Reliant - Engineers	17-2011	Aerospace Engineers
	17-2021	Agricultural Engineers
	17-2031	Bioengineers and Biomedical Engineers
	17-2041	Chemical Engineers
	17-2051	Civil Engineers
	17-2071	Electrical Engineers
	17-2072	Electronics Engineers, Except Computer
	17-2081	Environmental Engineers
	17-2111	Health and Safety Engineers, Except Mining Safety Engineers and Inspectors
	17-2112	Industrial Engineers
	17-2121	Marine Engineers and Naval Architects
	17-2131	Materials Engineers
	17-2141	Mechanical Engineers
	17-2151	Mining and Geological Engineers, Including Mining Safety Engineers
	17-2161	Nuclear Engineers
	17-2171	Petroleum Engineers
	17-2199	Engineers, All Other
Tech-Reliant - Engineering Technicians	17-3021	Aerospace Engineering and Operations Technologists and Technicians
	17-3022	Civil Engineering Technologists and Technicians
	17-3023	Electrical and Electronic Engineering Technologists and Technicians
	17-3024	Electro-Mechanical and Mechatronics Technologists and Technicians
	17-3025	Environmental Engineering Technologists and Technicians
	17-3026	Industrial Engineering Technologists and Technicians
	17-3027	Mechanical Engineering Technologists and Technicians
	17-3028	Calibration Technologists and Technicians
	17-3029	Engineering Technologists and Technicians, Except Drafters, All Other
	17-3031	Surveying and Mapping Technicians
Tech-Reliant - Installation & Repair	49-2021	Radio, Cellular, and Tower Equipment Installers and Repairers
	49-2022	Telecommunications Equipment Installers and Repairers, Except Line Installers
	49-2091	Avionics Technicians
	49-2092	Electric Motor, Power Tool, and Related Repairers
	49-2093	Electrical and Electronics Installers and Repairers, Transportation Equipment
	49-2094	Electrical and Electronics Repairers, Commercial and Industrial Equipment
	49-2095	Electrical and Electronics Repairers, Powerhouse, Substation, and Relay
	49-2096	Electronic Equipment Installers and Repairers, Motor Vehicles
	49-2097	Audiovisual Equipment Installers and Repairers
	49-2098	Security and Fire Alarm Systems Installers

Tech Workforce Segment	Standard Occupational Classification (SOC) Code	Occupational Description
Tech-Reliant - Modeling & Analytics	15-2011	Actuaries
	15-2021	Mathematicians
	15-2031	Operations Research Analysts
	15-2041	Statisticians
	15-2051	Data Scientists
	15-2099	Mathematical Science Occupations, All Other
	19-3011	Economists
	19-3022	Survey Researchers
	43-9111	Statistical Assistants
Tech-Reliant - Scientists	19-1011	Animal Scientists
	19-1012	Food Scientists and Technologists
	19-1013	Soil and Plant Scientists
	19-1021	Biochemists and Biophysicists
	19-1022	Microbiologists
	19-1023	Zoologists and Wildlife Biologists
	19-1029	Biological Scientists, All Other
	19-1031	Conservation Scientists
	19-1032	Foresters
	19-1041	Epidemiologists
	19-1042	Medical Scientists, Except Epidemiologists
	19-1099	Life Scientists, All Other
	19-2011	Astronomers
	19-2012	Physicists
	19-2021	Atmospheric and Space Scientists
	19-2031	Chemists
	19-2032	Materials Scientists
	19-2041	Environmental Scientists and Specialists, Including Health
	19-2042	Geoscientists, Except Hydrologists and Geographers
	19-2043	Hydrologists
	19-2099	Physical Scientists, All Other
Tech-Reliant - Scientific Technicians	19-4012	Agricultural Technicians
	19-4013	Food Science Technicians
	19-4021	Biological Technicians
	19-4031	Chemical Technicians
	19-4042	Environmental Science and Protection Technicians, Including Health
	19-4043	Geological Technicians, Except Hydrologic Technicians
	19-4044	Hydrologic Technicians
	19-4051	Nuclear Technicians
	19-4071	Forest and Conservation Technicians
	19-4092	Forensic Science Technicians
	19-4099	Life, Physical, and Social Science Technicians, All Other

Tech Workforce Segment	Standard Occupational Classification (SOC) Code	Occupational Description
Tech-Reliant - Other	17-1011	Architects, Except Landscape and Naval
	17-1012	Landscape Architects
	17-1021	Cartographers and Photogrammetrists
	17-1022	Surveyors
	17-3011	Architectural and Civil Drafters
	17-3012	Electrical and Electronics Drafters
	17-3013	Mechanical Drafters
	17-3019	Drafters, All Other
	29-9021	Health Information Technologists and Medical Registrars
	41-4011	Sales Representatives, Wholesale and Manufacturing, Technical and Scientific Products
	41-9031	Sales Engineers
	51-9141	Semiconductor Processing Technicians
	51-9161	Computer Numerically Controlled Tool Operators
	51-9162	Computer Numerically Controlled Tool Programmers

Appendix B: Listing of Detailed Industry Cluster Definitions Used in Workforce Analysis

Note: * denotes that only employment estimated to be relevant to cluster has been included in summary totals

NAICS Code	NAICS Title	Indiana Industry Cluster	Indiana Industry Subcluster
333111	Farm Machinery and Equipment Manufacturing	Agbiosciences	Ag Machinery & Equipment
333241	Food Product Machinery Manufacturing	Agbiosciences	Ag Machinery & Equipment
325199	All Other Basic Organic Chemical Manufacturing	Agbiosciences	Ag/Bio Chemicals
325311	Nitrogenous Fertilizer Manufacturing	Agbiosciences	Ag/Bio Chemicals
325312	Phosphatic Fertilizer Manufacturing	Agbiosciences	Ag/Bio Chemicals
325314	Fertilizer (Mixing Only) Manufacturing	Agbiosciences	Ag/Bio Chemicals
325320	Pesticide and Other Agricultural Chemical Manufacturing	Agbiosciences	Ag/Bio Chemicals
311221	Wet Corn Milling	Agbiosciences	Agricultural & Biomass Processing
311224	Soybean and Other Oilseed Processing	Agbiosciences	Agricultural & Biomass Processing
311225	Fats and Oils Refining and Blending	Agbiosciences	Agricultural & Biomass Processing
111000	Crop Production	Agbiosciences	Agricultural & Biomass Processing
113110	Timber Tract Operations	Agbiosciences	Agricultural & Biomass Processing
113210	Forest Nurseries and Gathering of Forest Products	Agbiosciences	Agricultural & Biomass Processing
113310	Logging	Agbiosciences	Agricultural & Biomass Processing
115111	Cotton Ginning	Agbiosciences	Agricultural & Biomass Processing
115112	Soil Preparation, Planting, and Cultivating	Agbiosciences	Agricultural & Biomass Processing
115113	Crop Harvesting, Primarily by Machine	Agbiosciences	Agricultural & Biomass Processing
115114	Postharvest Crop Activities (except Cotton Ginning)	Agbiosciences	Agricultural & Biomass Processing
115115	Farm Labor Contractors and Crew Leaders	Agbiosciences	Agricultural & Biomass Processing
115116	Farm Management Services	Agbiosciences	Agricultural & Biomass Processing

NAICS Code	NAICS Title	Indiana Industry Cluster	Indiana Industry Subcluster
115310	Support Activities for Forestry	Agbiosciences	Agricultural & Biomass Processing
311211	Flour Milling	Agbiosciences	Food Processing & Products
311212	Rice Milling	Agbiosciences	Food Processing & Products
311213	Malt Manufacturing	Agbiosciences	Food Processing & Products
311230	Breakfast Cereal Manufacturing	Agbiosciences	Food Processing & Products
311313	Beet Sugar Manufacturing	Agbiosciences	Food Processing & Products
311314	Cane Sugar Manufacturing	Agbiosciences	Food Processing & Products
311340	Nonchocolate Confectionery Manufacturing	Agbiosciences	Food Processing & Products
311351	Chocolate and Confectionery Manufacturing from Cacao Beans	Agbiosciences	Food Processing & Products
311352	Confectionery Manufacturing from Purchased Chocolate	Agbiosciences	Food Processing & Products
311411	Frozen Fruit, Juice, and Vegetable Manufacturing	Agbiosciences	Food Processing & Products
311412	Frozen Specialty Food Manufacturing	Agbiosciences	Food Processing & Products
311421	Fruit and Vegetable Canning	Agbiosciences	Food Processing & Products
311422	Specialty Canning	Agbiosciences	Food Processing & Products
311423	Dried and Dehydrated Food Manufacturing	Agbiosciences	Food Processing & Products
311511	Fluid Milk Manufacturing	Agbiosciences	Food Processing & Products
311512	Creamery Butter Manufacturing	Agbiosciences	Food Processing & Products
311513	Cheese Manufacturing	Agbiosciences	Food Processing & Products
311514	Dry, Condensed, and Evaporated Dairy Product Manufacturing	Agbiosciences	Food Processing & Products
311520	Ice Cream and Frozen Dessert Manufacturing	Agbiosciences	Food Processing & Products
311611	Animal (except Poultry) Slaughtering	Agbiosciences	Food Processing & Products
311612	Meat Processed from Carcasses	Agbiosciences	Food Processing & Products
311613	Rendering and Meat Byproduct Processing	Agbiosciences	Food Processing & Products
311615	Poultry Processing	Agbiosciences	Food Processing & Products
311710	Seafood Product Preparation and Packaging	Agbiosciences	Food Processing & Products
311811	Retail Bakeries	Agbiosciences	Food Processing & Products
311812	Commercial Bakeries	Agbiosciences	Food Processing & Products
311813	Frozen Cakes, Pies, and Other Pastries Manufacturing	Agbiosciences	Food Processing & Products
311821	Cookie and Cracker Manufacturing	Agbiosciences	Food Processing & Products
311824	Dry Pasta, Dough, and Flour Mixes Manufacturing from Purchased Flour	Agbiosciences	Food Processing & Products
311830	Tortilla Manufacturing	Agbiosciences	Food Processing & Products
311911	Roasted Nuts and Peanut Butter Manufacturing	Agbiosciences	Food Processing & Products
311919	Other Snack Food Manufacturing	Agbiosciences	Food Processing & Products
311920	Coffee and Tea Manufacturing	Agbiosciences	Food Processing & Products
311930	Flavoring Syrup and Concentrate Manufacturing	Agbiosciences	Food Processing & Products
311941	Mayonnaise, Dressing, and Other Prepared Sauce Manufacturing	Agbiosciences	Food Processing & Products

NAICS Code	NAICS Title	Indiana Industry Cluster	Indiana Industry Subcluster
311942	Spice and Extract Manufacturing	Agbiosciences	Food Processing & Products
311991	Perishable Prepared Food Manufacturing	Agbiosciences	Food Processing & Products
311999	All Other Miscellaneous Food Manufacturing	Agbiosciences	Food Processing & Products
312111	Soft Drink Manufacturing	Agbiosciences	Food Processing & Products
312112	Bottled Water Manufacturing	Agbiosciences	Food Processing & Products
312113	Ice Manufacturing	Agbiosciences	Food Processing & Products
312120	Breweries	Agbiosciences	Food Processing & Products
312130	Wineries	Agbiosciences	Food Processing & Products
312140	Distilleries	Agbiosciences	Food Processing & Products
112000	Animal Production	Agbiosciences	Livestock Production
115210	Support Activities for Animal Production	Agbiosciences	Livestock Production
541940	Veterinary Services	Agbiosciences	Veterinary Service
334511	Search, Detection, Navigation, Guidance, Aeronautical, and Nautical System and Instrument Manufacturing	Aircraft/Aerospace	Aircraft/Aerospace
336411	Aircraft Manufacturing	Aircraft/Aerospace	Aircraft/Aerospace
336412	Aircraft Engine and Engine Parts Manufacturing	Aircraft/Aerospace	Aircraft/Aerospace
336413	Other Aircraft Parts and Auxiliary Equipment Manufacturing	Aircraft/Aerospace	Aircraft/Aerospace
336414	Guided Missile and Space Vehicle Manufacturing	Aircraft/Aerospace	Aircraft/Aerospace
336415	Guided Missile and Space Vehicle Propulsion Unit and Propulsion Unit Parts Manufacturing	Aircraft/Aerospace	Aircraft/Aerospace
336419	Other Guided Missile and Space Vehicle Parts and Auxiliary Equipment Manufacturing	Aircraft/Aerospace	Aircraft/Aerospace
333618	Other Engine Equipment Manufacturing	Automotive/Motor Vehicle	Engines and Related Components
336310	Motor Vehicle Gasoline Engine and Engine Parts Manufacturing	Automotive/Motor Vehicle	Engines and Related Components
327215	Glass Product Manufacturing Made of Purchased Glass	Automotive/Motor Vehicle	Parts and Components
336320	Motor Vehicle Electrical and Electronic Equipment Manufacturing	Automotive/Motor Vehicle	Parts and Components
336330	Motor Vehicle Steering and Suspension Components (except Spring) Manufacturing	Automotive/Motor Vehicle	Parts and Components
336340	Motor Vehicle Brake System Manufacturing	Automotive/Motor Vehicle	Parts and Components
336350	Motor Vehicle Transmission and Power Train Parts Manufacturing	Automotive/Motor Vehicle	Parts and Components
336360	Motor Vehicle Seating and Interior Trim Manufacturing	Automotive/Motor Vehicle	Parts and Components
336370	Motor Vehicle Metal Stamping	Automotive/Motor Vehicle	Parts and Components
336390	Other Motor Vehicle Parts Manufacturing	Automotive/Motor Vehicle	Parts and Components
336111	Automobile Manufacturing	Automotive/Motor Vehicle	Primary/Body Manufacturing
336112	Light Truck and Utility Vehicle Manufacturing	Automotive/Motor Vehicle	Primary/Body Manufacturing
336120	Heavy Duty Truck Manufacturing	Automotive/Motor Vehicle	Primary/Body Manufacturing
336211	Motor Vehicle Body Manufacturing	Automotive/Motor Vehicle	Primary/Body Manufacturing

NAICS Code	NAICS Title	Indiana Industry Cluster	Indiana Industry Subcluster
336212	Truck Trailer Manufacturing	Automotive/Motor Vehicle	Primary/Body Manufacturing
336213	Motor Home Manufacturing	Automotive/Motor Vehicle	Primary/Body Manufacturing
336214	Travel Trailer and Camper Manufacturing	Automotive/Motor Vehicle	Primary/Body Manufacturing
325611	Soap and Other Detergent Manufacturing	Consumer Products	Consumer Products
325612	Polish and Other Sanitation Good Manufacturing	Consumer Products	Consumer Products
325613	Surface Active Agent Manufacturing	Consumer Products	Consumer Products
325620	Toilet Preparation Manufacturing	Consumer Products	Consumer Products
333991	Power-Driven Handtool Manufacturing	Consumer Products	Consumer Products
335110	Electric Lamp Bulb and Part Manufacturing	Consumer Products	Consumer Products
335121	Residential Electric Lighting Fixture Manufacturing	Consumer Products	Consumer Products
335122	Commercial, Industrial, and Institutional Electric Lighting Fixture Manufacturing	Consumer Products	Consumer Products
335129	Other Lighting Equipment Manufacturing	Consumer Products	Consumer Products
335210	Small Electrical Appliance Manufacturing	Consumer Products	Consumer Products
335220	Major Household Appliance Manufacturing	Consumer Products	Consumer Products
337110	Wood Kitchen Cabinet and Countertop Manufacturing	Consumer Products	Consumer Products
337121	Upholstered Household Furniture Manufacturing	Consumer Products	Consumer Products
337122	Nonupholstered Wood Household Furniture Manufacturing	Consumer Products	Consumer Products
337124	Metal Household Furniture Manufacturing	Consumer Products	Consumer Products
337125	Household Furniture (except Wood and Metal) Manufacturing	Consumer Products	Consumer Products
337127	Institutional Furniture Manufacturing	Consumer Products	Consumer Products
337211	Wood Office Furniture Manufacturing	Consumer Products	Consumer Products
337212	Custom Architectural Woodwork and Millwork Manufacturing	Consumer Products	Consumer Products
337214	Office Furniture (except Wood) Manufacturing	Consumer Products	Consumer Products
337215	Showcase, Partition, Shelving, and Locker Manufacturing	Consumer Products	Consumer Products
337910	Mattress Manufacturing	Consumer Products	Consumer Products
337920	Blind and Shade Manufacturing	Consumer Products	Consumer Products
339116	Dental Laboratories	Consumer Products	Consumer Products
339910	Jewelry and Silverware Manufacturing	Consumer Products	Consumer Products
339920	Sporting and Athletic Goods Manufacturing	Consumer Products	Consumer Products
339930	Doll, Toy, and Game Manufacturing	Consumer Products	Consumer Products
339992	Musical Instrument Manufacturing	Consumer Products	Consumer Products
339993	Fastener, Button, Needle, and Pin Manufacturing	Consumer Products	Consumer Products
339994	Broom, Brush, and Mop Manufacturing	Consumer Products	Consumer Products
339995	Burial Casket Manufacturing	Consumer Products	Consumer Products
339999	All Other Miscellaneous Manufacturing	Consumer Products	Consumer Products
524113	Direct Life Insurance Carriers	Direct Insurance Carriers	Direct Insurance Carriers

NAICS Code	NAICS Title	Indiana Industry Cluster	Indiana Industry Subcluster
524114	Direct Health and Medical Insurance Carriers	Direct Insurance Carriers	Direct Insurance Carriers
524126	Direct Property and Casualty Insurance Carriers	Direct Insurance Carriers	Direct Insurance Carriers
524127	Direct Title Insurance Carriers	Direct Insurance Carriers	Direct Insurance Carriers
524128	Other Direct Insurance (except Life, Health, and Medical) Carriers	Direct Insurance Carriers	Direct Insurance Carriers
561311	Employment Placement Agencies	Employment/ Temp-Related Services	Employment/ Temp-Related Services
561312	Executive Search Services	Employment/ Temp-Related Services	Employment/ Temp-Related Services
561320	Temporary Help Services	Employment/ Temp-Related Services	Employment/ Temp-Related Services
561330	Professional Employer Organizations	Employment/ Temp-Related Services	Employment/ Temp-Related Services
211120	Crude Petroleum Extraction	Energy	Energy
211130	Natural Gas Extraction	Energy	Energy
212111	Bituminous Coal and Lignite Surface Mining	Energy	Energy
212112	Bituminous Coal Underground Mining	Energy	Energy
212113	Anthracite Mining	Energy	Energy
221111	Hydroelectric Power Generation	Energy	Energy
221112	Fossil Fuel Electric Power Generation	Energy	Energy
221113	Nuclear Electric Power Generation	Energy	Energy
221114	Solar Electric Power Generation	Energy	Energy
221115	Wind Electric Power Generation	Energy	Energy
221116	Geothermal Electric Power Generation	Energy	Energy
221117	Biomass Electric Power Generation	Energy	Energy
221118	Other Electric Power Generation	Energy	Energy
221121	Electric Bulk Power Transmission and Control	Energy	Energy
221122	Electric Power Distribution	Energy	Energy
221210	Natural Gas Distribution	Energy	Energy
237120	Oil and Gas Pipeline and Related Structures Construction	Energy	Energy
237130	Power and Communication Line and Related Structures Construction	Energy	Energy
324110	Petroleum Refineries	Energy	Energy
325193	Ethyl Alcohol Manufacturing	Energy	Energy
333132	Oil and Gas Field Machinery and Equipment Manufacturing	Energy	Energy
335311	Power, Distribution, and Specialty Transformer Manufacturing	Energy	Energy
335911	Storage Battery Manufacturing	Energy	Energy
335912	Primary Battery Manufacturing	Energy	Energy
335931	Current-Carrying Wiring Device Manufacturing	Energy	Energy
335932	Noncurrent-Carrying Wiring Device Manufacturing	Energy	Energy
335999	All Other Miscellaneous Electrical Equipment and Component Manufacturing	Energy	Energy

NAICS Code	NAICS Title	Indiana Industry Cluster	Indiana Industry Subcluster
486110	Pipeline Transportation of Crude Oil	Energy	Energy
486210	Pipeline Transportation of Natural Gas	Energy	Energy
486910	Pipeline Transportation of Refined Petroleum Products	Energy	Energy
522320	Financial Transactions Processing, Reserve, and Clearinghouse Activities	Financial Transaction Services	Financial Transaction Services
522390	Other Activities Related to Credit Intermediation	Financial Transaction Services	Financial Transaction Services
524292	Third Party Administration of Insurance and Pension Funds	Financial Transaction Services	Financial Transaction Services
551111	Offices of Bank Holding Companies	Headquarter/Administrative Operations	Headquarter/ Administrative Operations
551112	Offices of Other Holding Companies	Headquarter/Administrative Operations	Headquarter/ Administrative Operations
551114	Corporate, Subsidiary, and Regional Managing Offices	Headquarter/Administrative Operations	Headquarter/ Administrative Operations
621410	Family Planning Centers	Healthcare Services	Healthcare Services
621420	Outpatient Mental Health and Substance Abuse Centers	Healthcare Services	Healthcare Services
621491	HMO Medical Centers	Healthcare Services	Healthcare Services
621492	Kidney Dialysis Centers	Healthcare Services	Healthcare Services
621493	Freestanding Ambulatory Surgical and Emergency Centers	Healthcare Services	Healthcare Services
621498	All Other Outpatient Care Centers	Healthcare Services	Healthcare Services
621512	Diagnostic Imaging Centers	Healthcare Services	Healthcare Services
621610	Home Health Care Services	Healthcare Services	Healthcare Services
621910	Ambulance Services	Healthcare Services	Healthcare Services
621991	Blood and Organ Banks	Healthcare Services	Healthcare Services
621999	All Other Miscellaneous Ambulatory Health Care Services	Healthcare Services	Healthcare Services
622110	General Medical and Surgical Hospitals	Healthcare Services	Healthcare Services
622210	Psychiatric and Substance Abuse Hospitals	Healthcare Services	Healthcare Services
622310	Specialty (except Psychiatric and Substance Abuse) Hospitals	Healthcare Services	Healthcare Services
541511	Custom Computer Programming Services	Information Technology	Computer/Systems Services
541512	Computer Systems Design Services	Information Technology	Computer/Systems Services
541513	Computer Facilities Management Services	Information Technology	Computer/Systems Services
541519	Other Computer Related Services	Information Technology	Computer/Systems Services
518210	Data Processing, Hosting, and Related Services	Information Technology	Data/Internet Services
519130	Internet Publishing and Broadcasting and Web Search Portals	Information Technology	Data/Internet Services
334614	Software and Other Prerecorded Compact Disc, Tape, and Record Reproducing	Information Technology	Software
511210	Software Publishers	Information Technology	Software
334510	Electromedical and Electrotherapeutic Apparatus Manufacturing	Life Sciences	Medical devices and equipment

NAICS Code	NAICS Title	Indiana Industry Cluster	Indiana Industry Subcluster
334516	Analytical Laboratory Instrument Manufacturing	Life Sciences	Medical devices and equipment
334517	Irradiation Apparatus Manufacturing	Life Sciences	Medical devices and equipment
339112	Surgical and Medical Instrument Manufacturing	Life Sciences	Medical devices and equipment
339113	Surgical Appliance and Supplies Manufacturing	Life Sciences	Medical devices and equipment
339114	Dental Equipment and Supplies Manufacturing	Life Sciences	Medical devices and equipment
339115	Ophthalmic Goods Manufacturing	Life Sciences	Medical devices and equipment
325411	Medicinal and Botanical Manufacturing	Life Sciences	Pharmaceuticals
325412	Pharmaceutical Preparation Manufacturing	Life Sciences	Pharmaceuticals
325413	In-Vitro Diagnostic Substance Manufacturing	Life Sciences	Pharmaceuticals
325414	Biological Product (except Diagnostic) Manufacturing	Life Sciences	Pharmaceuticals
541714	Research and Development in Biotechnology (except Nanobiotechnology)	Life Sciences	Research, Testing, and Medical Laboratories
621511	Medical Laboratories	Life Sciences	Research, Testing, and Medical Laboratories
541380	Testing Laboratories	Life Sciences*	Research, Testing, and Medical Laboratories
541713	Research and Development in Nanotechnology	Life Sciences*	Research, Testing, and Medical Laboratories
541715	Research and Development in the Physical, Engineering, and Life Sciences (except Nanotechnology and Biotechnology)	Life Sciences*	Research, Testing, and Medical Laboratories
333922	Conveyor and Conveying Equipment Manufacturing	Logistics	Equipment
333923	Overhead Traveling Crane, Hoist, and Monorail System Manufacturing	Logistics	Equipment
333924	Industrial Truck, Tractor, Trailer, and Stacker Machinery Manufacturing	Logistics	Equipment
336510	Railroad Rolling Stock Manufacturing	Logistics	Equipment
492110	Couriers and Express Delivery Services	Logistics	Express Delivery
493120	Refrigerated Warehousing and Storage	Logistics	Food/Farm Product Warehousing
493130	Farm Product Warehousing and Storage	Logistics	Food/Farm Product Warehousing
481112	Scheduled Freight Air Transportation	Logistics	Freight Transportation
481212	Nonscheduled Chartered Freight Air Transportation	Logistics	Freight Transportation
482110	Rail transportation	Logistics	Freight Transportation
483111	Deep Sea Freight Transportation	Logistics	Freight Transportation
483112	Deep Sea Passenger Transportation	Logistics	Freight Transportation
483113	Coastal and Great Lakes Freight Transportation	Logistics	Freight Transportation
483114	Coastal and Great Lakes Passenger Transportation	Logistics	Freight Transportation

NAICS Code	NAICS Title	Indiana Industry Cluster	Indiana Industry Subcluster
483211	Inland Water Freight Transportation	Logistics	Freight Transportation
483212	Inland Water Passenger Transportation	Logistics	Freight Transportation
484121	General Freight Trucking, Long-Distance, Truckload	Logistics	Freight Transportation
484122	General Freight Trucking, Long-Distance, Less Than Truckload	Logistics	Freight Transportation
484230	Specialized Freight (except Used Goods) Trucking, Long-Distance	Logistics	Freight Transportation
493110	General Warehousing and Storage	Logistics	General Warehousing
493190	Other Warehousing and Storage	Logistics	General Warehousing
425110	Business to Business Electronic Markets	Logistics	Logistics Services
425120	Wholesale Trade Agents and Brokers	Logistics	Logistics Services
488210	Support Activities for Rail Transportation	Logistics	Logistics Services
488310	Port and Harbor Operations	Logistics	Logistics Services
488320	Marine Cargo Handling	Logistics	Logistics Services
488330	Navigational Services to Shipping	Logistics	Logistics Services
488390	Other Support Activities for Water Transportation	Logistics	Logistics Services
488490	Other Support Activities for Road Transportation	Logistics	Logistics Services
488510	Freight Transportation Arrangement	Logistics	Logistics Services
488991	Packing and Crating	Logistics	Logistics Services
488999	All Other Support Activities for Transportation	Logistics	Logistics Services
541614	Process, Physical Distribution, and Logistics Consulting Services	Logistics	Logistics Services
561910	Packaging and Labeling Services	Logistics	Logistics Services
321920	Wood Container and Pallet Manufacturing	Logistics	Supplies
322211	Corrugated and Solid Fiber Box Manufacturing	Logistics	Supplies
423820	Farm and Garden Machinery and Equipment Merchant Wholesalers	Logistics	Wholesale Distribution: Ag Equipment
424910	Farm Supplies Merchant Wholesalers	Logistics	Wholesale Distribution: Ag Equipment
423110	Automobile and Other Motor Vehicle Merchant Wholesalers	Logistics	Wholesale Distribution: Automotive
423120	Motor Vehicle Supplies and New Parts Merchant Wholesalers	Logistics	Wholesale Distribution: Automotive
423450	Medical, Dental, and Hospital Equipment and Supplies Merchant Wholesalers	Logistics	Wholesale Distribution: Biomedical
424210	Drugs and Druggists' Sundries Merchant Wholesalers	Logistics	Wholesale Distribution: Biomedical
424420	Packaged Frozen Food Merchant Wholesalers	Logistics	Wholesale Distribution: Food Products
424430	Dairy Product (except Dried or Canned) Merchant Wholesalers	Logistics	Wholesale Distribution: Food Products
424440	Poultry and Poultry Product Merchant Wholesalers	Logistics	Wholesale Distribution: Food Products
424450	Confectionery Merchant Wholesalers	Logistics	Wholesale Distribution: Food Products
424460	Fish and Seafood Merchant Wholesalers	Logistics	Wholesale Distribution: Food Products

NAICS Code	NAICS Title	Indiana Industry Cluster	Indiana Industry Subcluster
424470	Meat and Meat Product Merchant Wholesalers	Logistics	Wholesale Distribution: Food Products
424480	Fresh Fruit and Vegetable Merchant Wholesalers	Logistics	Wholesale Distribution: Food Products
424490	Other Grocery and Related Products Merchant Wholesalers	Logistics	Wholesale Distribution: Food Products
424510	Grain and Field Bean Merchant Wholesalers	Logistics	Wholesale Distribution: Food Products
424520	Livestock Merchant Wholesalers	Logistics	Wholesale Distribution: Food Products
424590	Other Farm Product Raw Material Merchant Wholesalers	Logistics	Wholesale Distribution: Food Products
424810	Beer and Ale Merchant Wholesalers	Logistics	Wholesale Distribution: Food Products
424820	Wine and Distilled Alcoholic Beverage Merchant Wholesalers	Logistics	Wholesale Distribution: Food Products
423510	Metal Service Centers and Other Metal Merchant Wholesalers	Logistics	Wholesale Distribution: Metals
423130	Tire and Tube Merchant Wholesalers	Logistics	Wholesale Distribution: Other
423140	Motor Vehicle Parts (Used) Merchant Wholesalers	Logistics	Wholesale Distribution: Other
423210	Furniture Merchant Wholesalers	Logistics	Wholesale Distribution: Other
423220	Home Furnishing Merchant Wholesalers	Logistics	Wholesale Distribution: Other
423310	Lumber, Plywood, Millwork, and Wood Panel Merchant Wholesalers	Logistics	Wholesale Distribution: Other
423320	Brick, Stone, and Related Construction Material Merchant Wholesalers	Logistics	Wholesale Distribution: Other
423330	Roofing, Siding, and Insulation Material Merchant Wholesalers	Logistics	Wholesale Distribution: Other
423390	Other Construction Material Merchant Wholesalers	Logistics	Wholesale Distribution: Other
423410	Photographic Equipment and Supplies Merchant Wholesalers	Logistics	Wholesale Distribution: Other
423420	Office Equipment Merchant Wholesalers	Logistics	Wholesale Distribution: Other
423430	Computer and Computer Peripheral Equipment and Software Merchant Wholesalers	Logistics	Wholesale Distribution: Other
423440	Other Commercial Equipment Merchant Wholesalers	Logistics	Wholesale Distribution: Other
423460	Ophthalmic Goods Merchant Wholesalers	Logistics	Wholesale Distribution: Other
423490	Other Professional Equipment and Supplies Merchant Wholesalers	Logistics	Wholesale Distribution: Other
423520	Coal and Other Mineral and Ore Merchant Wholesalers	Logistics	Wholesale Distribution: Other
423610	Electrical Apparatus and Equipment, Wiring Supplies, and Related Equipment Merchant Wholesalers	Logistics	Wholesale Distribution: Other
423620	Household Appliances, Electric Housewares, and Consumer Electronics Merchant Wholesalers	Logistics	Wholesale Distribution: Other
423690	Other Electronic Parts and Equipment Merchant Wholesalers	Logistics	Wholesale Distribution: Other
423710	Hardware Merchant Wholesalers	Logistics	Wholesale Distribution: Other

NAICS Code	NAICS Title	Indiana Industry Cluster	Indiana Industry Subcluster
423720	Plumbing and Heating Equipment and Supplies (Hydronics) Merchant Wholesalers	Logistics	Wholesale Distribution: Other
423730	Warm Air Heating and Air-Conditioning Equipment and Supplies Merchant Wholesalers	Logistics	Wholesale Distribution: Other
423740	Refrigeration Equipment and Supplies Merchant Wholesalers	Logistics	Wholesale Distribution: Other
423810	Construction and Mining (except Oil Well) Machinery and Equipment Merchant Wholesalers	Logistics	Wholesale Distribution: Other
423830	Industrial Machinery and Equipment Merchant Wholesalers	Logistics	Wholesale Distribution: Other
423840	Industrial Supplies Merchant Wholesalers	Logistics	Wholesale Distribution: Other
423850	Service Establishment Equipment and Supplies Merchant Wholesalers	Logistics	Wholesale Distribution: Other
423860	Transportation Equipment and Supplies (except Motor Vehicle) Merchant Wholesalers	Logistics	Wholesale Distribution: Other
423910	Sporting and Recreational Goods and Supplies Merchant Wholesalers	Logistics	Wholesale Distribution: Other
423920	Toy and Hobby Goods and Supplies Merchant Wholesalers	Logistics	Wholesale Distribution: Other
423930	Recyclable Material Merchant Wholesalers	Logistics	Wholesale Distribution: Other
423940	Jewelry, Watch, Precious Stone, and Precious Metal Merchant Wholesalers	Logistics	Wholesale Distribution: Other
423990	Other Miscellaneous Durable Goods Merchant Wholesalers	Logistics	Wholesale Distribution: Other
424110	Printing and Writing Paper Merchant Wholesalers	Logistics	Wholesale Distribution: Other
424120	Stationery and Office Supplies Merchant Wholesalers	Logistics	Wholesale Distribution: Other
424130	Industrial and Personal Service Paper Merchant Wholesalers	Logistics	Wholesale Distribution: Other
424310	Piece Goods, Notions, and Other Dry Goods Merchant Wholesalers	Logistics	Wholesale Distribution: Other
424320	Men's and Boys' Clothing and Furnishings Merchant Wholesalers	Logistics	Wholesale Distribution: Other
424330	Women's, Children's, and Infants' Clothing and Accessories Merchant Wholesalers	Logistics	Wholesale Distribution: Other
424340	Footwear Merchant Wholesalers	Logistics	Wholesale Distribution: Other
424410	General Line Grocery Merchant Wholesalers	Logistics	Wholesale Distribution: Other
424610	Plastics Materials and Basic Forms and Shapes Merchant Wholesalers	Logistics	Wholesale Distribution: Other
424690	Other Chemical and Allied Products Merchant Wholesalers	Logistics	Wholesale Distribution: Other
424710	Petroleum Bulk Stations and Terminals	Logistics	Wholesale Distribution: Other
424720	Petroleum and Petroleum Products Merchant Wholesalers (except Bulk Stations and Terminals)	Logistics	Wholesale Distribution: Other
424920	Book, Periodical, and Newspaper Merchant Wholesalers	Logistics	Wholesale Distribution: Other
424930	Flower, Nursery Stock, and Florists' Supplies Merchant Wholesalers	Logistics	Wholesale Distribution: Other

NAICS Code	NAICS Title	Indiana Industry Cluster	Indiana Industry Subcluster
424940	Tobacco and Tobacco Product Merchant Wholesalers	Logistics	Wholesale Distribution: Other
424950	Paint, Varnish, and Supplies Merchant Wholesalers	Logistics	Wholesale Distribution: Other
424990	Other Miscellaneous Nondurable Goods Merchant Wholesalers	Logistics	Wholesale Distribution: Other
331110	Iron and Steel Mills and Ferroalloy Manufacturing	Metals	Iron/Steel
331210	Iron and Steel Pipe and Tube Manufacturing from Purchased Steel	Metals	Iron/Steel
331511	Iron Foundries	Metals	Iron/Steel
331512	Steel Investment Foundries	Metals	Iron/Steel
331513	Steel Foundries (except Investment)	Metals	Iron/Steel
332111	Iron and Steel Forging	Metals	Iron/Steel
331221	Rolled Steel Shape Manufacturing	Metals	Metal Products
331222	Steel Wire Drawing	Metals	Metal Products
332114	Custom Roll Forming	Metals	Metal Products
332119	Metal Crown, Closure, and Other Metal Stamping (except Automotive)	Metals	Metal Products
332215	Metal Kitchen Cookware, Utensil, Cutlery, and Flatware (except Precious) Manufacturing	Metals	Metal Products
332216	Saw Blade and Handtool Manufacturing	Metals	Metal Products
332311	Prefabricated Metal Building and Component Manufacturing	Metals	Metal Products
332312	Fabricated Structural Metal Manufacturing	Metals	Metal Products
332313	Plate Work Manufacturing	Metals	Metal Products
332321	Metal Window and Door Manufacturing	Metals	Metal Products
332322	Sheet Metal Work Manufacturing	Metals	Metal Products
332323	Ornamental and Architectural Metal Work Manufacturing	Metals	Metal Products
332410	Power Boiler and Heat Exchanger Manufacturing	Metals	Metal Products
332420	Metal Tank (Heavy Gauge) Manufacturing	Metals	Metal Products
332431	Metal Can Manufacturing	Metals	Metal Products
332439	Other Metal Container Manufacturing	Metals	Metal Products
332510	Hardware Manufacturing	Metals	Metal Products
332613	Spring Manufacturing	Metals	Metal Products
332618	Other Fabricated Wire Product Manufacturing	Metals	Metal Products
332710	Machine Shops	Metals	Metal Products
332721	Precision Turned Product Manufacturing	Metals	Metal Products
332722	Bolt, Nut, Screw, Rivet, and Washer Manufacturing	Metals	Metal Products
332911	Industrial Valve Manufacturing	Metals	Metal Products
332912	Fluid Power Valve and Hose Fitting Manufacturing	Metals	Metal Products
332919	Other Metal Valve and Pipe Fitting Manufacturing	Metals	Metal Products
332991	Ball and Roller Bearing Manufacturing	Metals	Metal Products
332996	Fabricated Pipe and Pipe Fitting Manufacturing	Metals	Metal Products

NAICS Code	NAICS Title	Indiana Industry Cluster	Indiana Industry Subcluster
332999	All Other Miscellaneous Fabricated Metal Product Manufacturing	Metals	Metal Products
333612	Speed Changer, Industrial High-Speed Drive, and Gear Manufacturing	Metals	Metal Products
332811	Metal Heat Treating	Metals	Metal Treatment Services
332812	Metal Coating, Engraving (except Jewelry and Silverware), and Allied Services to Manufacturers	Metals	Metal Treatment Services
332813	Electroplating, Plating, Polishing, Anodizing, and Coloring	Metals	Metal Treatment Services
333511	Industrial Mold Manufacturing	Metals	Metalworking Machinery
333514	Special Die and Tool, Die Set, Jig, and Fixture Manufacturing	Metals	Metalworking Machinery
333515	Cutting Tool and Machine Tool Accessory Manufacturing	Metals	Metalworking Machinery
333517	Machine Tool Manufacturing	Metals	Metalworking Machinery
333519	Rolling Mill and Other Metalworking Machinery Manufacturing	Metals	Metalworking Machinery
333992	Welding and Soldering Equipment Manufacturing	Metals	Metalworking Machinery
331313	Alumina Refining and Primary Aluminum Production	Metals	Nonferrous Metals
331314	Secondary Smelting and Alloying of Aluminum	Metals	Nonferrous Metals
331315	Aluminum Sheet, Plate, and Foil Manufacturing	Metals	Nonferrous Metals
331318	Other Aluminum Rolling, Drawing, and Extruding	Metals	Nonferrous Metals
331410	Nonferrous Metal (except Aluminum) Smelting and Refining	Metals	Nonferrous Metals
331420	Copper Rolling, Drawing, Extruding, and Alloying	Metals	Nonferrous Metals
331491	Nonferrous Metal (except Copper and Aluminum) Rolling, Drawing, and Extruding	Metals	Nonferrous Metals
331492	Secondary Smelting, Refining, and Alloying of Nonferrous Metal (except Copper and Aluminum)	Metals	Nonferrous Metals
331523	Nonferrous Metal Die-Casting Foundries	Metals	Nonferrous Metals
331524	Aluminum Foundries (except Die-Casting)	Metals	Nonferrous Metals
331529	Other Nonferrous Metal Foundries (except Die-Casting)	Metals	Nonferrous Metals
332112	Nonferrous Forging	Metals	Nonferrous Metals
332117	Powder Metallurgy Part Manufacturing	Metals	Nonferrous Metals
325130	Synthetic Dye and Pigment Manufacturing	Polymer/Plastics	Polymer/Plastics
325211	Plastics Material and Resin Manufacturing	Polymer/Plastics	Polymer/Plastics
325212	Synthetic Rubber Manufacturing	Polymer/Plastics	Polymer/Plastics
325220	Artificial and Synthetic Fibers and Filaments Manufacturing	Polymer/Plastics	Polymer/Plastics
325510	Paint and Coating Manufacturing	Polymer/Plastics	Polymer/Plastics
325520	Adhesive Manufacturing	Polymer/Plastics	Polymer/Plastics
325991	Custom Compounding of Purchased Resins	Polymer/Plastics	Polymer/Plastics
326111	Plastics Bag and Pouch Manufacturing	Polymer/Plastics	Polymer/Plastics
326112	Plastics Packaging Film and Sheet (including Laminated) Manufacturing	Polymer/Plastics	Polymer/Plastics

NAICS Code	NAICS Title	Indiana Industry Cluster	Indiana Industry Subcluster
326113	Unlaminated Plastics Film and Sheet (except Packaging) Manufacturing	Polymer/Plastics	Polymer/Plastics
326121	Unlaminated Plastics Profile Shape Manufacturing	Polymer/Plastics	Polymer/Plastics
326122	Plastics Pipe and Pipe Fitting Manufacturing	Polymer/Plastics	Polymer/Plastics
326130	Laminated Plastics Plate, Sheet (except Packaging), and Shape Manufacturing	Polymer/Plastics	Polymer/Plastics
326140	Polystyrene Foam Product Manufacturing	Polymer/Plastics	Polymer/Plastics
326150	Urethane and Other Foam Product (except Polystyrene) Manufacturing	Polymer/Plastics	Polymer/Plastics
326160	Plastics Bottle Manufacturing	Polymer/Plastics	Polymer/Plastics
326191	Plastics Plumbing Fixture Manufacturing	Polymer/Plastics	Polymer/Plastics
326199	All Other Plastics Product Manufacturing	Polymer/Plastics	Polymer/Plastics
326211	Tire Manufacturing (except Retreading)	Polymer/Plastics	Polymer/Plastics
326212	Tire Retreading	Polymer/Plastics	Polymer/Plastics
326220	Rubber and Plastics Hoses and Belting Manufacturing	Polymer/Plastics	Polymer/Plastics
326291	Rubber Product Manufacturing for Mechanical Use	Polymer/Plastics	Polymer/Plastics
326299	All Other Rubber Product Manufacturing	Polymer/Plastics	Polymer/Plastics
541410	Interior Design Services	Technical and Consulting Services	Design Services
541420	Industrial Design Services	Technical and Consulting Services	Design Services
541430	Graphic Design Services	Technical and Consulting Services	Design Services
541490	Other Specialized Design Services	Technical and Consulting Services	Design Services
541310	Architectural Services	Technical and Consulting Services	Engineering & Architectural
541330	Engineering Services	Technical and Consulting Services	Engineering & Architectural
541611	Administrative Management and General Management Consulting Services	Technical and Consulting Services	Management Consulting
541612	Human Resources Consulting Services	Technical and Consulting Services	Management Consulting
541613	Marketing Consulting Services	Technical and Consulting Services	Management Consulting
541618	Other Management Consulting Services	Technical and Consulting Services	Management Consulting
541910	Marketing Research and Public Opinion Polling	Technical and Consulting Services	Management Consulting
541620	Environmental Consulting Services	Technical and Consulting Services	Scientific Consulting
541690	Other Scientific and Technical Consulting Services	Technical and Consulting Services	Scientific Consulting
541720	Research and Development in the Social Sciences and Humanities	Technical and Consulting Services	Scientific Consulting
541810	Advertising Agencies	Technical and Consulting Services	Scientific Consulting

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541990	All Other Professional, Scientific, and Technical Services	Technical and Consulting Services	Scientific Consulting
541380	Testing Laboratories	Technical and Consulting Services	Scientific Consulting
541713	Research and Development in Nanotechnology	Technical and Consulting Services	Scientific Consulting
541715	Research and Development in the Physical, Engineering, and Life Sciences (except Nanotechnology and Biotechnology)	Technical and Consulting Services	Scientific Consulting
333242	Semiconductor Machinery Manufacturing	Electronics and Hardware Manufacturing	Electronics and Hardware Manufacturing
334111	Electronic Computer Manufacturing	Electronics and Hardware Manufacturing	Electronics and Hardware Manufacturing
334112	Computer Storage Device Manufacturing	Electronics and Hardware Manufacturing	Electronics and Hardware Manufacturing
334118	Computer Terminal and Other Computer Peripheral Equipment Manufacturing	Electronics and Hardware Manufacturing	Electronics and Hardware Manufacturing
334210	Telephone Apparatus Manufacturing	Electronics and Hardware Manufacturing	Electronics and Hardware Manufacturing
334220	Radio and Television Broadcasting and Wireless Communications Equipment Manufacturing	Electronics and Hardware Manufacturing	Electronics and Hardware Manufacturing
334290	Other Communications Equipment Manufacturing	Electronics and Hardware Manufacturing	Electronics and Hardware Manufacturing
334310	Audio and Video Equipment Manufacturing	Electronics and Hardware Manufacturing	Electronics and Hardware Manufacturing
334412	Bare Printed Circuit Board Manufacturing	Electronics and Hardware Manufacturing	Electronics and Hardware Manufacturing
334413	Semiconductor and Related Device Manufacturing	Electronics and Hardware Manufacturing	Electronics and Hardware Manufacturing
334416	Capacitor, Resistor, Coil, Transformer, and Other Inductor Manufacturing	Electronics and Hardware Manufacturing	Electronics and Hardware Manufacturing
334417	Electronic Connector Manufacturing	Electronics and Hardware Manufacturing	Electronics and Hardware Manufacturing
334418	Printed Circuit Assembly (Electronic Assembly) Manufacturing	Electronics and Hardware Manufacturing	Electronics and Hardware Manufacturing
334419	Other Electronic Component Manufacturing	Electronics and Hardware Manufacturing	Electronics and Hardware Manufacturing
334512	Automatic Environmental Control Manufacturing for Residential, Commercial, and Appliance Use	Electronics and Hardware Manufacturing	Electronics and Hardware Manufacturing
334513	Instruments and Related Products Manufacturing for Measuring, Displaying, and Controlling Industrial Process Variables	Electronics and Hardware Manufacturing	Electronics and Hardware Manufacturing
334514	Totalizing Fluid Meter and Counting Device Manufacturing	Electronics and Hardware Manufacturing	Electronics and Hardware Manufacturing
334515	Instrument Manufacturing for Measuring and Testing Electricity and Electrical Signals	Electronics and Hardware Manufacturing	Electronics and Hardware Manufacturing
334519	Other Measuring and Controlling Device Manufacturing	Electronics and Hardware Manufacturing	Electronics and Hardware Manufacturing
334613	Blank Magnetic and Optical Recording Media Manufacturing	Electronics and Hardware Manufacturing	Electronics and Hardware Manufacturing


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