
Automation in Kentucky: A Look at Automation Risk in Occupations and KCTCS Programs

Background:

Since the industrial revolution, technological advancement has increasingly shaped the workplace by changing the duties, performance, and productivity of workers. As workplaces change, the tasks associated with occupations also change and the skillsets of workers must adapt to keep pace. A recent study by Schwab and Zahidi (2020)¹ estimated 40% of workers will need reskilling over the next five years which suggests new challenges and opportunities are emerging that will test the ability of educational institutions to meet the needs of industry. Technological change creates challenges for educational institutions by producing uncertainty about the future needs of industry, but it also creates opportunities for educational institutions to significantly impact local, national, and global economies. One of the most pressing concerns related to technological change and higher education is occupational automation. Key questions related to occupational automation include: What impact will automation have on job demand and wages? What jobs are likely to automate in the future? What skillsets will workers need as workplaces automate? How can postsecondary institutions anticipate and quickly act to meet the changing needs of industry?

These questions are difficult to answer because they require knowledge about what the future might hold as it relates to technological change within a wide range of industries. It is likely the uptake of automation will be uneven across industries, so it is important to consider which occupations and programs are at risk of automating first. This report explores these questions by analyzing data on occupational automation risk and how it relates to job demand, wages, education level, and programmatic offerings. A key challenge that KCTCS must face as technology advances is aligning the skills produced in its programs with the needs of a modernizing workforce. Understanding how occupational automation will impact the need for programs will impact strategies for aligning educational production with workforce demand.

A popular example of automation impacting the workplace is the emergence of driverless vehicles and the potential of those vehicles to displace workers in the transportation and warehousing industry. A key question many education systems are considering is whether investment in transportation programs is prudent given the potential risk of automation on the horizon. A recent study by Gittleman and Monaco

¹ Schwab, K. & Zahidi, S. (2020). The Future of Jobs Report 2020: World Economic Forum. Available at: [WEF Future of Jobs 2020.pdf \(weforum.org\)](https://www.weforum.org/reports/the-future-of-jobs-2020)

(2020)² found truck driving occupations are not currently in imminent danger of losing many jobs due to automation, and only specific segments of trucking like long hauling are likely to automate in the near term. However, other research suggests the pace of technological adaptation within the workforce is expected to grow and is likely to accelerate in the future (Schwab & Zahidi, 2020)³. Currently, trucking and CDL occupations are in high demand due to increases in delivery demand during the COVID-19 pandemic and the general trend toward online retail in place of brick-and-mortar stores. However, it is unknown when (if ever) we might see demand for transportation jobs decline and when we might see driverless vehicles begin to significantly influence demand for truck drivers.

While researchers are attempting to understand how and when automation will impact occupations like truck driving, there remains a great deal of uncertainty because there are many factors that impact the uptake of automation. For example, machines will likely need to be nimbler on construction sites than they will in factories, which means there are likely to be additional design costs to increase uptake in the construction industry. Theoretically, occupations that have specific needs for automation or occupations that have large incentives to automate (e.g., decreasing worker injury) are most likely to automate first while automation will take longer in occupations that are better performed by humans.

It is also unclear if occupational automation will necessarily lead to the loss of human jobs. Schwab and Zahidi (2020) report that automation during the COVID-19 era forced companies to adapt to worker shortages. Forty-three percent of companies surveyed indicated that they reduced their workforce during the pandemic and 34% indicated that they planned to increase technological integration. The report also suggests that while many jobs are likely to be destroyed due to automation, the number of jobs created is likely to be higher. The report estimates that by 2025, 85 million jobs may be displaced by automation while 97 million new jobs may be created. Thus, while companies are intending to make up for worker shortages through automation, they are also creating new demand for employees who have skills needed to work in modern automated workplaces. Postsecondary institutions must be able to anticipate these shifts to ensure companies have the workforce needed to fill these jobs.

Given the potential impact that automation has on the relevancy of KCTCS' programmatic offerings, it is important for KCTCS to conduct research into the impact of automation on occupations. Specifically, it is important for KCTCS to understand how automation is likely to impact job demand and wages; which occupations are most likely to automate; and which educational programs are linked to those occupations. The purpose of this research is to shed light on some of these questions by exploring automation risk within occupations and programs.

² Gittleman, M., & Monaco, K. (2020). Truck-driving jobs: Are they headed for rapid elimination? *ILR Review*, 73(1), 3-24.

³ Schwab, K. & Zahidi, S. (2020). *The Future of Jobs Report 2020*: World Economic Forum. Available at: [WEF Future of Jobs 2020.pdf \(weforum.org\)](https://www.weforum.org/publications/the-future-of-jobs-report-2020/)

Data:

The [Statewide 2019-2029 Occupational Outlook](#) file and the [2021 Statewide Employment and Wage](#) file from [KYSTATS](#) were used to measure occupation-level job demand and median annual wages. The Occupational Outlook file includes 709 unique occupational codes⁴ and several projections of labor market conditions. To explore the relationship between job demand and automation we utilized the projected annual growth rate, which is the average predicted annual change in employment between 2019 and 2029. The Employment and Wages file was used to measure median annual wages in 2021 of the occupations listed in the Occupational Outlook file. The Employment and Wages file includes 740 occupations with several variables measuring wage characteristics. The data were linked to the Occupational Outlook file by matching SOC codes in each file resulting in matches for 573 occupations.

To measure the predicted risk of occupation-level automation, data were utilized from Economic Modeling Specialists International (EMSI) that measures automation risk using a combination of metrics on the percentage of time spent on work that is considered high-risk for automation, the percentage of time spent on low-risk work, the number of high-risk jobs in compatible occupations, and the overall risk of automation within each industry. The automation risk measure is a scale with a mean of 100 and standard deviation of 15. EMSI calculates the automation index with data from O*NET and Frey and Osborne's (2013)⁵ research on computerization within occupations. The automation risk data are collected at the SOC code level and are linked with the Occupational Outlook file to create the final dataset used for the analysis in this report. The final dataset includes 546 occupations that have complete data on demand, wages, and automation risk.

To explore the risk of automation in KCTCS programs a Classification of Instructional Programs (CIP) to Standard Occupational Classification (SOC) crosswalk file was used that links KCTCS programs to specific occupations. The CIP-to-SOC crosswalk is developed through a collaborative effort between the KCTCS Office of Research and Policy Analysis, Academic Programs and Policy, and with input from KCTCS Curriculum Committees. The file is based on a National CIP-to-SOC crosswalk file that is produced by the [National Center for Education Statistics](#) and is also informed by prior iterations of the KCTCS CIP-to-SOC crosswalk. The CIP-to-SOC crosswalk was used to link the occupations included in the main dataset (i.e., the dataset including occupations that have both demand and automation risk scores) to the current list of active programs at KCTCS. The linkage between KCTCS programs and occupations allows an automation risk score to be applied to each of the KCTCS programs with available data. An important caveat is that KCTCS graduates find jobs in a wide range of occupations that may be quite different than occupations the program is linked to using the crosswalk. This means the automation risk applied to KCTCS programs should only be viewed as an estimate and not as a definitive determination or prediction of automation risk in KCTCS programs.

⁴ 23 of the 709 occupational codes in the Occupational Outlook file are industry aggregates and are excluded from the analysis.

⁵ Frey, C. B., & Osborne, M. A. (2017). The future of employment: How susceptible are jobs to computerisation? *Technological Forecasting and Social Change*, 114, 254-280.

Findings:

Figure 1 highlights the result of a linear regression model that examines the relationship between the automation index and the annual growth rate for occupations. The graph shows that a one unit increase in the automation index reduces the predicted annual growth rate by 0.20%, which is significant at the 99% confidence level. While this may not seem like a huge effect on the surface, the result suggests that occupations with higher automation risk are growing at a slower rate when compared to occupations that have a lower risk of automation.

Figure 1: Automation Index has a significant negative association with the annual growth rate of occupations

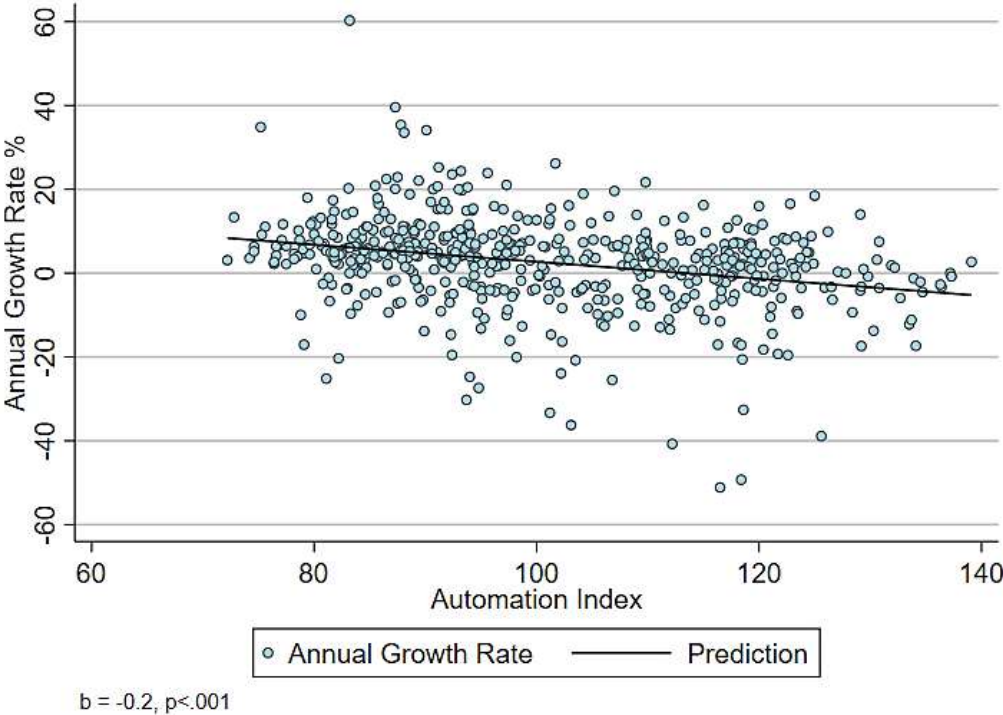
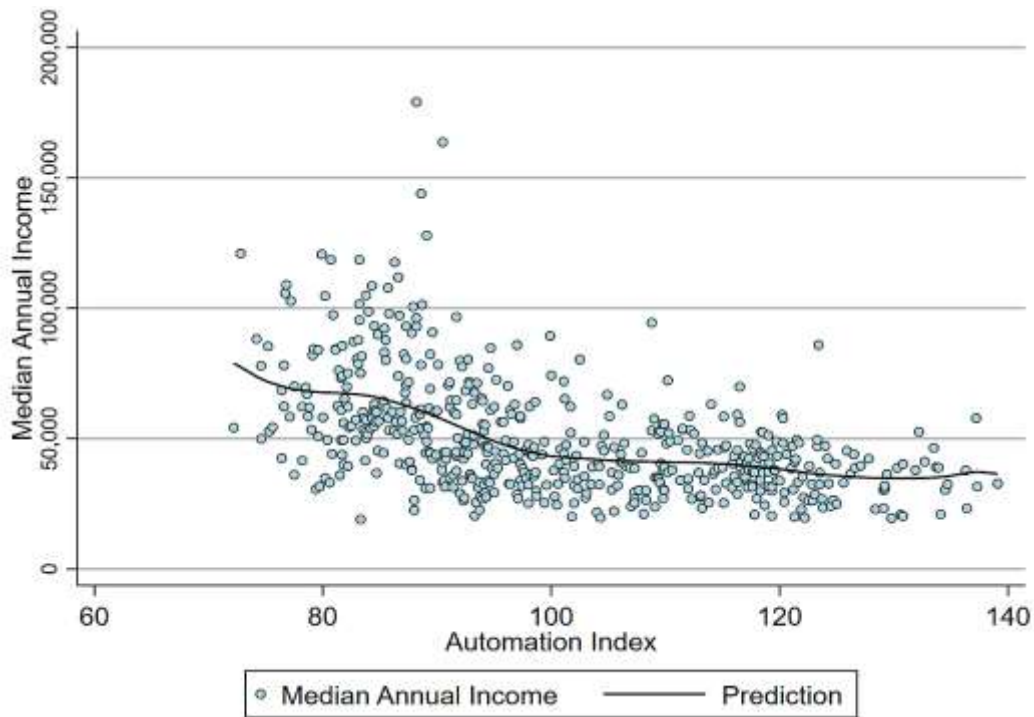


Figure 2 highlights the result of a regression analysis that examines the relationship between the automation index and the median annual income across all occupations. The graph shows that the relationship between the automation index and the median annual income is non-linear, which required the use of a non-linear regression approach to produce the estimated effect. The graph shows a one unit increase in the automation index decreases the predicted median annual income by an average of \$856.15, which suggests jobs with higher automation risk are associated with lower median incomes. It is noticeable in the graph that occupations on the low end of the automation scale are most likely to have incomes greater than \$100,000. Conversely, nearly all the occupations with automation index scores greater than 120 have median annual incomes less than \$50,000. Again, the principal explanation for this pattern in the data is the type of work required in the highest paying occupations. Occupations that are more human-centered like those in the education and healthcare fields are among the least likely occupational fields to experience automation. For example, in the education field, decision-making linked to determining the best educational

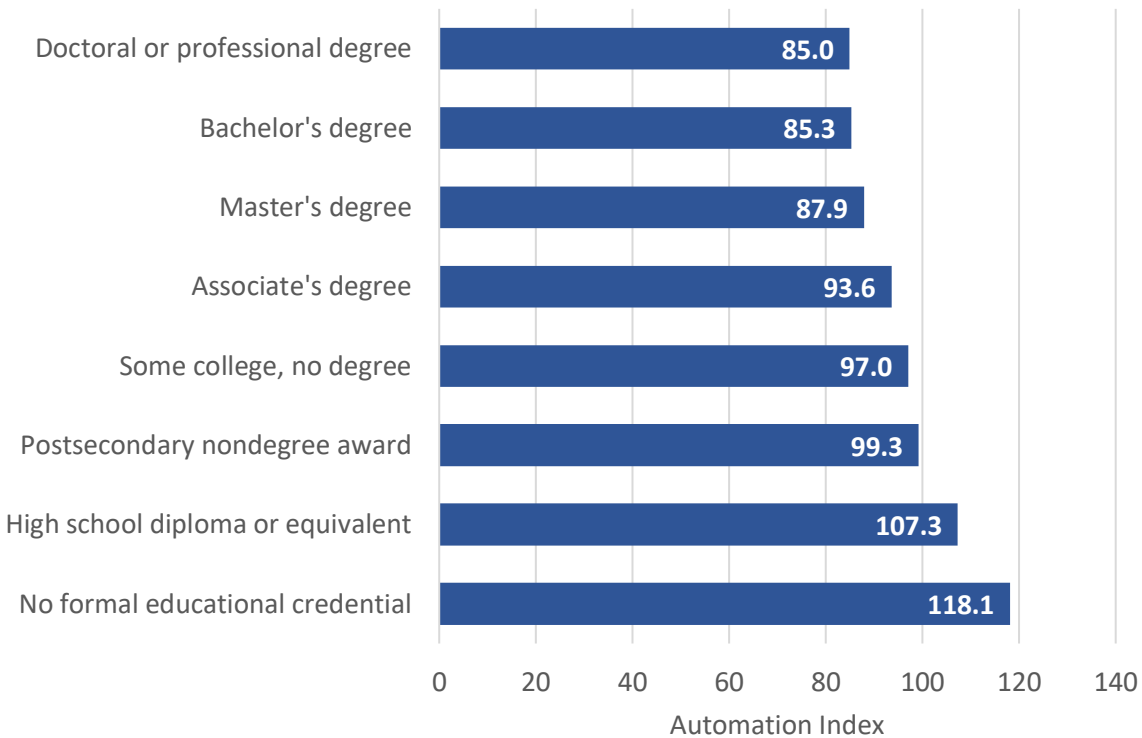
interventions for students with disabilities is best determined by trained educators and psychologists who observe, interact with, and communicate with children with disabilities. Machines will have great difficulty determining how best to educate children who are non-verbal or are not capable of providing direct inputs into any electronic devices and will have even more trouble helping parents through the stress and difficulty of determining the best solutions.

Figure 2: Automation Index has a significant negative association with the median annual income of occupations



While the results of the regression analyses show the automation index is associated with lower job growth and wages, it is likely that the automation index is linked to other variables that also impact the outcome. For example, it was previously mentioned that the type of work commonly conducted within an occupation has a strong impact on automation risk. Another factor that impacts automation risk is the level of education required for the occupation; it is likely that jobs that require higher levels of education involve more complicated tasks that are not easily automated with machines. Figure 3 shows the relationship between the automation index and the typical education level required for entry into occupations. The graph shows that occupations with lower education requirements have higher risk of automation, but only occupations with typical entry education levels at “high school diploma or equivalent” or “no formal education” have above average automation risk (i.e., automation risk greater than 100). From a postsecondary perspective, Figure 3 clearly shows occupations that typically require a postsecondary degree are less likely to face automation risk in the future.

Figure 3: Risk of Automation is linked to the typical education level required for occupations

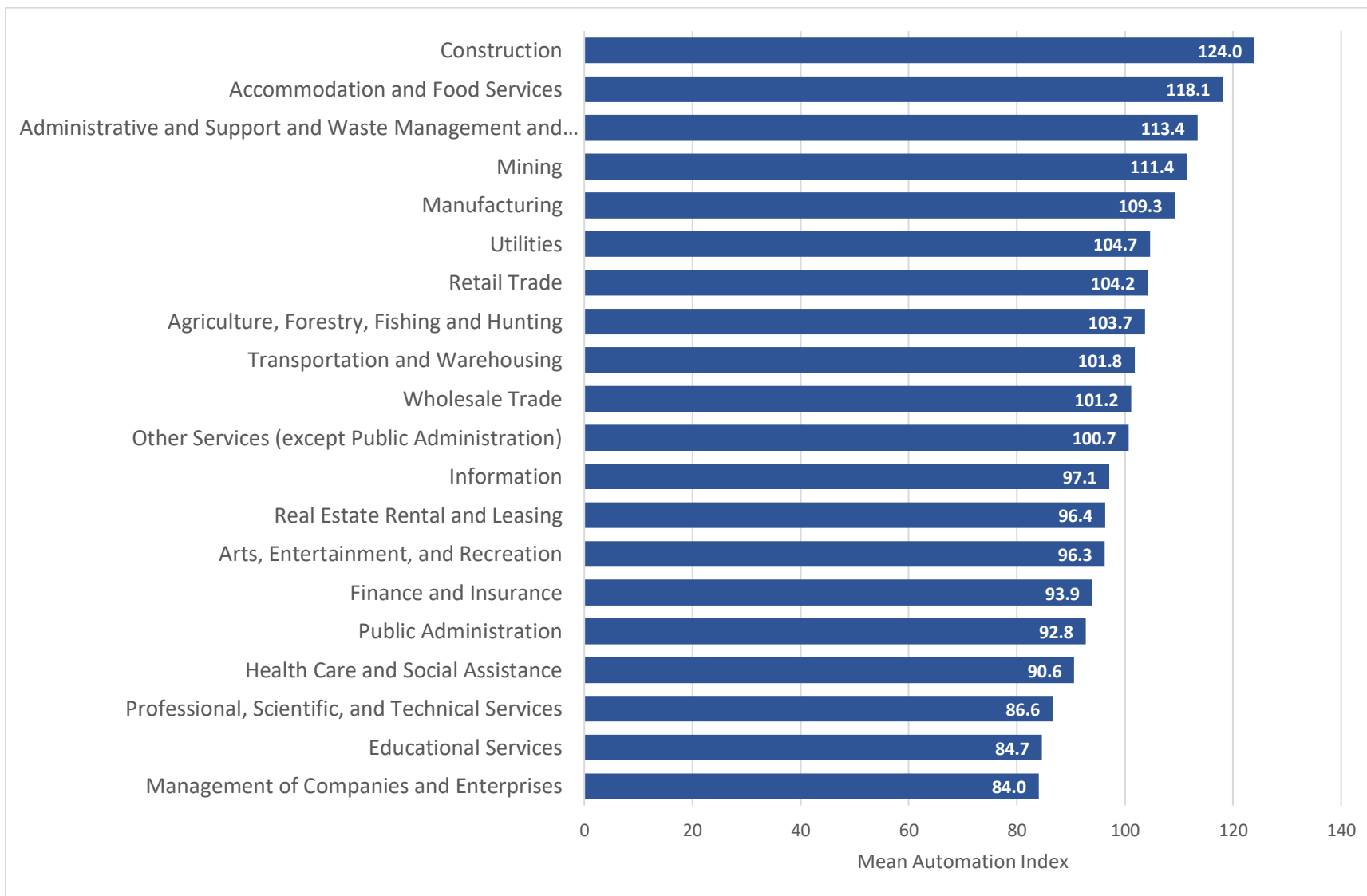


Note: Values above 100 indicate higher than average automation risk.

In addition to education level, the industry sector of occupations may also impact the risk of automation due to within-industry standards, common industry practices, and cultural acceptance of automation. Figure 4 shows construction; accommodation and food service; administrative and support and waste management and remediation services; mining; manufacturing; utilities; retail trade; agriculture, forestry, fishing, and hunting; transportation and warehousing; wholesale trade; and other services (except public administration) have higher than average automation risk. Industry sectors with lower levels of automation risk that are most relevant to KCTCS programs include healthcare and social assistance; professional, scientific, and technical services; finance and insurance; and educational services. Again, the industry sectors that include technical tasks that typically require a higher level of education and that have a human-centered focus are least likely to experience automation in the future⁶. However, there is substantial variation of automation risk across several industry sectors, and that variation translates directly to KCTCS programs.

⁶ Autor, D.H. (2015). Why are there still so many jobs? The history and future of workplace automation. *Journal of Economic Perspectives*, 29(3), 3-30.

Figure 4: Risk of Automation varies across 2-digit NAICS industry sectors



Note: Values above 100 indicate higher than average automation index.

Figure 5 shows the top ten programs in each KCTCS targeted industry sector by risk of automation (See Appendix A for a full list of programs by automation risk). To link programs to occupations KCTCS regularly updates a CIP-to-SOC crosswalk that connects specific KCTCS programs to specific occupations. Overall, healthcare has the fewest number of programs with above average risk of automation (i.e., mean automation index above 100). Alternatively, manufacturing and construction have the highest number of programs with above average risk of automation.

In healthcare, the highest risk programs are Advanced Phlebotomy Technician, Phlebotomist, Phlebotomy Healthcare Worker, and Physician Office Laboratory worker, but these programs are only slightly above average on the automation index. This finding is consistent with other studies on automation that show occupations that are human-centered have a lower risk of automation when compared to occupations that focus on repetitive tasks. Many of the job-related tasks within the healthcare field require employees to be delicate, personable, and comforting to patients. These are tasks that are difficult for machines to achieve. However, there are likely tasks within the healthcare field that require precision, repetition, and the ability to recognize patterns in data. As healthcare costs continue to increase for most patients, the healthcare industry will continue to search for ways to reduce costs, improve tasks like appointment scheduling and patient privacy, and will incorporate automation in many areas.

In transportation and logistics, the top ten programs align to the same occupation, which is Bus and Truck Mechanics and Diesel Engine Specialists. These are careers that will likely continue to automate as vehicle technology continues to computerize. As a result, workers within the transportation field will be required to learn more about technical processes that will be required to maintain, operate, and control new technologies. For example, as more electric vehicles enter the market new programs will be needed to train mechanics on electric motors, batteries, and other related technologies. While the need for heavy equipment mechanics is not going away any time soon, educational institutions should pay close attention to the needs of the transportation industry as it relates to mechanics and other technical services.

In business and IT, the top programs at risk of automation are aligned to occupations related to telecommunications. The programs Alternative Energies, Broadband Technology, Industrial Automation & Robotics Tech, Industrial Networking, Voice and Data Wiring, and Broadband Installation have the highest risk of automation. Again, these programs are highly technical and are at the intersection of human-machine interaction and may be in fields that experience a higher number of jobs resulting from automation. For example, Industrial Automation and Robotics technicians are likely in occupations that are becoming more computerized and technical, but as more companies begin to use robotics there will be demand for technicians who can repair and adjust robots.

In manufacturing, CNC Operators and various welding programs have the highest risk of automation. CNC operators align with the occupation Structural Metal Fabricators and Fitters and welding programs align with the occupation Welders, Cutters, Solderers, and Brazers. The manufacturing industry has been on the leading edge of the automation increase for decades. The reason for this are fairly clear. Manufacturing involves the need to mass produce items for sale into the marketplace. The repetitive

Figure 5: Top 10 KCTCS Programs by Automation Risk and Industry Sector

Healthcare – Occupations Aligned to KCTCS Healthcare Programs	Automation Risk
Advanced Phlebotomy Technician	104.2
Phlebotomist	104.2
Phlebotomy/Healthcare Worker	104.2
Physicians Office Laboratory	104.2
Office Assistant	102
Office Systems	102
Acct Recordkeeping Specialist	101.1
Payroll Accounting Specialist	101.1
Medical Transcription/Scribe	100.7
Medical Transcriptionist	100.7
Transportation and Logistics – Occupations Aligned to KCTCS Transportation and Logistics Programs	
Agriculture Equipment Mech Helper	114.6
Construction Equipment Mech Helper	114.6
Construction Equipment Tech	114.6
Diesel Engine Mechanic	114.6
Diesel Mechanics Assistant	114.6
Diesel Steering Suspension Mech	114.6
Electrical/Electronic Sys Mech	114.6
Engine Technician	114.6
Fluid Power Mechanic	114.6
Heavy Duty Brake Mechanic	114.6
Business and IT – Occupations Aligned to KCTCS Business & IT Programs	
Alternative Energies Level I	116.9
Ind Auto & Robotics Tech Lvl I	116.9
Industrial Networking	116.9
Voice & Data Wiring Inst Lvl I	116.9
Voice & Data Wiring Technician	116.9
Voice & Data Wiring Inst Lvl 2	116.9
Broadband Technology	109.0
Broadband Basic Installer	105.1
Broadband Support Technician	105.1
Broadband Technician Specialist	105.1
Manufacturing – Occupations Aligned to KCTCS Manufacturing Programs	
CNC Operator I	130.3
ARC Cutter	121.4
ARC Welder	121.4
AWS Nat'l Skill Stand Level I	121.4
Combination Welder	121.4
Gas Metal Arc Welder	121.4
Gas Tungsten Arc Welder	121.4
Gas Welder	121.4
Pipeline Welder	121.4
Production Line Welder	121.4
Construction – Occupations Aligned to KCTCS Construction Programs	
Painter, Interior Finish	136.3
Painter, Paper Hanger	136.3
Stone Mason	134.4
Bricklayer Helper	133.5
Bricklayer Trainee	133.5
Construction Bricklayer	133.5
Construction Mason	133.5
Acoustical Carpenter	132.7
Drywaller	132.7
Residential Roofer	130.8

Notes: Business and IT reflect programs aligned to Finance and Insurance; Information; and Professional, Scientific, and Technical Services occupations. Values above 100 indicate higher than average automation risk.

nature of mass production initially led to the creation of the assembly line, which then was improved multiple times until companies perfected the processes. A recent study by Frenette and Frank (2020)⁷ found that not only was manufacturing among the industries with the highest risk of automation, it ranked first for the percent of employees at high risk of jobs transformation due to automation. Thus, as we think about the type of occupations that are likely to automate it is important to also consider how many employees work in those occupations to determine how many people could potentially be displaced. Within manufacturing, the evolution of the assembly line will continue as companies determine how to incorporate robotics, artificial intelligence, and other forms of automation that greatly improve productivity and make work environments safer.

Finally, in construction, the programs at highest risk of automation are Painters, Stone Masons, Bricklayers, Carpenters, Drywallers, and Residential Roofers. While the manufacturing industry has been leading in the increase in automation for decades, the construction field has the highest risk to automate moving forward. This likely means the construction industry will attempt to catch up to the level of automation within the manufacturing industry. Again, construction has many repetitive and dangerous tasks that companies will look to automate to improve efficiency and safety, but automation within the construction industry has additional challenges that have made uptake of various technologies slower and more difficult (e.g., difficult work conditions).

Conclusions:

The results of this research brief highlight several important findings related to the impact of automation on occupations and programs. First, the results showed automation risk has a significant negative relationship with the annual growth rate and median annual income of occupations. While the analysis performed for this research brief do not establish a causal relationship between automation and the annual growth rate and median annual income, they do show that there is a significant association. More research is needed to evaluate the relationship between automation risk and occupations to better identify causal mechanisms. Further, more research is needed to determine whether valid predictions of occupational automation can be made with the automation risk scores produced by EMSI.

The results of the report also suggest automation impacts occupations requiring lower levels of education. This result likely suggests occupations with higher levels of education attainment involve fewer tasks that machines can perform. Additionally, this finding suggests KCTCS should continue to promote the value of higher education because occupations that require higher level credentials are more likely to be sustained as the economy continues to automate. Additionally, KCTCS should continue to work with business partners to determine how best to respond to the emerging needs of companies as they introduce more automated processes into their businesses.

⁷ Frenette, M., & Frank, K. (2020). *Automation and Job Transformation in Canada: Who's at Risk?*. Statistics Canada. Available at: [Automation and Job Transformation in Canada: Who's at Risk? \(researchgate.net\)](https://researchgate.net)

Another finding from the report shows automation risk varies substantially across industry sectors. Again, the reason for the variation in automation risk across industry sectors is related to the type of tasks that are commonly performed within various industries. The manufacturing industry has successfully integrated automated processes at a faster rate than other industry sectors primarily due to the nature of repetitive tasks that are commonly found in manufacturing processes. The report showed construction currently has the highest overall risk of automation, but several other industries are also facing significant automation risk.

A key caveat to industry automation is that the implementation of automation does not necessarily mean jobs will be lost. For example, commercial airplanes have relied on automated piloting systems for many years, but planes still require pilots to safely fly. However, the educational and training demands for pilots changed with the introduction of automated piloting systems, which required the aviation industry to change its training practices. For KCTCS to continue to maintain its place as the key provider of workforce education in Kentucky, it must track changes by conducting research to understand how the skillsets of automated industries will change in the future. This will likely require research using available data sources that will help track when, where, and to which occupations automation is likely to impact, but also will require KCTCS to continue its outreach efforts to companies to promote a better understanding of specific skill needs within the context of automation.

Finally, the results of the report showed there is significant variation in automation risk across KCTCS programs. KCTCS programs are linked to occupations based on the type of skills that the program trains for and the typical skills needed for occupations. Not surprisingly, programs that align with the construction and manufacturing industries have the highest risk of automation. As KCTCS continues to prepare students for the workforce its leadership, faculty, and staff must continue to stay informed on the patterns of automation within various industry sectors so new programs can be created and existing programs modified to meet industry needs. This will require working with faculty, advisors, and subject matter experts including industry experts and accreditation experts who can help guide colleges along the path toward producing high-quality training programs.

Recommendations:

Based on the results of the analysis we make the following recommendations related to automation, occupations, and KCTCS programs.

1. More research is needed to determine the validity of the automation index for tracking automation risk in occupations. Simultaneously, more research is needed to identify alternative methods for quantifying occupational and programmatic risk of automation.
2. As KCTCS and its Workforce Solutions departments continue to engage with business leaders and organizations to determine future education and training needs, the impact of automation and technological advancements should be considered. This is particularly important in industry sectors with more

pronounced automation risk.

- a. How can KCTCS incorporate high-quality industry feedback to help advise KCTCS in identifying needed programs.
 - b. Is there work on the horizon to automate and streamline current processes?
 - c. How might technology change in future years? When is this expected to occur?
 - d. What skillsets will new technology require as occupations become more automated?
3. KCTCS should continue to conduct research into education and workforce alignment to promote a better understanding of patterns of graduate production and industry demand. Additionally, research must address the skill alignment between education/training programs and industry needs to accommodate automation and other technological advances.
 4. KCTCS should continue to recognize the regional differences that may impact the uptake of automation technologies and how those regional differences may translate to both challenges and opportunities for KCTCS colleges.

Appendix: KCTCS Targeted Industry Sector (TIS) Programs by SOC and Automation Risk

CIP Title	SOC Title	Automation Index
Business and IT		
Alternative Energies Level I	Telecommunications Line Installers and Repairers	116.9
Broadband Technology	Telecommunications Line Installers and Repairers	116.9
Ind Auto & Robotics Tech Lvl I	Telecommunications Line Installers and Repairers	116.9
Industrial Networking	Telecommunications Line Installers and Repairers	116.9
Voice & Data Wiring Inst Lvl I	Telecommunications Line Installers and Repairers	116.9
Voice & Data Wiring Technician	Telecommunications Line Installers and Repairers	116.9
Voice & Data Wiring Inst Lvl 2	Telecommunications Line Installers and Repairers	116.9
Broadband Basic Installer	Telecommunications Equipment Installers and Repairers, Except Line Installers	105.1
Broadband Support Technician	Telecommunications Equipment Installers and Repairers, Except Line Installers	105.1
Broadband Technician Specialis	Telecommunications Equipment Installers and Repairers, Except Line Installers	105.1
Broadband Technology	Telecommunications Equipment Installers and Repairers, Except Line Installers	105.1
Broadband Telecommunications	Telecommunications Equipment Installers and Repairers, Except Line Installers	105.1
Accounting	Bookkeeping, Accounting, and Auditing Clerks	103.6
Accounting	Bookkeeping, Accounting, and Auditing Clerks	103.6
Administrative Office Tech	Bookkeeping, Accounting, and Auditing Clerks	103.6
Business Administration	Bookkeeping, Accounting, and Auditing Clerks	103.6
Business Transfer	Bookkeeping, Accounting, and Auditing Clerks	103.6
Financial Assistant	Bookkeeping, Accounting, and Auditing Clerks	103.6
Financial Assistant Clerk	Bookkeeping, Accounting, and Auditing Clerks	103.6
Financial Assistant Trainee	Bookkeeping, Accounting, and Auditing Clerks	103.6
Financial Perspectives	Bookkeeping, Accounting, and Auditing Clerks	103.6
Financial Record Keeper	Bookkeeping, Accounting, and Auditing Clerks	103.6
Financial & Customer Services	Tellers	102.3
Administrative Office Tech	Legal Secretaries and Administrative Assistants	98.2
Paralegal Certificate	Legal Secretaries and Administrative Assistants	98.2
Audio Production	Audio and Video Technicians	97.8

Audio Recording	Audio and Video Technicians	97.8
Multimedia	Audio and Video Technicians	97.8
Video Production	Audio and Video Technicians	97.8
Visual Comm: Multimedia	Audio and Video Technicians	97.8
Medical Interpreter	Interpreters and Translators	95.6
Administrative Office Tech	Desktop Publishers	94.8
Basic Business Presentation	Desktop Publishers	94.8
Design Assistant	Desktop Publishers	94.8
Desktop Publishing	Desktop Publishers	94.8
Desktop Publishing Specialist	Desktop Publishers	94.8
Digital Design	Desktop Publishers	94.8
Graphic Design	Desktop Publishers	94.8
Mixed Media Design	Desktop Publishers	94.8
Multimedia	Desktop Publishers	94.8
Production Design Assistant	Desktop Publishers	94.8
Visual Comm: Design & Tech	Desktop Publishers	94.8
Visual Comm: Multimedia	Desktop Publishers	94.8
Surveying Technician I (INT)	Surveying and Mapping Technicians	94.3
Surveying Technician II (INT)	Surveying and Mapping Technicians	94.3
Core Filmmaking Skills	Film and Video Editors	94.1
Digital Editing for Film	Film and Video Editors	94.1
Digital Video	Film and Video Editors	94.1
Directing for Filmmaking	Film and Video Editors	94.1
Filmmaking and Cinematic Art	Film and Video Editors	94.1
Filmmaking: Script to Screen	Film and Video Editors	94.1
CAD Technician	Electrical and Electronics Drafters	91
Engineering & Electronics Tech	Electrical and Electronics Drafters	91
Veterinary Technology	Veterinary Technologists and Technicians	90.7
Advanced Biotechnician	Biological Technicians	90.4
Basic Biotechnician	Biological Technicians	90.4

Bioinformatics	Biological Technicians	90.4
Biotech Laboratory Assistant	Biological Technicians	90.4
Biotechnology Laboratory Tech	Biological Technicians	90.4
Environmental Biotechnician	Biological Technicians	90.4
e-Discovery Technology	Paralegals and Legal Assistants	89.4
Legal Nurse Consultant	Paralegals and Legal Assistants	89.4
Legal Technology	Paralegals and Legal Assistants	89.4
Paralegal Technology	Paralegals and Legal Assistants	89.4
Associate in Fine Arts-Theatre	Producers and Directors	89.1
Architectural Designer	Architectural and Civil Drafters	88.9
Architectural Technology	Architectural and Civil Drafters	88.9
Civil Drafter	Architectural and Civil Drafters	88.9
Computer Aided Drafting/Design	Architectural and Civil Drafters	88.9
Computer Aided Drafting/Design	Architectural and Civil Drafters	88.9
Computer Assisted Drafter	Architectural and Civil Drafters	88.9
Detailer	Architectural and Civil Drafters	88.9
Drafter Assistant	Architectural and Civil Drafters	88.9
Social Media Marketing	Market Research Analysts and Marketing Specialists	88.6
Social Media Specialist	Market Research Analysts and Marketing Specialists	88.6
Fundamentals of Mechatronics	Engineers, All Other	88.2
AWS Cloud Architecture	Computer Network Support Specialists	86.9
Broadband Cyber Security Techn	Computer Network Support Specialists	86.9
Cisco Networking	Computer Network Support Specialists	86.9
Cisco Networking Enhanced	Computer Network Support Specialists	86.9
Digital Forensics Specialist	Computer Network Support Specialists	86.9
Informatics Advanced	Computer Network Support Specialists	86.9
Microsoft Enterprise Adm	Computer Network Support Specialists	86.9
Microsoft Network Administratr	Computer Network Support Specialists	86.9
Net+ Prep	Computer Network Support Specialists	86.9
Network Technologies Spcialist	Computer Network Support Specialists	86.9

Security+ Prep	Computer Network Support Specialists	86.9
Computer and Information Tech	Computer Network Support Specialists	86.9
Computer Engineering Technolog Programmer	Computer Occupations, All Other	85.5
3D Printing Technician-Level I	Computer Programmers	83.3
A+ Prep	Computer User Support Specialists	82.9
Application Support Technician	Computer User Support Specialists	82.9
CIT Fundamentals	Computer User Support Specialists	82.9
Computer and Information Tech	Computer User Support Specialists	82.9
Computer Maintenance	Computer User Support Specialists	82.9
Computer Maintenance Tech	Computer User Support Specialists	82.9
Computer Tech Basic	Computer User Support Specialists	82.9
Computer Technician	Computer User Support Specialists	82.9
Engineering & Electronics Tech	Computer User Support Specialists	82.9
Informatics Generalist	Computer User Support Specialists	82.9
Informatics Programming	Computer User Support Specialists	82.9
Productivity Software Spcialst	Computer User Support Specialists	82.9
Communication Arts Technology	Graphic Designers	80.8
Digital Wraps	Graphic Designers	80.8
Entrepren Cert for Visual Comm	Graphic Designers	80.8
Graphic Design	Graphic Designers	80.8
Graphic Design	Graphic Designers	80.8
Graphic Design	Graphic Designers	80.8
Graphic Design & Library Tech	Graphic Designers	80.8
Screen Printing	Graphic Designers	80.8
Visual Comm: Design & Tech	Graphic Designers	80.8
Application of Geospatial Tech	Geoscientists, Except Hydrologists and Geographers	77.5
Communication Arts Technology	Web Developers	Data Not Available
Mobile Apps Developer	Web Developers	Data Not Available
Multimedia	Web Developers	Data Not Available

Security Management Coordinator	Managers, All Other	Data Not Available
Video Game Design	Software Developers	Data Not Available
Video Game Designer	Software Developers	Data Not Available
Visual Comm: Multimedia	Web Developers	Data Not Available
Web Design	Web Developers	Data Not Available
Web Programmer	Web Developers	Data Not Available
Web Server Administrator	Web Developers	Data Not Available
Construction		
Painter, Interior Finish	Painters, Construction and Maintenance	136.3
Painter, Paper Hanger	Painters, Construction and Maintenance	136.3
Stone Mason	Stonemasons	134.4
Bricklayer Helper	Brickmasons and Blockmasons	133.5
Bricklayer Trainee	Brickmasons and Blockmasons	133.5
Construction Bricklayer	Brickmasons and Blockmasons	133.5
Construction Mason	Brickmasons and Blockmasons	133.5
Acoustical Carpenter	Drywall and Ceiling Tile Installers	132.7
Drywaller	Drywall and Ceiling Tile Installers	132.7
Residential Roofer	Roofers	130.8
Basic Carpenter	Carpenters	125.9
Carpenter Helper	Carpenters	125.9
Construction Carpenter	Carpenters	125.9
Construction Forms Helper	Carpenters	125.9
Construction Technology	Carpenters	125.9
Finish Carpenter	Carpenters	125.9
Residential Carpenter	Carpenters	125.9
Residential Site Layout Assist	Carpenters	125.9
Rough Carpenter	Carpenters	125.9
Bulldozer Operator	Operating Engineers and Other Construction Equipment Operators	120.3
Hydraulic Excavator Operator	Operating Engineers and Other Construction Equipment Operators	120.3
Hydraulic Excavator Operator	Operating Engineers and Other Construction Equipment Operators	120.3

Motor-Grader Operator	Operating Engineers and Other Construction Equipment Operators	120.3
Operating Engineer	Operating Engineers and Other Construction Equipment Operators	120.3
Operating Engineer	Operating Engineers and Other Construction Equipment Operators	120.3
Inexperienced Surface Trainee	Paving, Surfacing, and Tamping Equipment Operators	117.3
1st Year Plumber Mechanic	Plumbers, Pipefitters, and Steamfitters	116.3
2nd Year Plumber Mechanic	Plumbers, Pipefitters, and Steamfitters	116.3
Backhoe Operator	Excavating and Loading Machine and Dragline Operators, Surface Mining	116.3
Certified Backflow Tester	Plumbers, Pipefitters, and Steamfitters	116.3
Finish Plumber	Plumbers, Pipefitters, and Steamfitters	116.3
Front-End Loader Operator	Excavating and Loading Machine and Dragline Operators, Surface Mining	116.3
Maintenance Plumber	Plumbers, Pipefitters, and Steamfitters	116.3
Plumber Estimator	Plumbers, Pipefitters, and Steamfitters	116.3
Plumber Mechanic	Plumbers, Pipefitters, and Steamfitters	116.3
Plumber's Helper	Plumbers, Pipefitters, and Steamfitters	116.3
Plumbing Technology	Plumbers, Pipefitters, and Steamfitters	116.3
Rough Plumber	Plumbers, Pipefitters, and Steamfitters	116.3
Service and Repair Plumber	Plumbers, Pipefitters, and Steamfitters	116.3
Air Conditioning Technology	Heating, Air Conditioning, and Refrigeration Mechanics and Installers	113
Ammonia Refrigeration Fund	Heating, Air Conditioning, and Refrigeration Mechanics and Installers	113
Domestic Air Cond & Furnace	Heating, Air Conditioning, and Refrigeration Mechanics and Installers	113
Heat Ventilation Air Cond Mech	Heating, Air Conditioning, and Refrigeration Mechanics and Installers	113
Industrial Refrigeration	Heating, Air Conditioning, and Refrigeration Mechanics and Installers	113
Refrigeration Mechanic	Heating, Air Conditioning, and Refrigeration Mechanics and Installers	113
Auto Indus Control Tech Lvl II	Electricians	110.3
Auto Indus Controls Tech Lvl I	Electricians	110.3
Construction Electrician Lv II	Electricians	110.3
Construction Electrician LvIII	Electricians	110.3
Construction Electrician Lvl I	Electricians	110.3
Electrical Technology	Electricians	110.3
Electrical Technology	Electricians	110.3

Industrial Electrician Level I	Electricians	110.3
Industrial Electrician Lvl II	Electricians	110.3
Green Building Technology	First-Line Supervisors of Construction Trades and Extraction Workers	106.2
Mining Technology	First-Line Supervisors of Construction Trades and Extraction Workers	106.2
NCCER Skills Standard Level I	First-Line Supervisors of Construction Trades and Extraction Workers	106.2
Surface Supervisor	First-Line Supervisors of Construction Trades and Extraction Workers	106.2
Underground Supervisor	First-Line Supervisors of Construction Trades and Extraction Workers	106.2
Surface Operator	Earth Drillers, Except Oil and Gas	Data Not Available
Healthcare		
Advanced Phlebotomy Technician	Phlebotomists	104.2
Phlebotomist	Phlebotomists	104.2
Phlebotomist	Phlebotomists	104.2
Phlebotomist	Phlebotomists	104.2
Phlebotomy/Healthcare Worker	Phlebotomists	104.2
Physicians Office Laboratory	Phlebotomists	104.2
Office Assistant	Office Clerks, General	102
Office Systems	Office Clerks, General	102
Acct Recordkeeping Specialist	Payroll and Timekeeping Clerks	101.1
Payroll Accounting Specialist	Payroll and Timekeeping Clerks	101.1
Payroll Accounting Specialist	Payroll and Timekeeping Clerks	101.1
Medical Information Technology	Medical Transcriptionists	100.7
Medical Transcription/Scribe	Medical Transcriptionists	100.7
Medical Transcriptionist	Medical Transcriptionists	100.7
Community Dental Health Coord	Healthcare Support Workers, All Other	98.4
Community Healthcare Worker	Healthcare Support Workers, All Other	98.4
Health Care Foundations- Basic	Healthcare Support Workers, All Other	98.4
Health Care Foundations- Inter	Healthcare Support Workers, All Other	98.4
Health Science Technology	Healthcare Support Workers, All Other	98.4
Dental Assisting (Integrated)	Dental Assistants	97.5
Certified Medical Tech	Medical Assistants	97.3

Diagnostic Medical Sonography	Medical Assistants	97.3
Medical Assisting	Medical Assistants	97.3
Medical Assisting (INT)	Medical Assistants	97.3
Medical Office Insurance Billing and Coding	Medical Assistants	97.3
Advanced Nursing Assistant	Nursing Assistants	97
AHA Advanced Cardiac Life Support	Nursing Assistants	97
Kentucky Medication Aide	Nursing Assistants	97
Medicaid Nurse Aide	Nursing Assistants	97
Coronal Polishing	Dental Hygienists	96.8
Dental Hygiene	Dental Hygienists	96.8
Dental Hygiene (Integrated)	Dental Hygienists	96.8
Dental Radiography	Dental Hygienists	96.8
Local Anes & Nitrous Oxide Sed	Dental Hygienists	96.8
Business Administration	Human Resources Assistants, Except Payroll and Timekeeping	95.8
Human Resource Management	Human Resources Assistants, Except Payroll and Timekeeping	95.8
Nuclear Med & Molec Imag Tech	Nuclear Medicine Technologists	95.2
Legal Receptionist	Receptionists and Information Clerks	94.2
Receptionist	Receptionists and Information Clerks	94.2
Basic Cardiac Ultrasound Technology	Radiologic Technologists and Technicians	94.1
Radiography	Radiologic Technologists and Technicians	94.1
Adv Imaging in Radiography	Radiologic Technologists and Technicians	94.1
Diagnostic Medical Sonography	Diagnostic Medical Sonographers	93.3
Adv Practice Respira Therapist	Respiratory Therapists	93.2
Respiratory Therapist	Respiratory Therapists	93.2
Hospital Admissions Specialist	Medical Secretaries and Administrative Assistants	93.1
Medical Administrative Asst	Medical Secretaries and Administrative Assistants	93.1
Medical Assisting	Medical Secretaries and Administrative Assistants	93.1
Medical Assisting	Medical Secretaries and Administrative Assistants	93.1
Medical Information Technology	Medical Secretaries and Administrative Assistants	93.1
Medical Office Admin Assistant	Medical Secretaries and Administrative Assistants	93.1

Medical Office Administrative Assistant	Medical Secretaries and Administrative Assistants	93.1
Medical Office Billing and Cod	Medical Secretaries and Administrative Assistants	93.1
Medical Office Limited Rad	Medical Secretaries and Administrative Assistants	93.1
Medical Receptionist	Medical Secretaries and Administrative Assistants	93.1
Medical Unit Coordinator	Medical Secretaries and Administrative Assistants	93.1
Industrial Safety and Security	Occupational Health and Safety Specialists	92.5
Electrocardiogram Technician	Cardiovascular Technologists and Technicians	91.7
Electrocardiograph Technician	Cardiovascular Technologists and Technicians	91.7
Electrocardiographic & Cardiac	Cardiovascular Technologists and Technicians	91.7
Invasive Cardiology	Cardiovascular Technologists and Technicians	91.7
Aging Services	Social and Human Service Assistants	89.4
Client Service Coordinator	Social and Human Service Assistants	89.4
Direct Support Work	Social and Human Service Assistants	89.4
Human Services	Social and Human Service Assistants	89.4
Psychiatric Mental Health Technician	Social and Human Service Assistants	89.4
Recovery Coach	Social and Human Service Assistants	89.4
Surgical Technologist	Surgical Technologists	89
Surgical Technology	Surgical Technologists	89
Surgical Technology	Surgical Technologists	89
Environmental Science Tech	Environmental Science and Protection Technicians, Including Health	88.5
Hazardous Materials Technician	Environmental Science and Protection Technicians, Including Health	88.5
Waste Processing Attendant	Environmental Science and Protection Technicians, Including Health	88.5
Wastewater Treatment Plant Att	Environmental Science and Protection Technicians, Including Health	88.5
Water Treatment Plant Attendan	Environmental Science and Protection Technicians, Including Health	88.5
Physical Therapist Assistant	Physical Therapist Assistants	88.1
Child Care Assistant	Childcare Workers	88
Interdisc Early Childhood Educ	Childcare Workers	88
Interdisc Early Childhood Tech	Childcare Workers	88
KY Child Care Provider	Childcare Workers	88
School Age Child Care	Childcare Workers	88

Occupational Therapy Assistant	Occupational Therapy Assistants	87.3
Massage Therapy	Massage Therapists	86.5
Massage Therapy Technology	Massage Therapists	86.5
Aging Services	Social and Community Service Managers	85.7
Client Service Coordinator	Social and Community Service Managers	85.7
Direct Support Work	Social and Community Service Managers	85.7
Human Services	Social and Community Service Managers	85.7
Psychiatric Mental Health Tech	Social and Community Service Managers	85.7
Recovery Coach	Social and Community Service Managers	85.7
Nursing	Registered Nurses	85.3
Nursing Career Mobility	Registered Nurses	85.3
Nursing Integrated Program	Registered Nurses	85.3
Practical Nurse	Licensed Practical and Licensed Vocational Nurses	84.8
Practical Nurse	Licensed Practical and Licensed Vocational Nurses	84.8
Practical Nurse(Acad/Career)	Licensed Practical and Licensed Vocational Nurses	84.8
Practical Nursing Integrated	Licensed Practical and Licensed Vocational Nurses	84.8
Early Childhood Administrator	Education and Childcare Administrators, Preschool and Daycare	77.5
Interdisc Early Childhood Educ	Education and Childcare Administrators, Preschool and Daycare	77.5
Advanced Emergency Medical Tec	Emergency Medical Technicians	Data Not Available
Biomedical Science – PLTW	Health Technologists and Technicians, All Other	Data Not Available
Client Support Specialist	Health Technologists and Technicians, All Other	Data Not Available
Electronic Health Records Spec	Medical Records Specialists	Data Not Available
Emergency Medical Responder	Emergency Medical Technicians	Data Not Available
Emergency Medical Technician	Emergency Medical Technicians	Data Not Available
EMS- Paramedic	Emergency Medical Technicians	Data Not Available
EMS- Paramedic	Emergency Medical Technicians	Data Not Available
Fire Science Technology	Emergency Medical Technicians	Data Not Available
Health Information Technology	Medical Records Specialists	Data Not Available
Health Science Technology	Health Technologists and Technicians, All Other	Data Not Available
HIT Coding	Medical Records Specialists	Data Not Available

Med Coding/ Reimburs Specialist	Medical Records Specialists	Data Not Available
Medical Coding	Medical Records Specialists	Data Not Available
Medical Information Technology	Medical Records Specialists	Data Not Available
Medical Laboratory Technician	Medical and Clinical Laboratory Technicians	Data Not Available
Medical Records Specialist	Medical Records Specialists	Data Not Available
Release of Information Data Sp	Medical Records Specialists	Data Not Available
Surgical First Assisting	Medical Dosimetrists	Data Not Available
Surgical First Assisting	Medical Dosimetrists	Data Not Available
Telehealth Technician Associat	Medical Records Specialists	Data Not Available
Manufacturing		
CNC Operator I	Structural Metal Fabricators and Fitters	130.3
ARC Cutter	Welders, Cutters, Solderers, and Brazers	121.4
ARC Welder	Welders, Cutters, Solderers, and Brazers	121.4
AWS Nat'I Skill Stand Level I	Welders, Cutters, Solderers, and Brazers	121.4
Combination Welder	Welders, Cutters, Solderers, and Brazers	121.4
Gas Metal Arc Welder	Welders, Cutters, Solderers, and Brazers	121.4
Gas Tungsten Arc Welder	Welders, Cutters, Solderers, and Brazers	121.4
Gas Welder	Welders, Cutters, Solderers, and Brazers	121.4
Pipeline Welder	Welders, Cutters, Solderers, and Brazers	121.4
Production Line Welder	Welders, Cutters, Solderers, and Brazers	121.4
Shielded Metal Arc Welder	Welders, Cutters, Solderers, and Brazers	121.4
Tack Welder	Welders, Cutters, Solderers, and Brazers	121.4
Welder Helper	Welders, Cutters, Solderers, and Brazers	121.4
Welding Automation	Welders, Cutters, Solderers, and Brazers	121.4
Welding Technology	Welders, Cutters, Solderers, and Brazers	121.4
Tool and Die Apprentice	Tool and Die Makers	120.2
Machine Tool Operator I	Multiple Machine Tool Setters, Operators, and Tenders, Metal and Plastic	119.1
Machine Tool Operator II	Multiple Machine Tool Setters, Operators, and Tenders, Metal and Plastic	119.1
Automotive Painter	Coating, Painting, and Spraying Machine Setters, Operators, and Tenders	118.3
Automotive Painter Helper	Coating, Painting, and Spraying Machine Setters, Operators, and Tenders	118.3

Chiller Maintenance	Cooling and Freezing Equipment Operators and Tenders	117.6
Plastics Processing	Molding, Coremaking, and Casting Machine Setters, Operators, and Tenders, Metal and Plastic	117
Plastics Processing	Molding, Coremaking, and Casting Machine Setters, Operators, and Tenders, Metal and Plastic	117
Packaging Technician	Packaging and Filling Machine Operators and Tenders	116.9
CNC Machining & Waterjet Tech	Computer Numerically Controlled Tool Operators	116
CNC Operator II	Computer Numerically Controlled Tool Operators	116
Exploratory Machining I	Computer Numerically Controlled Tool Operators	116
Exploratory Machining I	Computer Numerically Controlled Tool Operators	116
Brewer's Assistant	Separating, Filtering, Clarifying, Precipitating, and Still Machine Setters, Operators, and Tenders	115.3
Cellaring Technician	Separating, Filtering, Clarifying, Precipitating, and Still Machine Setters, Operators, and Tenders	115.3
Fermentation Science	Separating, Filtering, Clarifying, Precipitating, and Still Machine Setters, Operators, and Tenders	115.3
Industrial Maintenance Tech	Machinists	115.2
Machinist	Machinists	115.2
Orthotics and Prosthetics Tech	Medical Appliance Technicians	115
Alternative Energy	Maintenance Workers, Machinery	111.5
Multi-Skilled Maint Apprentice	Maintenance Workers, Machinery	111.5
Chemical Operator	Chemical Equipment Operators and Tenders	110.4
Automation Technician	Mechanical Engineering Technologists and Technicians	109.9
Boiler Maintenance	Stationary Engineers and Boiler Operators	109.9
Instrumentation Technician	Mechanical Engineering Technologists and Technicians	109.9
Mechanical	Mechanical Engineering Technologists and Technicians	109.9
Mechanical Engineering Tech	Mechanical Engineering Technologists and Technicians	109.9
Mechanical Technician	Mechanical Engineering Technologists and Technicians	109.9
Skilled Operator	Mechanical Engineering Technologists and Technicians	109.9
Industrial Maintenance Tech	Industrial Machinery Mechanics	109.8
Industrial Maintenance Tech	Industrial Machinery Mechanics	109.8
Integrated Engineering Tech	Industrial Machinery Mechanics	109.8
Integrated Engineering Tech	Industrial Machinery Mechanics	109.8
Mining Technology	Industrial Machinery Mechanics	109.8
Underground Mechanic/Electrician	Industrial Machinery Mechanics	109.8

Quality Monitor	Inspectors, Testers, Sorters, Samplers, and Weighers	106.1
Quality Technician	Inspectors, Testers, Sorters, Samplers, and Weighers	106.1
Digital Imaging Assistant	Prepress Technicians and Workers	102.2
Digital Production Artist	Prepress Technicians and Workers	102.2
Digital Production Assistant	Prepress Technicians and Workers	102.2
Applied Process Technologies	Chemical Plant and System Operators	101.7
Chemical/Refinery Worker	Chemical Plant and System Operators	101.7
CNC Machinist	Computer Numerically Controlled Tool Programmers	101.7
Comp Manufacturing & Machining	Computer Numerically Controlled Tool Programmers	101.7
Engineering & Electronics Tech	Electrical and Electronic Engineering Technologists and Technicians	98.6
Communications	Electrical and Electronic Engineering Technologists and Technicians	98.6
Communications Technician	Electrical and Electronic Engineering Technologists and Technicians	98.6
Electrical Engineering Tech	Electrical and Electronic Engineering Technologists and Technicians	98.6
Electrical Maintenance Tech	Electrical and Electronic Engineering Technologists and Technicians	98.6
Electronics	Electrical and Electronic Engineering Technologists and Technicians	98.6
Electronics Technician	Electrical and Electronic Engineering Technologists and Technicians	98.6
Electronics Tester	Electrical and Electronic Engineering Technologists and Technicians	98.6
Engineering Controls	Electrical and Electronic Engineering Technologists and Technicians	98.6
Engineering Design Technician	Electrical and Electronic Engineering Technologists and Technicians	98.6
Engineering Related- PLTW	Electrical and Electronic Engineering Technologists and Technicians	98.6
Indust Maintenance Robot Techn	Electrical and Electronic Engineering Technologists and Technicians	98.6
Instrumentation	Electrical and Electronic Engineering Technologists and Technicians	98.6
Manufacturing Process Operations	Electrical and Electronic Engineering Technologists and Technicians	98.6
Robotics & Automation	Electrical and Electronic Engineering Technologists and Technicians	98.6
Robotics Automation Technician	Electrical and Electronic Engineering Technologists and Technicians	98.6
Electrohydraulic Technician	Electrical and Electronics Repairers, Commercial and Industrial Equipment	97.3
Engineering & Electronics Tech	Electrical and Electronics Repairers, Commercial and Industrial Equipment	97.3
Enhanced Operator I	Electrical and Electronics Repairers, Commercial and Industrial Equipment	97.3
Enhanced Operator II	Electrical and Electronics Repairers, Commercial and Industrial Equipment	97.3
Fundamentals of Mechatronics	Electrical and Electronics Repairers, Commercial and Industrial Equipment	97.3

Ind Auto & Proc Cont Tech Lv I	Electrical and Electronics Repairers, Commercial and Industrial Equipment	97.3
Ind Auto & Proc Cont Tech LvII	Electrical and Electronics Repairers, Commercial and Industrial Equipment	97.3
Ind Auto & Robotics Tech Lv II	Electrical and Electronics Repairers, Commercial and Industrial Equipment	97.3
Industrial Electronics	Electrical and Electronics Repairers, Commercial and Industrial Equipment	97.3
Industrial Electronics Tech I	Electrical and Electronics Repairers, Commercial and Industrial Equipment	97.3
Industrial Electronics Tech II	Electrical and Electronics Repairers, Commercial and Industrial Equipment	97.3
Maintenance Technician	Electrical and Electronics Repairers, Commercial and Industrial Equipment	97.3
Manufacturing Engineering Tech	Electrical and Electronics Repairers, Commercial and Industrial Equipment	97.3
Mechatronic Systems Operating	Electrical and Electronics Repairers, Commercial and Industrial Equipment	97.3
Mining Technology	Electrical and Electronics Repairers, Commercial and Industrial Equipment	97.3
Multi-Skilled Technician	Electrical and Electronics Repairers, Commercial and Industrial Equipment	97.3
Utility Technician	Electrical and Electronics Repairers, Commercial and Industrial Equipment	97.3
Adv Integrated Technology	Industrial Engineering Technologists and Technicians	94
Industrial Mechanic	Industrial Engineering Technologists and Technicians	94
Industrial Worker	Industrial Engineering Technologists and Technicians	94
Workplace Safety Specialist	Industrial Engineering Technologists and Technicians	94
Brewhouse Operator	First-Line Supervisors of Production and Operating Workers	88.6
Industrial Supervisor	First-Line Supervisors of Production and Operating Workers	88.6
3D Modeler	Mechanical Drafters	84.6
Digital Telephony Technician	Engineering Technologists and Technicians, Except Drafters, All Other	Data Not Available
Integrated Manufacturing Techn	Engineering Technologists and Technicians, Except Drafters, All Other	Data Not Available
Manufacturing Operations	Engineering Technologists and Technicians, Except Drafters, All Other	Data Not Available
Mining Technology	Engineering Technologists and Technicians, Except Drafters, All Other	Data Not Available
Quality Control	Engineering Technologists and Technicians, Except Drafters, All Other	Data Not Available
Transportation and Logistics		
Agriculture Equip Mech Helper	Bus and Truck Mechanics and Diesel Engine Specialists	114.6
Construction Equip Mech Hlp	Bus and Truck Mechanics and Diesel Engine Specialists	114.6
Construction Equipment Tech	Bus and Truck Mechanics and Diesel Engine Specialists	114.6
Diesel Engine Mechanic	Bus and Truck Mechanics and Diesel Engine Specialists	114.6
Diesel Mechanics Assistant	Bus and Truck Mechanics and Diesel Engine Specialists	114.6

Diesel SteeringSuspension Mech	Bus and Truck Mechanics and Diesel Engine Specialists	114.6
Electrical/Electronic Sys Mech	Bus and Truck Mechanics and Diesel Engine Specialists	114.6
Engine Technician	Bus and Truck Mechanics and Diesel Engine Specialists	114.6
Fluid Power Mechanic	Bus and Truck Mechanics and Diesel Engine Specialists	114.6
Heavy Duty Brake Mechanic	Bus and Truck Mechanics and Diesel Engine Specialists	114.6
Heavy Duty Drive Train Mech	Bus and Truck Mechanics and Diesel Engine Specialists	114.6
Medium & Heavy Truck Tech	Bus and Truck Mechanics and Diesel Engine Specialists	114.6
Medium/Heavy Truck Mech Hlpr	Bus and Truck Mechanics and Diesel Engine Specialists	114.6
Mobile Air Condition Mechanic	Bus and Truck Mechanics and Diesel Engine Specialists	114.6
Preventive Maintenance Mech	Bus and Truck Mechanics and Diesel Engine Specialists	114.6
Undercarriage Mechanic	Bus and Truck Mechanics and Diesel Engine Specialists	114.6
Diesel Technology	Bus and Truck Mechanics and Diesel Engine Specialists	114.6
Tractor Trailer, CDLA I	Heavy and Tractor-Trailer Truck Drivers	110.1
Truck Driver Training CDLA II	Heavy and Tractor-Trailer Truck Drivers	110.1
Truck Driver Training CDLA III	Heavy and Tractor-Trailer Truck Drivers	110.1
Marine Technology	Sailors and Marine Oilers	106.5
Airframe & Powerplant Maint	Aircraft Mechanics and Service Technicians	101.2
Airframe Maintenance Tech	Aircraft Mechanics and Service Technicians	101.2
Aviation Maintenance Tech	Aircraft Mechanics and Service Technicians	101.2
Intro Aviation Electronics	Aircraft Mechanics and Service Technicians	101.2
Powerplant Maintenance Tech	Aircraft Mechanics and Service Technicians	101.2
Basic Drone Operator	Avionics Technicians	100
Drone Operator Specialist	Avionics Technicians	100
First Responder Specialist	Avionics Technicians	100
GIS/Unmanned Systems Spec	Avionics Technicians	100
Remote Drone Pilot	Avionics Technicians	100
Unmanned Systems Technology	Avionics Technicians	100
Visual Observer	Avionics Technicians	100
Marine Engineering	Captains, Mates, and Pilots of Water Vessels	97
Marine Industry	Captains, Mates, and Pilots of Water Vessels	97

Marine Technology	Captains, Mates, and Pilots of Water Vessels	97
FAA: Certified Flight Instructor Certificate- Helicopter	Commercial Pilots	89.6
FAA: Certified Flight Instructor Ground- Helicopter	Commercial Pilots	89.6
FAA: Commercial Pilot Certificate - Helicopter	Commercial Pilots	89.6
FAA: Commercial Pilot Ground School - Helicopter	Commercial Pilots	89.6
FAA: Flight Instructor Instrument Certification- Helicopter	Commercial Pilots	89.6
FAA: Flight Instructor Instrument Ground - Helicopter	Commercial Pilots	89.6
FAA: Instrument Pilot Certification - Helicopter	Commercial Pilots	89.6
FAA: Instrument Pilot Ground School - Helicopter	Commercial Pilots	89.6
FAA: Private Pilot Certification - Helicopter	Commercial Pilots	89.6
FAA: Private Pilot Ground School - Helicopter	Commercial Pilots	89.6
Helicopter Flight Training	Commercial Pilots	89.6
Business Studies: Supply Chain	Transportation, Storage, and Distribution Managers	88.2
International Logistics	Transportation, Storage, and Distribution Managers	88.2
Logistics and Operations Mngmt	Transportation, Storage, and Distribution Managers	88.2
Logistics Management	Transportation, Storage, and Distribution Managers	88.2
Logistics Operations	Transportation, Storage, and Distribution Managers	88.2
Logistics Quality Technician	Transportation, Storage, and Distribution Managers	88.2
Logistics Technology	Transportation, Storage, and Distribution Managers	88.2
Marine Technology	Transportation, Storage, and Distribution Managers	88.2
Marine Technology Business	Transportation, Storage, and Distribution Managers	88.2
Supply Chain Management	Transportation, Storage, and Distribution Managers	88.2
Supply Chain Specialist	Transportation, Storage, and Distribution Managers	88.2

Note: Values above 100 indicate higher than average automation risk.