

## **How Will AI Impact the Workplace? What Career Practitioners Need to Know**

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Most career practitioners, industry experts, and labor economists believe Artificial Intelligence (AI) will have a significant impact on the workforce, but exactly where the impact will be felt and how it will affect clients is difficult to predict. Some of the possible impacts sound like science fiction today. This article explores the future using currently available AI tools and is designed as a journey of discovery. By following the steps in this journey, you will gain additional insights into the strengths and weaknesses of AI plus its potential impact on the labor market. If you are an AI expert, please feel free to skip to the conclusions.

### **Using AI Chatbots as Effective Tools for Exploring AI's Impact**

Many of us can recall when Google Search first became available. Do you remember how long it took to learn how to use search engines effectively? Similarly, learning to use the new generation of AI chatbots requires practice. To make this learning process easier for us, Google Search now incorporates AI, functioning like a simpler, more familiar AI chatbot. For this research, the publicly available AI chatbot "You.com," a Microsoft product accessible free via the Bing browser, was utilized.

Using AI to address the question of AI's workplace impact requires dividing it into manageable components or "prompts." This article is organized around the prompts used, with the information gained from each leading to additional questions and insights. Full responses to each prompt are included in the appendices because you may find your own insights by reviewing these results.

This investigation contained three parts. First, AI was used to identify work tasks that are most likely to be impacted by AI. Reviewing the ways that AI was being used, it became clear that some uses will be developed by employers, likely resulting in the need for fewer employees in the affected occupations. Other uses of AI will be the responsibility of the employee (often for professional-level occupations), likely resulting in the need for workers to become skilled in the use of AI to remain competitive in the workplace. The first group contains people who are likely to become clients needing assistance with career transitions. The second group is likely to be of special relevance to career practitioners because career practitioners need to guide clients in this group to use AI effectively in order to succeed in the labor market.

The second part of this investigation attempted to relate characteristics defined in O\*NET to the work tasks identified in the first step. The term “work tasks” was used in the first step because most job descriptions list work tasks, so it is easy for AI to find data about work tasks by reviewing job descriptions. It is a term commonly used in ordinary discussions of work. Two O\*NET Data Descriptor categories could be related to work tasks: Skills and Work Activities. During this exploration it became apparent that AI found that all Skills would be impacted by AI, but it was able to differentiate between Work Activities. AI selected seven Work Activities for which AI could most improve performance. So, the “Skills” descriptor category was abandoned in favor of the “Work Activities” descriptor category for the last part of this study.

The last part of this investigation attempted to identify occupations which use those seven Work Activities at a high level, according to the O\*NET Data descriptors. These high-impact occupations were then related to Bureau of Labor Statistics occupations to identify the number of workers and the salary level of this high-impact group. Lists of these occupations (in [Appendix G](#)) may be useful for career practitioners to identify types of clients who need immediate assistance. Career practitioners who work with youth preparing for these fields need to guide them to gain skill in using AI now. Career practitioners who assist adults in career transition need to help these clients to adapt and gain the new skills needed.

These are the detailed steps (AI prompts) used in this investigation:

**1. Identify the 50 common work tasks for which AI can be the most helpful.**

For this prompt, AI was asked to limit the response to 50 work tasks. This number was chosen to allow a wide variety of work tasks to be identified. [Appendix A](#) shows the full response to this prompt. The list of work tasks covers a wide range of types of work, from highly routine to highly creative. In reading the list, for most of the responses it is easy to agree that AI could be helpful for these work tasks, but it is difficult to summarize the responses or draw conclusions from them.

**2. Sort the above list of 50 work tasks into the four major Work Activity categories provided in O\*NET.**

AI is good at sorting items which may, at first, appear unrelated. Asking it to use the O\*NET descriptor categories allows us to see patterns in the wide variety of work tasks. [Appendix B](#) shows the list of work tasks arranged by four familiar, logical, categories.

**3. Based on predictions of labor market analysts, select 20 work tasks for which using AI makes the biggest difference in improving productivity.**

To incorporate the thinking of labor market experts, prompt 2 specifies the use of this type of resource and limits the response to the 20 work tasks that will be most impacted. Reviewing this list (see [Appendix C](#)), it is clear that some of these work tasks will be automated by employers and others by employees. For example, hospitals are likely to want AI monitors for patients and provide them to staff. Most corporations carefully control how and which data is collected and stored to ensure that the data can be used for a variety of purposes throughout the company. Customer support can be provided by an army of staff, or by AI software that is well trained in responding to a compressive set of questions or prompts.

For professional level employees, taking the initiative to identify more efficient ways to do the work is usually rewarded. Managers, analysts, and other professionals are often responsible for their own schedules and completing their work more efficiently is encouraged. Career practitioners can assist professional level employees to advance in their careers by encouraging them to find AI solutions that help them to work more efficiently.

**4. Using the above list of 20 work tasks, which of these work tasks are more likely to be automated by the employer, and which of these work tasks will employees be more likely to be responsible for finding their own AI tools?**

In [Appendix D](#), the two groups of Employer-automated work tasks and Employee-driven AI-adoption provided very helpful insights into ways AI can be helpful. For those of us who work more frequently with employees than employers, it is helpful to be able to see this split and use these examples to imagine what will happen with many other work tasks.

One way to break “work” into manageable parts is to use the tools provided in [O\\*NET Data Descriptors](#). When O\*NET was developed, the occupational analysts of the time pooled their ways of understanding work. The result was a long list of characteristics that can be used to search the occupations in O\*NET. These characteristics include a lot of overlapping concepts. Two parts of O\*NET that describe similar aspects of work are Skills and Work Activities. Skills are characteristics possessed by workers (which career professionals often use to assist in finding matching occupations). Work Activities are more closely related to job descriptions and can be used to understand how workers spend their time in a specific job. This investigation next explored the use of these two types of descriptors to understand the impact of AI on work.

**5. For each of O\*NET’s 10 Basis Skills, how can AI be used by the employee in the workplace to complete the work more efficiently?**

Most career practitioners feel comfortable talking about Skills with clients. Using O\*NET’s Skills to identify a list of occupations that will be impacted by AI would be convenient. This question focuses on the 10 Basic Skills listed in O\*NET (see [Appendix E1](#)). Visually reviewing the 10 Basic Skills, it is easy to believe that all of them could be greatly assisted

by AI. The one exception might be “Active Listening” (which seems like an interpersonal skill, not usually involving a computer). However, the AI response points out that AI software can be used to analyze customer feedback. So, AI found that all 10 of the Basic Skills could be assisted by using AI.

**6. For each of O\*NET’s 25 Cross Functional Skills, how can AI be used by the employee in the workplace to complete the work more efficiently?**

The 25 Cross Functional Skills are more complex and diverse. In [Appendix E2](#), we see that once again, AI found that all of these skills could be enhanced by the use of AI.

The finding that *all* O\*NET Skills could be enhanced using AI is interesting, but does not lead to identifying specific sets of occupations which are most impacted. Perhaps Work Activities could be more useful in condensing this question down to a manageable size.

**7. For which of the 41 Work Activities is the use of publicly available AI most likely to improve the worker’s efficiency?**

In its response (see [Appendix F](#)), 14 of the 41 activities are mentioned. Here, the results are arranged by the four O\*NET Work Activities Categories and the results found by this AI search are reported in detail.

- a. **Information Input** includes five work activities that involve collecting data from sources provided by the work setting, and none of them are mentioned in the response.
- b. **Interacting with Others** includes six that have AI solutions and 11 with no reported solutions:

***With AI solutions:***

- Monitoring and Controlling Resources
- Staffing Organizational Units
- Communicating with Supervisors, Peers, or Subordinates
- Interpreting the Meaning of Information for Others
- Developing and Building Teams
- Training and Teaching Others

***Without AI solutions:***

- Performing Administrative Activities
- Assisting and Caring for Others
- Communicating with People Outside the Organization
- Establishing and Maintaining Interpersonal Relationships
- Performing for or Working Directly with the Public

- Resolving Conflicts and Negotiating with Others
- Selling or Influencing Others
- Coaching and Developing Others
- Coordinating the Work and Activities of Others
- Guiding, Directing, and Motivating Subordinates
- Providing Consultation and Advice to Others

c. **Mental Processes** include six that have AI solutions and four with no reported solutions:

***With AI Solutions:***

- Analyzing Data or Information
- Processing Information
- Developing Objectives and Strategies
- Making Decisions and Solving Problems
- Organizing, Planning, and Prioritizing Work
- Thinking Creatively

***Without AI Solutions:***

- Evaluating Information to Determine Compliance with Standards
- Judging the Qualities of Objects, Services, or People
- Scheduling Work and Activities
- Updating and Using Relevant Knowledge

Out of the four Mental Processes without reported solutions, the first 3 items make sense because they relate to work setting processes that may not require outside information. But the last item is surprising. Certainly “[Updating and Using Relevant Knowledge](#)” is totally within the capability of AI. Possibly this Work Activity was omitted because it does not require a tailored application but rather can use any publicly available AI tool for researching relevant information and finding ways to use this information effectively. This is one case in which overriding the decision of AI seemed appropriate.

d. **Work Output** has only two activities that are mentioned:

- Repairing and Maintaining Electronic Equipment
- Working with Computers

These make sense. The rest all relate to work setting-specific materials or activities, like operating vehicles or moving objects.

8. **Combining the Work Activities for which AI is most likely to be useful with O\*NET data about which occupations use these Work Activities at a high level and Bureau of Labor Market Statistics about the salaries and numbers of**

**workers in these occupations, which occupations are most likely to require workers to use AI to compete in the labor market?**

This final step departs for the process used in the other steps. It manually uses the results of the previous steps plus data provided by O\*NET and the Bureau of Labor Statistics to identify impacted occupations.

Step 7 led to the identification of 7 Mental Processes which could be done more efficiently when employees use AI. These 7 Mental Processes were used to search for occupations. O\*NET provides ratings for each of the Work Activities for each occupation on a scale from 1 to 100. A rating of 70 or higher was selected to identify occupations that require a “high level” of a Work Activity (which should indicate the work could benefit from the use of AI). While the ratings were provided by O\*NET, current labor market data is provided by the Bureau of Labor Statistics. BLS data includes the number of workers and median salaries for each occupation each year and the most recent data is from 2023. The O\*NET and BLS data sets were combined to identify occupations for which employees are likely to improve their work performance by using AI. Of the 831 BLS occupations (which includes 152 million workers):

Group	Number of identified Work Activities used at a high level	Number of occupations	Number of workers
None	0	449	98 million
Low	1 or 2	174	28 million
Medium	3, 4, or 5	139	14 million
High	6 or 7	69	12 million

Together, 383 occupations (out of 831 occupations or 46% of occupations, which includes 55 million workers or 36% of the workforce) require a high level of at least one Work Activity which could benefit from using AI. Workers in all of these occupations should be encouraged to gain skills in using AI so that they can stay competitive in the future.

[Appendix G](#) includes this list of occupations, broken into three groups. The High Diversity Group includes occupations that require high levels of most of the Work Activities that will be impacted, and the occupational titles include Engineers, some Scientists, some Postsecondary teachers, among others. The Medium Diversity Group includes Career Practitioners, Administrators, the rest of the Scientists and Postsecondary Teachers, many medical occupations, among others. The Low Diversity Group includes Managers, Analysts, Technicians, Therapists, Artists, Repairers, Mechanics, among others.

**Conclusion**

Using AI to find occupations that will be impacted by AI produced an amazing array of work tasks which are found throughout the economy. Using the O\*NET Descriptors for both Skills and Work Activities, these work tasks are found in all categories. Examining the new tools being developed to streamline work using AI, it was possible to divide them into two

categories: Those designed by employers to streamline processes for a company and those designed for use by workers who want to improve their own performance.

The first group (employer develop AI-assisted tools) will cause the number of workers in related occupations to shrink. This type of change is likely to have the greatest impact on occupations with large amounts of tedium. Which jobs feel this impact first depends on the financial benefits employers anticipate as they prioritize funding for development of AI tools built for their company. Increasing profitability is likely to be closely related to decreasing the number of employees they employ.

The second group (tools designed to help employees to work more efficiently) are expected to relate to mental processes that can be automated with AI. In these occupations, employees who learn to use AI to make themselves more efficient will become more productive and therefore become more desirable employees.

While the first group is important for career practitioners because we will work with those who are laid off due to downsizing, the second group may be more interesting because our assistance is crucial in guiding these individuals to adopt AI tools to streamline their own work. Whether working with in-school youth or adults, guiding clients to learn new skills is an essential role for career practitioners. Some analysts have called this the “Professional Occupation Revolution” because these jobs require highly skilled workers who have been insulated from automation in the past.

The data in this report makes it clear that these changes will be widespread and cause major changes in the way we work. Hopefully, these insights will provide impetus for career practitioners to adapt quickly so we can be helpful in assisting others to adapt.

## Appendix A

**Question:** What are the 50 common work tasks for which AI can be the most helpful?

### AI Answer: Introduction

Artificial Intelligence (AI) is revolutionizing the workplace across various sectors, enhancing efficiency, productivity, and innovation. This comprehensive list of 50 work tasks that can be performed more efficiently with AI assistance is based on recent academic research, industry reports, and case studies. It provides valuable insights for career counselors and professionals seeking to understand the impact of AI on the modern workplace.

List of 50 Work Tasks Enhanced by AI:

1. **Data Entry and Processing:** Automating repetitive data input tasks, reducing human error and increasing speed.<sup>1</sup>
2. **Customer Support:** Utilizing AI-powered chatbots for 24/7 customer service, improving response times and customer satisfaction.<sup>2</sup>
3. **Email Management:** Sorting, prioritizing, and even drafting responses to emails using natural language processing.<sup>3</sup>
4. **Meeting Scheduling:** Automating the process of finding suitable meeting times and managing calendars.<sup>4</sup>
5. **Document Review and Analysis:** Quickly analyzing and summarizing large volumes of documents, enhancing efficiency in legal and business contexts.<sup>5</sup>
6. **Market Research:** Analyzing consumer behavior and market trends using AI-driven data analytics.<sup>6</sup>
7. **Content Creation:** Generating written content for blogs, articles, and reports, assisting human writers in the creative process.<sup>7</sup>
8. **Social Media Management:** Automating post scheduling, content curation, and engagement analysis.<sup>5</sup>
9. **Data Analysis and Visualization:** Interpreting complex datasets and creating insightful visualizations.<sup>8</sup>
10. **Recruitment and Candidate Screening:** Matching candidates to job descriptions and automating initial screening processes.<sup>9, 10</sup>
11. **Employee Training and Development:** Providing personalized learning experiences and recommending tailored training programs.<sup>11</sup>
12. **Performance Monitoring and Evaluation:** Analyzing employee performance metrics to provide objective insights.<sup>12</sup>
13. **Inventory Management:** Predicting stock levels and automating order processes using AI algorithms.<sup>5</sup>
14. **Fraud Detection:** Identifying unusual patterns in financial transactions to prevent fraud.<sup>13</sup>
15. **Sales Forecasting:** Predicting future sales trends based on historical data and market factors.<sup>5</sup>



16. **Quality Control in Manufacturing:** Automating inspections and defect detection using computer vision.<sup>14</sup>
17. **Language Translation:** Providing real-time translation services for global communication.<sup>5</sup>
18. **Legal Research:** Streamlining case law research and document preparation in the legal sector.<sup>5</sup>
19. **Financial Analysis and Reporting:** Automating the creation of financial reports and providing predictive insights.<sup>5</sup>
20. **Project Management:** Tracking project progress, predicting delays, and optimizing resource allocation.<sup>5</sup>
21. **Personalized Marketing Campaigns:** Tailoring marketing efforts to individual consumer preferences using AI-driven analytics.<sup>6</sup>
22. **Risk Assessment and Management:** Evaluating potential risks in various business contexts using predictive analytics.<sup>13</sup>
23. **Virtual Assistance:** Managing tasks, reminders, and basic queries through AI-powered virtual assistants.<sup>3</sup>
24. **Knowledge Management:** Organizing, retrieving, and disseminating company knowledge more efficiently.<sup>5</sup>
25. **Employee Onboarding:** Streamlining the onboarding process for new hires with AI-guided procedures.<sup>15</sup>
26. **Feedback Collection and Analysis:** Automating the collection and analysis of customer and employee feedback.<sup>16</sup>
27. **Compliance Monitoring:** Ensuring adherence to regulations and company policies through AI-driven oversight.<sup>5</sup>
28. **Event Planning and Management:** Automating logistics, attendee management, and scheduling for events.<sup>5</sup>
29. **Graphic Design Assistance:** Providing AI tools for creating and editing visual content.<sup>5</sup>
30. **Website Optimization:** Analyzing user behavior to improve website performance and user experience.<sup>5</sup>
31. **Supply Chain Optimization:** Enhancing efficiency in logistics and distribution through predictive analytics.<sup>5</sup>
32. **Customer Insights and Behavior Analysis:** Analyzing customer feedback and behavior patterns for product improvement.<sup>6</sup>
33. **Content Moderation:** Automating the review of user-generated content on digital platforms.<sup>5</sup>
34. **Chatbot Development and Deployment:** Creating and managing conversational agents for various applications.<sup>2</sup>
35. **Predictive Maintenance:** Anticipating equipment failures in manufacturing and industrial settings.<sup>14</sup>
36. **Health Monitoring and Diagnostics:** Using AI for patient data analysis and early disease detection in healthcare.<sup>17</sup>
37. **Personal Finance Management:** Automating budgeting, expense tracking, and financial advice.<sup>18</sup>

38. **E-learning Content Creation:** Developing personalized educational content and adaptive learning paths.<sup>19</sup>
39. **Research Assistance:** Aiding in literature review, data synthesis, and academic writing.<sup>5</sup>
40. **Idea Generation and Brainstorming:** Facilitating creative processes with AI-driven ideation tools.<sup>5</sup>
41. **Content Curation:** Automatically selecting and organizing relevant content for various purposes.<sup>5</sup>
42. **Survey Design and Analysis:** Creating, conducting, and analyzing surveys for actionable insights.<sup>16</sup>
43. **Virtual Reality Training:** Enhancing employee training programs with immersive, AI-powered VR experiences.<sup>5</sup>
44. **Behavioral Analytics:** Understanding and predicting user behavior through data analysis.<sup>5</sup>
45. **SEO Optimization:** Automating keyword research and content optimization for improved search engine rankings.<sup>5</sup>
46. **Remote Work Monitoring:** Using AI for productivity tracking and team collaboration in remote settings.<sup>5</sup>
47. **Energy Management:** Optimizing energy consumption in facilities through AI-driven systems.<sup>5</sup>
48. **Automated Reporting:** Generating comprehensive reports across various business functions.<sup>20</sup>
49. **Personalized Product Recommendations:** Suggesting products or services based on individual user behavior and preferences.<sup>8</sup>
50. **Crisis Management and Response:** Analyzing data to respond effectively to emergencies and unforeseen situations.<sup>5</sup>

## Conclusion

This comprehensive list demonstrates the wide-ranging impact of AI across various workplace tasks and industries. From automating routine processes to enhancing decision-making and creativity, AI is transforming how work is performed. Career counselors can use this information to guide professionals in adapting to the changing job market and developing skills that complement AI capabilities. However, it's crucial to note that while AI offers significant benefits in efficiency and productivity, it also raises important ethical considerations. Issues such as job displacement, data privacy, and algorithmic bias need to be carefully addressed.<sup>21, 22, 23</sup> As AI continues to evolve, a balanced approach that leverages AI's strengths while valuing human skills and judgment will be essential for successful workplace integration.

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## Appendix B

**Question:** Sort the “List of 50 Work Tasks Enhanced by AI” according to the four major Work Activity categories provided in ONET.

**AI Response:**

The four major Work Activity categories provided in ONET are:

- 1. Information Input**
- 2. Mental Processes**
- 3. Work Output**
- 4. Interacting With Others**

The 50 Work Tasks Most Enhanced by AI sorted by these categories are:

**1. Information Input**

1. Data Entry and Processing
2. Document Review and Analysis
3. Market Research
4. Data Analysis and Visualization
5. Inventory Management
6. Fraud Detection
7. Quality Control in Manufacturing
8. Legal Research
9. Financial Analysis and Reporting
10. Risk Assessment and Management
11. Compliance Monitoring
12. Website Optimization
13. Customer Insights and Behavior Analysis
14. Content Moderation
15. Predictive Maintenance
16. Health Monitoring and Diagnostics
17. Research Assistance
18. Survey Design and Analysis
19. Behavioral Analytics
20. Remote Work Monitoring
21. Energy Management

**2. Mental Processes**

1. Email Management
2. Sales Forecasting
3. Project Management
4. Knowledge Management
5. Idea Generation and Brainstorming
6. Content Curation

7. SEO Optimization
8. Automated Reporting
9. Crisis Management and Response
10. Personalized Product Recommendations

### **3. Work Output**

1. Content Creation
2. Social Media Management
3. Graphic Design Assistance
4. Supply Chain Optimization
5. Chatbot Development and Deployment
6. E-learning Content Creation
7. Virtual Reality Training
8. Personalized Marketing Campaigns

### **4. Interacting With Others**

1. Customer Support
2. Meeting Scheduling
3. Recruitment and Candidate Screening
4. Employee Training and Development
5. Performance Monitoring and Evaluation
6. Language Translation
7. Virtual Assistance
8. Employee Onboarding
9. Feedback Collection and Analysis
10. Event Planning and Management
11. Personal Finance Management

This classification is based on the primary function of each task as it relates to the four O\*NET categories. It's important to note that some tasks may have elements that could fit into multiple categories, but they have been placed in the category that best represents their primary function.<sup>2,3</sup> For example, "Customer Support" is placed under "Interacting With Others" because its primary function involves communication with customers, even though it may also involve information input and mental processes. Similarly, "Content Creation" is under "Work Output" because it primarily involves producing tangible results, although it certainly requires mental processes as well.

This classification helps to understand how AI is enhancing different aspects of work activities across various job functions. It demonstrates that AI has a significant impact across all four major categories of work activities, with a particularly strong presence in Information Input and Mental Processes categories. This reflects AI's strengths in data processing, analysis, and decision support.

For career counselors, this classification can be valuable in understanding how AI is changing the nature of work across different job roles. It can help in guiding professionals on which skills to develop to complement AI capabilities and where human skills are likely to remain crucial, particularly in areas involving complex interactions and creative outputs.<sup>3</sup>

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## Appendix C

**Question:** Based on predictions of labor market analysts, select 20 work tasks for which using AI makes the biggest difference in improving productivity.

**AI Response:**

Based on the research reports provided, I have compiled and analyzed the information to create a list of the 20 work tasks most impacted by AI, along with descriptions of how they are impacted. Here's the comprehensive analysis:

### 20 Work Tasks Most Impacted by AI

#### 1. Data Entry

- Impact: Data entry jobs are highly susceptible to automation, with predictions indicating that more than 7.5 million data entry jobs will be lost by 2027.<sup>1</sup>
- AI systems can process and input data much faster and more accurately than humans, reducing the need for manual data entry.

#### 2. Administrative Support

- Impact: 46% of tasks in office and administrative support are likely to be automated.<sup>2</sup>
- AI-powered software can handle scheduling, document management, and basic correspondence, reducing the need for human administrative assistants.

#### 3. Customer Service Inquiries

- Impact: AI agents are expected to autonomously handle routine customer inquiries.<sup>3</sup>
- Chatbots and AI-powered virtual assistants can provide 24/7 customer support, answering common questions and resolving basic issues without human intervention.

#### 4. Financial Reporting

- Impact: Basic financial reporting tasks are at risk of automation.<sup>4</sup>
- AI can analyze financial data, generate reports, and even provide insights, reducing the need for manual financial analysis and reporting.

#### 5. Legal Document Review

- Impact: Generative AI could lead to widespread automation in legal tasks.<sup>5</sup>
- AI can quickly review and analyze large volumes of legal documents, identifying key information and potential issues much faster than human lawyers.

#### 6. Software Code Drafting

- Impact: AI agents are predicted to produce software code drafts autonomously.<sup>3</sup>
- AI-powered code generation tools can create initial code drafts, potentially reducing the time developers spend on basic coding tasks.



## 7. Data Processing

- Impact: By 2027, 65% of tasks related to data processing and information could be fully automated.<sup>6</sup>
- AI can process and analyze large datasets much faster and more accurately than humans, identifying patterns and insights.

## 8. Accounting Tasks

- Impact: Accounting roles are among the top professions predicted to lose jobs due to AI.<sup>1</sup>
- AI can automate bookkeeping, reconciliations, and basic accounting tasks, reducing the need for entry-level accountants.

## 9. Market Analysis

- Impact: AI is expected to enhance tasks in marketing and customer data collection.<sup>4</sup>
- AI can analyze market trends, consumer behavior, and competitor data at scale, providing more comprehensive and real-time market insights.

## 10. Performance Monitoring

- Impact: Tasks such as monitoring performance are likely to be significantly altered by AI.<sup>4</sup>
- AI can continuously monitor and analyze employee or system performance, providing real-time feedback and identifying areas for improvement.

## 11. Document Reading and Writing

- Impact: Reading and writing documents are tasks expected to be either fully automated or significantly altered.<sup>4</sup>
- AI can summarize long documents, generate reports, and even create content, potentially reducing the need for certain writing and analysis roles.

## 12. Information Retrieval

- Impact: Information retrieval tasks are likely to be automated, affecting roles in various industries.<sup>6</sup>
- AI-powered search and retrieval systems can quickly find and present relevant information from large databases or document repositories.

## 13. Routine Decision Making

- Impact: AI is expected to automate routine decision-making processes in various industries.<sup>7</sup>
- AI algorithms can make data-driven decisions in areas like inventory management, resource allocation, and risk assessment.

## 14. Image and Video Analysis

- Impact: AI is transforming tasks related to image and video analysis across industries.<sup>8</sup>
- AI can quickly analyze and categorize images and videos, potentially impacting roles in security, healthcare, and media.

## 15. Language Translation

- Impact: AI-powered translation tools are significantly altering language-related tasks.<sup>5</sup>

- Machine learning models can provide near real-time translation, potentially reducing the need for human translators in certain contexts.

#### **16. Predictive Maintenance**

- Impact: AI is changing how maintenance tasks are performed in manufacturing and other industries.<sup>9</sup>
- AI can predict when equipment is likely to fail, allowing for proactive maintenance and potentially reducing the need for routine inspections.

#### **17. Medical Diagnosis Support**

- Impact: AI is enhancing diagnostic processes in healthcare.<sup>10</sup>
- AI can analyze medical images, patient data, and symptoms to assist in diagnosis, potentially changing the role of medical professionals.

#### **18. Financial Trading**

- Impact: AI is transforming trading tasks in the financial sector.<sup>4</sup>
- Algorithmic trading powered by AI can make rapid trading decisions based on market data, potentially reducing the need for human traders.

#### **19. Content Moderation**

- Impact: AI is increasingly being used for content moderation tasks on social media and other platforms.<sup>11</sup>
- AI can quickly identify and flag inappropriate content, potentially reducing the need for human moderators.

#### **20. Quality Control in Manufacturing**

- Impact: AI is changing quality control processes in manufacturing.<sup>12</sup>
- Computer vision and machine learning can detect defects and inconsistencies in products much faster and more accurately than human inspectors.

This list demonstrates the wide-ranging impact of AI across various industries and job functions. While AI is automating or significantly altering many tasks, it's important to note that this transformation also creates new opportunities and roles. The key challenge for workers and organizations is to adapt to these changes by focusing on skills that complement AI capabilities and leveraging AI to enhance human productivity and creativity.

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## Appendix D

**Question:** Using the above list of 20 work tasks, which of these work tasks are more likely to be automated by the employer, and which of these work tasks will employees be more likely to be responsible for finding their own AI tools?

### AI Response:

Based on the research reports and the previously compiled list of 20 work tasks most impacted by AI, I will categorize these tasks into two groups: Group 1 (employer-automated) and Group 2 (employee-driven AI adoption). I'll provide a rationale for each categorization based on the information available.

### Group 1: Employer-Automated Tasks

#### 1. Data Entry

Rationale: Data entry is a routine task that employers are likely to automate to increase efficiency and reduce costs. This aligns with the trend of increased automation of routine tasks mentioned in the research.<sup>1</sup>

#### 2. Administrative Support

Rationale: Administrative tasks are prime candidates for employer-driven automation, as they are often repetitive and can be easily handled by AI systems, freeing up human resources for more complex tasks.<sup>2</sup>

#### 3. Customer Service Inquiries

Rationale: The implementation of chatbots and AI-powered virtual assistants for customer service is typically an employer-driven initiative to reduce costs and provide 24/7 support.<sup>3</sup>

#### 4. Financial Reporting

Rationale: Automating financial reporting is likely to be an employer-driven initiative to ensure accuracy, compliance, and efficiency in financial operations.<sup>4</sup>

#### 5. Data Processing

Rationale: Large-scale data processing is often automated by employers to handle vast amounts of information quickly and accurately, aligning with the trend of AI-enhanced productivity.<sup>5</sup>

#### 6. Accounting Tasks

Rationale: Basic accounting tasks are prime candidates for employer-driven automation to reduce errors and increase efficiency in financial operations.<sup>1</sup>

#### 7. Performance Monitoring

Rationale: Implementing AI for performance monitoring is typically an employer-driven initiative to gain real-time insights into employee or system performance.<sup>4</sup>

#### 8. Information Retrieval

Rationale: Automating information retrieval is likely to be an employer-driven initiative to improve efficiency across various departments.<sup>5</sup>

#### 9. Routine Decision Making

Rationale: Employers are likely to implement AI systems for routine decision-making processes to ensure consistency and efficiency in operations.<sup>6</sup>

**10. Content Moderation**

Rationale: Large-scale content moderation is typically automated by employers, especially on social media platforms, to handle the vast amount of user-generated content efficiently.<sup>7</sup>

**Group 2: Employee-Driven AI Adoption**

**1. Legal Document Review**

Rationale: While employers may provide AI tools, the adoption and integration of these tools in legal document review are often driven by legal professionals seeking to enhance their efficiency and accuracy.<sup>8</sup>

**2. Software Code Drafting**

Rationale: Developers are likely to adopt AI-powered code generation tools to enhance their productivity, aligning with the trend of AI augmenting complex tasks.<sup>3</sup>

**3. Market Analysis**

Rationale: Marketing professionals are likely to adopt AI tools for market analysis to gain deeper insights and make data-driven decisions, showcasing employee-driven adoption of AI for complex tasks.<sup>4</sup>

**4. Document Reading and Writing**

Rationale: Employees across various roles are likely to adopt AI tools for document summarization and generation to enhance their productivity, aligning with the trend of AI augmenting knowledge work.<sup>4</sup>

**5. Image and Video Analysis** Rationale: Professionals in fields like security, healthcare, and media are likely to adopt AI tools for image and video analysis to enhance their capabilities and efficiency.<sup>9</sup>

**6. Language Translation**

Rationale: Language professionals and employees working in multinational environments are likely to adopt AI-powered translation tools to facilitate communication and improve efficiency.<sup>8</sup>

**7. Predictive Maintenance**

Rationale: Maintenance professionals in manufacturing and other industries are likely to adopt AI tools for predictive maintenance to enhance their ability to prevent equipment failures.<sup>10</sup>

**8. Medical Diagnosis Support** Rationale: Healthcare professionals are likely to adopt AI tools to assist in diagnosis, showcasing employee-driven adoption to enhance their capabilities and improve patient care.<sup>11,12</sup>

**9. Financial Trading** Rationale: Financial professionals are likely to adopt AI-powered trading tools to enhance their decision-making capabilities and stay competitive in fast-paced markets.<sup>4</sup>

**10. Quality Control in Manufacturing** Rationale: Manufacturing professionals are likely to adopt AI tools for quality control to enhance their ability to detect defects and improve product quality.<sup>13</sup>

This categorization reflects the balance between employer-driven automation of routine tasks and employee-driven adoption of AI tools to enhance complex, knowledge-based work. It's important to note that the distinction between these categories can sometimes blur, as employer initiatives and employee adoption often work in tandem to integrate AI into workplace processes.

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## Appendix E1

**Question:** For each skill, assuming an employee is working on a task which requires that skill, describe how AI can be used by the employee in the workplace to assist the employee in completing the work more efficiently.

**AI Response:** Based on the research reports and the information provided, I can compile a comprehensive overview of how AI can assist employees in tasks related to each of the 10 Basic Skills defined by O\*NET Online. This analysis will include efficiency improvements, examples, and potential limitations, along with proper references and citations.

### AI Applications in Enhancing the 10 Basic Skills: A Comprehensive Analysis Introduction

Artificial Intelligence (AI) is rapidly transforming the workplace, altering job roles and the skills required to perform them effectively.<sup>1,2</sup> As AI technologies continue to evolve, they are increasingly being integrated into various aspects of work, enhancing productivity, efficiency, and decision-making processes across different industries. This report explores how AI can assist employees in tasks related to each of the 10 Basic Skills defined by O\*NET Online, providing insights into the potential applications, benefits, and limitations of AI in the workplace.

### Overview of the 10 Basic Skills

O\*NET Online defines 10 Basic Skills that are essential for performing tasks across various occupations and are foundational for developing more complex skills:<sup>3</sup>

1. Active Learning
2. Active Listening
3. Critical Thinking
4. Learning Strategies
5. Mathematics
6. Monitoring
7. Reading Comprehension
8. Science
9. Speaking
10. Writing

### AI Applications in Enhancing Basic Skills

#### 1. Active Learning

**AI Application:** AI-powered adaptive learning platforms personalize educational experiences, adjusting content based on individual progress and understanding.

**Example:** Knewton's AI-powered adaptive learning program improved test scores by 62%.<sup>4</sup>



**Efficiency Improvement:** These platforms can significantly enhance active learning processes in both educational and professional development contexts by tailoring content to individual needs and learning styles.

**Limitation:** The effectiveness of AI in active learning depends on the quality and diversity of the training data, which may not always capture the full spectrum of learning styles and needs.

## 2. Active Listening

**AI Application:** AI systems in customer service optimize processes by analyzing customer feedback and operational data.

**Example:** UPS uses AI to optimize delivery routes and reduce fuel consumption by analyzing customer feedback and operational data.

**Efficiency Improvement:** AI can process and analyze large volumes of customer feedback more quickly and accurately than humans, leading to faster response times and improved service quality.

**Limitation:** AI may struggle with understanding nuanced or context-dependent communication, potentially missing important subtleties in customer feedback.

## 3. Critical Thinking

**AI Application:** AI systems are used in data analysis to provide insights and recommendations, which support critical thinking processes.

**Example:** Coca-Cola uses AI to analyze historical data and optimize logistics, reducing transportation costs by more than 10%.<sup>5</sup>

**Efficiency Improvement:** AI can process vast amounts of data and identify patterns that may not be apparent to human analysts, enhancing decision-making processes.

**Limitation:** While AI can provide valuable insights, it lacks the ability to apply contextual understanding and ethical considerations in the same way humans do, potentially leading to oversimplified or biased conclusions.<sup>6</sup>

## 4. Learning Strategies

**AI Application:** AI in education tailors educational content to individual student needs, improving learning outcomes.

**Example:** AI-driven adaptive learning platforms personalize learning experiences, adjusting content based on individual progress and understanding.<sup>7</sup>

**Efficiency Improvement:** These systems can quickly identify areas where learners need additional support and provide targeted resources, accelerating the learning process.

**Limitation:** Over-reliance on AI-driven learning strategies may limit exposure to diverse learning methods and reduce opportunities for collaborative learning experiences.

## 5. Mathematics

**AI Application:** AI tools can assist in complex mathematical calculations and data analysis, supporting tasks that require mathematical skills.

**Example:** In financial services, AI algorithms are used for risk assessment, fraud detection, and portfolio management, performing complex mathematical operations at high speeds.

**Efficiency Improvement:** AI can perform complex calculations and analyze large datasets much faster than humans, increasing accuracy and efficiency in mathematical tasks.

**Limitation:** While AI excels at computational tasks, it may struggle with understanding the context or real-world implications of mathematical results, requiring human oversight for interpretation.

## 6. Monitoring

**AI Application:** AI is used in healthcare to monitor patient data and predict health risks.

**Example:** The Mayo Clinic uses AI to analyze medical records and identify high-risk patients, reducing hospital readmissions and improving patient outcomes.<sup>8</sup>

**Efficiency Improvement:** AI can continuously monitor vast amounts of data in real-time, detecting anomalies and patterns that might be missed by human observers.

**Limitation:** AI monitoring systems may generate false positives or miss subtle indicators that would be apparent to experienced human professionals, necessitating a balance between AI and human oversight.

## 7. Reading Comprehension

**AI Application:** AI-powered chatbots and virtual assistants process and understand text to provide information and answer queries.

**Example:** American Express uses AI chatbots to handle 2.4 million customer inquiries per month, improving customer satisfaction and freeing up human resources for more complex tasks.<sup>9</sup>

**Efficiency Improvement:** AI can quickly process and understand large volumes of text, extracting relevant information and responding to queries much faster than human operators.

**Limitation:** AI may struggle with understanding context, sarcasm, or nuanced language, potentially leading to misinterpretations in complex or ambiguous texts.

## 8. Science

**AI Application:** AI supports scientific research by analyzing large datasets, identifying patterns, and generating hypotheses.

**Example:** In drug discovery, AI algorithms are used to predict potential drug candidates and their interactions, significantly speeding up the research process.

**Efficiency Improvement:** AI can process and analyze scientific data at speeds far beyond human capabilities, accelerating research and discovery in various scientific fields.

**Limitation:** While AI can assist in data analysis and hypothesis generation, it lacks the creativity and intuition of human scientists, which are often crucial for groundbreaking discoveries.

## 9. Speaking

**AI Application:** AI voice technology is used in language learning applications to improve speaking skills.

**Example:** Edwin, an AI-powered language learning app, helps over 800,000 students improve their English by practicing with AI voice technology.<sup>10</sup>

**Efficiency Improvement:** AI can provide immediate feedback on pronunciation and intonation, allowing for more frequent and targeted practice than traditional methods.

**Limitation:** AI may not fully capture the nuances of human speech, such as emotion or cultural context, which are important aspects of effective communication.

## 10. Writing

**AI Application:** AI tools assist in various writing tasks, from grammar checking to content generation.

**Example:** Business professionals using AI could write 59% more business documents per hour, showcasing AI's ability to enhance writing efficiency.<sup>11</sup>

**Efficiency Improvement:** AI can significantly speed up the writing process by suggesting improvements, generating content, and ensuring consistency in style and tone.

**Limitation:** AI-generated content may lack originality or fail to capture the unique voice of the writer, potentially leading to homogenized or impersonal writing if relied upon too heavily.

## Challenges and Limitations of AI in Enhancing Basic Skills

While AI shows great promise in enhancing workplace skills, it's important to acknowledge its limitations and challenges:

1. **Lack of Creativity and Emotional Intelligence:** AI systems excel at processing data and recognizing patterns but lack creativity and emotional intelligence, which are often integral to basic skills like communication and problem-solving.<sup>6</sup>
2. **Bias and Ethical Concerns:** AI systems can perpetuate existing biases present in the data they are trained on, potentially leading to biased decision-making in critical workplace tasks.<sup>7</sup>
3. **High Implementation Costs:** Developing and maintaining AI systems can be costly, which may be prohibitive for small businesses.<sup>12</sup>
4. **Data Quality and Privacy Issues:** AI relies heavily on large volumes of high-quality data. Poor data quality can lead to inaccurate AI outputs, while privacy concerns arise from handling sensitive information.<sup>13</sup>
5. **Limited Contextual Understanding:** AI often struggles with understanding the broader context of a situation, which can lead to misinterpretations in tasks that require a deep understanding of human interactions or cultural nuances.<sup>14</sup>
6. **Integration Challenges:** Integrating AI into existing workflows and systems can be challenging, especially for organizations with legacy systems.<sup>15</sup>

7. **Dependence on Internet Connectivity:** Many AI systems require continuous internet connectivity to function properly, which can impact reliability in certain workplace settings.<sup>16</sup>

## Conclusion

AI demonstrates significant potential in enhancing the 10 Basic Skills defined by O\*NET Online, offering improvements in efficiency, accuracy, and scalability across various workplace tasks. From personalized learning experiences to advanced data analysis and automated customer service, AI is transforming how employees approach and execute their work.

However, it's crucial to recognize that AI is a tool to augment human capabilities rather than replace them entirely. The successful integration of AI in enhancing basic skills requires a balanced approach that leverages AI's strengths while acknowledging its limitations. Organizations and employees must focus on developing complementary skills that AI cannot easily replicate, such as emotional intelligence, creativity, and ethical decision-making.

As AI continues to evolve, ongoing research, ethical considerations, and adaptive strategies will be necessary to fully harness its potential while mitigating risks and challenges. By understanding both the capabilities and limitations of AI in enhancing basic skills, organizations can better prepare their workforce for the future, ensuring they remain competitive and adaptable in an increasingly AI-driven workplace.

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## Appendix E2

**Question:** For each skill, assuming an employee is working on a task which requires that skill, describe how AI can be used by the employee in the workplace to assist the employee in completing the work more efficiently.

**AI Response:** Here is a detailed analysis of how AI can assist employees in completing tasks related to the **25 Cross-Functional Skills** defined by O\*NET Online. Each skill is addressed with examples of AI applications in the workplace, assuming an employee is working on a task requiring that skill. Citations are provided inline using the search results.

### 1. Complex Problem Solving

AI can process vast amounts of data to identify patterns and propose solutions to complex problems. For example, in healthcare, AI systems analyze patient data to recommend personalized treatment plans, reducing diagnostic errors and improving outcomes.

### 2. Critical Thinking

AI-powered tools can assist employees in evaluating data and generating insights. For instance, AI systems like IBM Watson analyze large datasets to provide evidence-based recommendations, helping employees make informed decisions.

### 3. Judgment and Decision Making

AI decision-support systems can evaluate multiple scenarios and suggest optimal courses of action. For example, in logistics, AI tools like predictive analytics optimize supply chain decisions by forecasting demand and identifying potential bottlenecks.

### 4. Active Learning

AI-driven adaptive learning platforms personalize training for employees by identifying knowledge gaps and tailoring content to their needs. For example, AI systems like Coursera's adaptive learning tools adjust course material based on an employee's progress.<sup>1</sup>

### 5. Learning Strategies

AI can recommend effective learning strategies by analyzing an employee's performance and suggesting resources. For instance, AI-powered platforms like Duolingo use gamification and adaptive algorithms to teach languages efficiently.

### 6. Monitoring

AI systems continuously monitor processes and provide real-time feedback. For example, in manufacturing, AI-powered IoT devices detect anomalies in machinery, enabling predictive maintenance and reducing downtime.

### 7. Coordination

AI tools like project management software (e.g., Asana or Trello) optimize task allocation and scheduling, ensuring team members work efficiently and collaboratively. AI can also analyze team performance and suggest improvements.

### **8. Social Perceptiveness**

AI-powered sentiment analysis tools, such as those used in customer service, help employees understand customer emotions and tailor their responses accordingly. For example, AI chatbots analyze tone and sentiment to provide empathetic and effective communication.

### **9. Service Orientation**

AI virtual assistants, such as chatbots, handle routine customer inquiries, allowing employees to focus on more complex service tasks. For example, AI systems like Zendesk's Answer Bot improve response times and customer satisfaction.

### **10. Negotiation**

AI tools can analyze negotiation scenarios and suggest strategies based on historical data. For example, in sales, AI systems like Gong.io analyze customer interactions to recommend negotiation tactics that increase deal closure rates.

### **11. Persuasion**

AI can assist in crafting persuasive messages by analyzing audience preferences and suggesting tailored content. For example, marketing platforms like Persado use AI to generate emotionally resonant ad copy that drives engagement.

### **12. Instructing**

AI-powered learning management systems (LMS) automate routine teaching tasks, such as grading and attendance tracking, allowing instructors to focus on personalized instruction. For example, AI tools like Gradescope streamline grading processes.<sup>1</sup>

### **13. Systems Analysis**

AI systems model and simulate complex systems to identify inefficiencies and propose improvements. For example, in urban planning, AI tools analyze traffic patterns to optimize city layouts and reduce congestion.

### **14. Systems Evaluation**

AI evaluates the performance of systems by analyzing key metrics and identifying areas for improvement. For example, in IT, AI-powered monitoring tools like Splunk detect system vulnerabilities and recommend fixes.

### **15. Time Management**

AI scheduling tools, such as Microsoft Outlook's AI assistant, optimize meeting times and prioritize tasks based on deadlines and employee availability, improving productivity.

## **16. Management of Financial Resources**

AI systems like QuickBooks automate financial tracking, budgeting, and forecasting, enabling employees to manage resources more effectively. For example, AI can analyze spending patterns and recommend cost-saving measures.

## **17. Management of Material Resources**

AI-powered inventory management systems, such as those used by Amazon, optimize stock levels by predicting demand and automating reordering processes, reducing waste and ensuring availability.

## **18. Management of Personnel Resources**

AI tools like Workday analyze employee performance data to recommend training programs and career development opportunities, helping managers allocate resources effectively.

## **19. Operation Monitoring**

AI systems monitor equipment and processes in real-time, alerting employees to potential issues. For example, in aviation, AI tools monitor aircraft systems to ensure safety and efficiency.

## **20. Operation and Control**

AI-powered robotics and automation systems assist employees in controlling machinery. For example, in manufacturing, AI systems like Fanuc robots automate repetitive tasks, improving precision and reducing errors.

## **21. Equipment Maintenance**

AI systems predict when equipment will require maintenance by analyzing usage patterns and sensor data. For example, predictive maintenance tools in factories reduce downtime by scheduling repairs before failures occur.

## **22. Troubleshooting**

AI diagnostic tools help employees identify and resolve issues quickly. For example, in IT, AI systems like Splunk analyze logs to pinpoint the root cause of system failures.

## **23. Quality Control Analysis**

AI systems inspect products for defects using computer vision. For example, in automotive manufacturing, AI-powered cameras detect flaws in car parts, ensuring high-quality standards.

## **24. Technology Design**

AI assists in designing new technologies by generating prototypes and testing designs. For example, generative design tools like Autodesk's Fusion 360 use AI to create optimized product designs.

## **25. Programming**



AI-powered coding assistants, such as GitHub Copilot, help employees write code more efficiently by suggesting snippets and identifying errors in real-time.

## **Conclusion**

AI demonstrates significant potential in enhancing the 25 Cross-Functional Skills defined by O\*NET Online. From improving decision-making and problem-solving to optimizing resource management and communication, AI tools empower employees to work more efficiently and effectively. However, it is essential to recognize the limitations of AI, such as its reliance on high-quality data and lack of contextual understanding, which necessitate human oversight and collaboration.

By integrating AI into workplace tasks, employees can focus on higher-value activities, fostering innovation and productivity. Career counselors can use this knowledge to guide individuals in developing complementary skills that leverage AI's strengths while addressing its limitations.

## **Citations:**

- "Worker and workplace Artificial Intelligence (AI) coexistence: Emerging themes and research agenda - ScienceDirect"
- "Can artificial intelligence's limitations drive innovative work behaviour? - PMC"
- "How artificial intelligence is transforming the world"<sup>1</sup>
- The impact of artificial intelligence on learner–instructor interaction in online learning | International Journal of Educational Technology in Higher Education"
- "Collaboration among recruiters and artificial intelligence: removing ..."
- "Experts on the Future of Work, Jobs Training and Skills"

## **References:**

1. <https://educationaltechnologyjournal.springeropen.com/articles/10.1186/s41239-021-00292-9>

## Appendix F

**Question:** For which of the 41 Work Activities is the use of publicly available AI most likely to improve the worker's efficiency?

**AI Response: The 41 Work Activities are:**

**Information Input:** Where and how is the information and data gained that are needed to perform this job?

[Estimating the Quantifiable Characteristics of Products, Events, or Information](#)

[Identifying Objects, Actions, and Events](#)

[Inspecting Equipment, Structures, or Materials](#)

[Getting Information](#)

[Monitoring Processes, Materials, or Surroundings](#)

**Interacting With Others:** What interactions with other persons or supervisory activities occur while performing this job?

[Monitoring and Controlling Resources](#)

[Performing Administrative Activities](#)

[Staffing Organizational Units](#)

[Assisting and Caring for Others](#)

[Communicating with People Outside the Organization](#)

[Communicating with Supervisors, Peers, or Subordinates](#)

[Establishing and Maintaining Interpersonal Relationships](#)

[Interpreting the Meaning of Information for Others](#)

[Performing for or Working Directly with the Public](#)

[Resolving Conflicts and Negotiating with Others](#)

[Selling or Influencing Others](#)

[Coaching and Developing Others](#)

[Coordinating the Work and Activities of Others](#)

[Developing and Building Teams](#)

[Guiding, Directing, and Motivating Subordinates](#)

[Providing Consultation and Advice to Others](#)

[Training and Teaching Others](#)

**Mental Processes:** What processing, planning, problem-solving, decision-making, and innovating activities are performed with job-relevant information?

[Analyzing Data or Information](#)

[Evaluating Information to Determine Compliance with Standards](#)

[Judging the Qualities of Objects, Services, or People](#)

[Processing Information](#)

[Developing Objectives and Strategies](#)  
[Making Decisions and Solving Problems](#)  
[Organizing, Planning, and Prioritizing Work](#)  
[Scheduling Work and Activities](#)  
[Thinking Creatively](#)  
[Updating and Using Relevant Knowledge](#)

## **Work Output**

[Documenting/Recording Information](#)  
[Drafting, Laying Out, and Specifying Technical Devices, Parts, and Equipment](#)  
[Repairing and Maintaining Electronic Equipment](#)  
[Repairing and Maintaining Mechanical Equipment](#)  
[Working with Computers](#)  
[Controlling Machines and Processes](#)  
[Handling and Moving Objects](#)  
[Operating Vehicles, Mechanized Devices, or Equipment](#)  
[Performing General Physical Activities](#)

## **Conclusion**

AI tells us that all of these activities can be done better and faster with the assistance of AI. However, we are seeking activities where the worker has the discretion to use AI or not. In general, the category of Mental Processes is the best match to the strengths of publicly available AI software.

Other categories could get a significant assist from technology developed for a specific purpose. For example, monitors for use in hospitals are being developed that are better able to detect dangerous situations, and these monitors save lives. But we are not looking for technological solutions, we are looking for activities in which the worker can take the initiative to use AI or not.

## Appendix G

To identify occupations for which **employees** are likely to improve their work performance by using AI, two U.S. Federal data sets were combined. O\*NET data provides ratings of occupations by Work Activities. Bureau of Labor Statistics data provides the number of workers and median salaries for each occupation each year (the most recent data is from 2023).

The lists below contain only occupations which require a high level of at least one of the 7 Work Activities which AI identified as most likely to require employees to use AI.

- The High Diversity Group includes occupations that require high levels of 6 or 7 of these work activities.
- The Medium Diversity Group includes occupations that require high levels of 3 to 5 of these work activities.
- The Low Diversity Group includes occupations that require 1 or 2 of these work activities.

All three of these groups will need to learn to use AI. But it is likely that the high diversity group, which has a wide variety of work activities that are impacted at a high level, will require more time, effort, and urgency to adapt to new tools. But all occupations listed here will require adaptation and need to prepare for these changes.

### High Diversity Group

OCC_CODE	OCC_TITLE	TOT_EMP	A_MEDIAN
11-3021	Computer and Information Systems Managers	592,600	169,510
11-3031	Financial Managers	787,340	156,100
11-9041	Architectural and Engineering Managers	207,800	165,370
11-9121	Natural Sciences Managers	96,520	157,740
11-9199	Managers, All Other	589,750	133,560
13-1081	Logisticians	228,470	79,400
13-1111	Management Analysts	838,140	99,410
13-1161	Market Research Analysts and Marketing Specialists	846,370	74,680
13-1199	Business Operations Specialists, All Other	1,103,440	79,590
13-2099	Financial Specialists, All Other	122,730	78,310
15-1211	Computer Systems Analysts	498,810	103,800
15-1242	Database Administrators	76,140	101,510
15-1243	Database Architects	59,920	134,700
15-1299	Computer Occupations, All Other	437,170	104,920
15-2031	Operations Research Analysts	117,880	83,640
15-2041	Statisticians	29,950	104,110
17-2011	Aerospace Engineers	66,660	130,720
17-2021	Agricultural Engineers	1,860	88,750

17-2041	Chemical Engineers	21,140	112,100
17-2061	Computer Hardware Engineers	82,660	138,080
17-2071	Electrical Engineers	185,430	106,950
17-2072	Electronics Engineers, Except Computer	96,410	119,200
17-2081	Environmental Engineers	39,880	100,090
17-2112	Industrial Engineers	332,870	99,380
17-2131	Materials Engineers	24,630	104,100
17-2141	Mechanical Engineers	281,290	99,510
17-2161	Nuclear Engineers	12,710	125,460
17-2171	Petroleum Engineers	20,390	135,690
17-2199	Engineers, All Other	150,990	111,970
19-1011	Animal Scientists	2,460	70,140
19-1012	Food Scientists and Technologists	14,100	82,090
19-1013	Soil and Plant Scientists	15,800	68,240
19-1021	Biochemists and Biophysicists	33,180	107,460
19-1029	Biological Scientists, All Other	61,220	91,100
19-1031	Conservation Scientists	22,790	68,750
19-1041	Epidemiologists	10,230	81,390
19-1042	Medical Scientists, Except Epidemiologists	136,620	100,890
19-2011	Astronomers	2,080	127,930
19-2012	Physicists	18,350	155,680
19-2032	Materials Scientists	8,810	106,160
19-2041	Environmental Scientists and Specialists, Including Health	80,730	78,980
19-2042	Geoscientists, Except Hydrologists and Geographers	24,620	92,580
19-2043	Hydrologists	6,150	88,770
19-2099	Physical Scientists, All Other	20,820	112,280
19-3011	Economists	16,420	115,730
19-3041	Sociologists	2,890	101,770
19-3051	Urban and Regional Planners	42,690	81,800
19-3091	Anthropologists and Archeologists	7,720	63,800
19-3099	Social Scientists and Related Workers, All Other	35,210	95,890
21-1091	Health Education Specialists	57,800	62,860
25-1021	Computer Science Teachers, Postsecondary	36,150	96,430
25-1032	Engineering Teachers, Postsecondary	38,370	106,910
25-1042	Biological Science Teachers, Postsecondary	52,050	83,920
25-1043	Forestry and Conservation Science Teachers, Postsecondary	1,260	101,650
25-1054	Physics Teachers, Postsecondary	14,030	98,020
25-1061	Anthropology and Archeology Teachers, Postsecondary	5,030	93,650
25-1065	Political Science Teachers, Postsecondary	17,090	93,810
25-1066	Psychology Teachers, Postsecondary	40,610	82,140
25-1067	Sociology Teachers, Postsecondary	12,870	82,670

25-1072	Nursing Instructors and Teachers, Postsecondary	72,700	80,780
25-1082	Library Science Teachers, Postsecondary	4,220	80,310
25-1123	English Language and Literature Teachers, Postsecondary	57,600	78,130
29-1141	Registered Nurses	3,175,390	86,070
29-1217	Neurologists	9,350	
29-1229	Physicians, All Other	310,080	236,000
29-1241	Ophthalmologists, Except Pediatric	11,530	
29-2036	Medical Dosimetrists	3,900	132,880
51-9022	Grinding and Polishing Workers, Hand	12,290	38,940
53-2012	Commercial Pilots	52,750	113,080
		12,497,910	103,553

### Medium Diversity Group

OCC_CODE	OCC_TITLE	TOT_EMP	A_MEDIAN
11-2022	Sales Managers	575,880	135,160
11-3051	Industrial Production Managers	222,890	116,970
11-3061	Purchasing Managers	77,530	136,380
11-3071	Transportation, Storage, and Distribution Managers	198,780	99,200
11-3111	Compensation and Benefits Managers	18,690	136,380
11-3121	Human Resources Managers	200,600	136,350
11-3131	Training and Development Managers	41,540	125,040
11-9033	Education Administrators, Postsecondary	167,270	102,610
11-9111	Medical and Health Services Managers	515,100	110,680
11-9161	Emergency Management Directors	11,910	83,960
11-9171	Funeral Home Managers	14,200	75,660
11-1011	Chief Executives	211,230	206,680
13-1041	Compliance Officers	383,620	75,670
13-1051	Cost Estimators	220,970	74,740
13-1131	Fundraisers	101,730	64,160
13-1141	Compensation, Benefits, and Job Analysis Specialists	99,850	74,530
13-2011	Accountants and Auditors	1,435,770	79,880
13-2052	Personal Financial Advisors	272,190	99,580
13-2061	Financial Examiners	63,440	84,300
15-1221	Computer and Information Research Scientists	35,210	145,080
15-1241	Computer Network Architects	174,100	129,840
15-1251	Computer Programmers	120,370	99,700
15-1253	Software Quality Assurance Analysts and Testers	203,040	101,800
15-1254	Web Developers	85,350	84,960
15-1255	Web and Digital Interface Designers	111,060	98,540
15-2011	Actuaries	25,470	120,000
15-2021	Mathematicians	2,220	116,440

15-2051	Data Scientists	192,710	108,020
15-2099	Mathematical Science Occupations, All Other	4,320	70,620
17-1011	Architects, Except Landscape and Naval	111,170	93,310
17-1012	Landscape Architects	20,370	79,320
17-1022	Surveyors	50,740	68,540
17-2031	Bioengineers and Biomedical Engineers	19,320	100,730
17-2051	Civil Engineers	327,950	95,890
17-2111	Health and Safety Engineers, Except Mining Safety Engineers and Inspectors	22,510	103,690
17-2121	Marine Engineers and Naval Architects	9,960	100,270
17-2151	Mining and Geological Engineers, Including Mining Safety Engineers	7,040	100,640
17-3026	Industrial Engineering Technologists and Technicians	73,020	62,610
17-3029	Engineering Technologists and Technicians, Except Drafters, All Other	66,200	73,500
19-1022	Microbiologists	21,540	85,470
19-1023	Zoologists and Wildlife Biologists	17,100	70,600
19-2021	Atmospheric and Space Scientists	9,310	92,860
19-3022	Survey Researchers	8,190	60,960
19-3032	Industrial-Organizational Psychologists	1,030	147,420
19-3033	Clinical and Counseling Psychologists	71,730	96,100
19-3039	Psychologists, All Other	14,480	117,750
19-3092	Geographers	1,460	90,880
19-3094	Political Scientists	5,580	132,350
19-4061	Social Science Research Assistants	30,890	56,400
19-4071	Forest and Conservation Technicians	28,740	51,880
19-4099	Life, Physical, and Social Science Technicians, All Other	72,230	58,350
19-5011	Occupational Health and Safety Specialists	122,300	81,140
19-5012	Occupational Health and Safety Technicians	27,270	57,920
21-1012	Educational, Guidance, and Career Counselors and Advisors	327,660	61,710
21-1023	Mental Health and Substance Abuse Social Workers	114,680	55,960
21-1092	Probation Officers and Correctional Treatment Specialists	85,870	61,800
23-1011	Lawyers	731,340	145,760
23-1021	Administrative Law Judges, Adjudicators, and Hearing Officers	14,670	111,090
23-1022	Arbitrators, Mediators, and Conciliators	7,060	71,540
23-1023	Judges, Magistrate Judges, and Magistrates	24,470	148,910
25-1011	Business Teachers, Postsecondary	82,980	97,130
25-1031	Architecture Teachers, Postsecondary	8,350	105,770
25-1041	Agricultural Sciences Teachers, Postsecondary	7,550	85,260
25-1051	Atmospheric, Earth, Marine, and Space Sciences Teachers, Postsecondary	11,770	100,690

25-1052	Chemistry Teachers, Postsecondary	20,210	85,810
25-1053	Environmental Science Teachers, Postsecondary	7,120	88,410
25-1062	Area, Ethnic, and Cultural Studies Teachers, Postsecondary	11,570	86,030
25-1063	Economics Teachers, Postsecondary	12,210	115,300
25-1064	Geography Teachers, Postsecondary	3,480	85,600
25-1071	Health Specialties Teachers, Postsecondary	225,360	105,650
25-1081	Education Teachers, Postsecondary	60,860	73,240
25-1111	Criminal Justice and Law Enforcement Teachers, Postsecondary	13,390	69,030
25-1112	Law Teachers, Postsecondary	14,570	127,360
25-1113	Social Work Teachers, Postsecondary	11,730	75,020
25-1121	Art, Drama, and Music Teachers, Postsecondary	101,500	80,360
25-1122	Communications Teachers, Postsecondary	28,520	79,910
25-1125	History Teachers, Postsecondary	20,610	82,140
25-1126	Philosophy and Religion Teachers, Postsecondary	20,320	79,930
25-1193	Recreation and Fitness Studies Teachers, Postsecondary	13,270	75,770
25-2022	Middle School Teachers, Except Special and Career/Technical Education	626,690	64,290
25-2032	Career/Technical Education Teachers, Secondary School	90,070	65,130
25-4011	Archivists	7,150	59,910
25-4012	Curators	12,510	61,750
25-9031	Instructional Coordinators	207,270	74,620
27-1011	Art Directors	51,200	106,500
27-1024	Graphic Designers	212,720	58,910
27-1025	Interior Designers	67,760	62,510
27-1027	Set and Exhibit Designers	10,090	59,490
27-2012	Producers and Directors	154,470	82,510
27-2032	Choreographers	4,190	52,000
27-3011	Broadcast Announcers and Radio Disc Jockeys	25,070	44,890
27-3031	Public Relations Specialists	275,550	66,750
27-3043	Writers and Authors	49,450	73,690
27-4011	Audio and Video Technicians	66,700	51,640
27-4032	Film and Video Editors	29,240	66,600
29-1021	Dentists, General	121,640	166,300
29-1022	Oral and Maxillofacial Surgeons	4,160	
29-1023	Orthodontists	6,400	
29-1024	Prosthodontists	570	234,000
29-1041	Optometrists	41,390	131,860
29-1071	Physician Assistants	145,740	130,020
29-1122	Occupational Therapists	144,840	96,370
29-1124	Radiation Therapists	16,640	98,300



29-1129	Therapists, All Other	16,490	63,650
29-1151	Nurse Anesthetists	47,810	212,650
29-1161	Nurse Midwives	6,960	129,650
29-1171	Nurse Practitioners	280,140	126,260
29-1181	Audiologists	13,880	87,740
29-1211	Anesthesiologists	33,470	
29-1216	General Internal Medicine Physicians	67,210	223,310
29-1218	Obstetricians and Gynecologists	19,820	
29-1222	Physicians, Pathologists	11,020	
29-1223	Psychiatrists	24,830	
29-1224	Radiologists	31,960	
29-1291	Acupuncturists	9,370	78,220
29-1299	Healthcare Diagnosing or Treating Practitioners, All Other	31,100	107,990
29-2091	Orthotists and Prosthetists	8,820	78,100
29-9091	Athletic Trainers	28,480	57,930
29-9099	Healthcare Practitioners and Technical Workers, All Other	36,900	63,630
31-9092	Medical Assistants	763,040	42,000
31-9093	Medical Equipment Preparers	66,790	45,280
31-9097	Phlebotomists	137,080	41,810
33-1012	First-Line Supervisors of Police and Detectives	138,140	101,750
33-1021	First-Line Supervisors of Firefighting and Prevention Workers	84,120	86,220
33-3021	Detectives and Criminal Investigators	106,730	91,100
33-3031	Fish and Game Wardens	6,290	60,380
33-3051	Police and Sheriff's Patrol Officers	646,310	72,280
33-9099	Protective Service Workers, All Other	82,500	39,360
43-5011	Cargo and Freight Agents	105,220	48,330
43-5031	Public Safety Telecommunicators	97,820	48,890
43-9111	Statistical Assistants	7,200	50,510
47-5032	Explosives Workers, Ordnance Handling Experts, and Blasters	4,610	61,590
49-2021	Radio, Cellular, and Tower Equipment Installers and Repairers	11,810	61,310
49-9095	Manufactured Building and Mobile Home Installers	2,910	38,980
51-8011	Nuclear Power Reactor Operators	5,760	120,350
51-8012	Power Distributors and Dispatchers	9,040	104,750
53-2011	Airline Pilots, Copilots, and Flight Engineers	93,670	219,140
53-2021	Air Traffic Controllers	22,310	137,380
53-6051	Transportation Inspectors	27,670	87,290
		14,367,080	92,595

**Low Diversity Group**

OCC_CODE	OCC_TITLE	TOT_EMP	A_MEDIAN
11-2011	Advertising and Promotions Managers	20,630	131,870
11-2021	Marketing Managers	368,940	157,620
11-3012	Administrative Services Managers	242,520	106,470
11-3013	Facilities Managers	131,400	102,340
11-9013	Farmers, Ranchers, and Other Agricultural Managers	6,150	83,770
11-9021	Construction Managers	329,190	104,900
11-9032	Education Administrators, Kindergarten through Secondary	302,580	103,460
11-9081	Lodging Managers	41,980	65,360
11-9131	Postmasters and Mail Superintendents	13,810	88,670
11-9141	Property, Real Estate, and Community Association Managers	284,120	62,850
11-9151	Social and Community Service Managers	173,650	77,030
11-9179	Personal Service Managers, All Other	11,170	57,570
11-1021	General and Operations Managers	3,507,810	101,280
13-1011	Agents and Business Managers of Artists, Performers, and Athletes	12,870	84,900
13-1031	Claims Adjusters, Examiners, and Investigators	293,780	75,050
13-1071	Human Resources Specialists	895,970	67,650
13-1075	Labor Relations Specialists	62,800	89,980
13-1121	Meeting, Convention, and Event Planners	122,130	56,920
13-1151	Training and Development Specialists	403,480	64,340
13-2031	Budget Analysts	47,310	84,940
13-2041	Credit Analysts	73,200	79,420
13-2081	Tax Examiners and Collectors, and Revenue Agents	50,250	58,530
13-2082	Tax Preparers	81,650	49,010
15-1212	Information Security Analysts	175,350	120,360
15-1231	Computer Network Support Specialists	158,720	71,530
15-1232	Computer User Support Specialists	689,700	59,240
15-1244	Network and Computer Systems Administrators	323,020	95,360
17-1021	Cartographers and Photogrammetrists	12,330	76,210
17-3011	Architectural and Civil Drafters	111,070	61,820
17-3012	Electrical and Electronics Drafters	20,680	69,260
17-3021	Aerospace Engineering and Operations Technologists and Technicians	10,640	77,830
17-3023	Electrical and Electronic Engineering Technologists and Technicians	97,420	72,800
17-3027	Mechanical Engineering Technologists and Technicians	38,930	64,020

19-1032	Foresters	9,450	67,330
19-2031	Chemists	83,530	84,680
19-4012	Agricultural Technicians	13,150	43,180
19-4021	Biological Technicians	76,990	51,430
19-4031	Chemical Technicians	55,880	56,750
19-4051	Nuclear Technicians	5,400	101,740
19-4092	Forensic Science Technicians	17,520	64,940
21-1015	Rehabilitation Counselors	84,750	44,040
21-1022	Healthcare Social Workers	185,020	62,940
21-1094	Community Health Workers	58,550	48,200
21-2021	Directors, Religious Activities and Education	23,270	50,140
23-1012	Judicial Law Clerks	14,680	57,490
23-2011	Paralegals and Legal Assistants	354,890	60,970
23-2093	Title Examiners, Abstractors, and Searchers	49,760	53,550
25-1022	Mathematical Science Teachers, Postsecondary	48,230	81,020
25-1124	Foreign Language and Literature Teachers, Postsecondary	20,820	78,760
25-1192	Family and Consumer Sciences Teachers, Postsecondary	2,660	78,410
25-1194	Career/Technical Education Teachers, Postsecondary	111,180	62,060
25-2012	Kindergarten Teachers, Except Special Education	118,580	62,690
25-2021	Elementary School Teachers, Except Special Education	1,410,070	63,680
25-2031	Secondary School Teachers, Except Special and Career/Technical Education	1,045,170	65,220
25-2057	Special Education Teachers, Middle School	88,850	66,600
25-2058	Special Education Teachers, Secondary School	158,150	66,620
25-2059	Special Education Teachers, All Other	43,700	67,190
25-4022	Librarians and Media Collections Specialists	133,760	64,370
25-9021	Farm and Home Management Educators	8,110	59,770
27-1012	Craft Artists	5,830	36,600
27-1013	Fine Artists, Including Painters, Sculptors, and Illustrators	10,910	59,300
27-1014	Special Effects Artists and Animators	29,940	99,060
27-1021	Commercial and Industrial Designers	30,810	76,250
27-1022	Fashion Designers	19,940	79,290
27-2021	Athletes and Sports Competitors	14,930	70,280
27-2022	Coaches and Scouts	238,980	45,910
27-2041	Music Directors and Composers	10,770	62,590
27-3042	Technical Writers	47,970	80,050
27-3092	Court Reporters and Simultaneous Captioners	12,390	63,940
27-4012	Broadcast Technicians	26,190	57,690

27-4014	Sound Engineering Technicians	14,600	59,430
27-4021	Photographers	53,630	40,760
27-4031	Camera Operators, Television, Video, and Film	23,940	61,800
29-1011	Chiropractors	41,480	76,530
29-1031	Dietitians and Nutritionists	73,860	69,680
29-1051	Pharmacists	331,700	136,030
29-1081	Podiatrists	9,470	141,650
29-1123	Physical Therapists	240,820	99,710
29-1125	Recreational Therapists	15,540	57,120
29-1126	Respiratory Therapists	129,750	77,960
29-1127	Speech-Language Pathologists	172,100	89,290
29-1128	Exercise Physiologists	8,060	54,860
29-1131	Veterinarians	78,220	119,100
29-1213	Dermatologists	12,040	
29-1215	Family Medicine Physicians	112,010	224,640
29-1221	Pediatricians, General	34,870	198,690
29-1292	Dental Hygienists	211,630	87,530
29-2032	Diagnostic Medical Sonographers	82,780	84,470
29-2033	Nuclear Medicine Technologists	16,560	92,500
29-2034	Radiologic Technologists and Technicians	221,170	73,410
29-2055	Surgical Technologists	110,320	60,610
29-2056	Veterinary Technologists and Technicians	122,000	43,740
29-2061	Licensed Practical and Licensed Vocational Nurses	630,250	59,730
29-2081	Opticians, Dispensing	76,770	44,170
29-2092	Hearing Aid Specialists	10,250	58,670
29-2099	Health Technologists and Technicians, All Other	171,110	47,470
29-9092	Genetic Counselors	3,050	95,770
29-9093	Surgical Assistants	18,780	59,160
31-2011	Occupational Therapy Assistants	46,090	67,010
31-2021	Physical Therapist Assistants	104,000	64,080
31-2022	Physical Therapist Aides	42,390	33,520
31-9091	Dental Assistants	370,690	46,540
31-9095	Pharmacy Aides	43,830	36,200
33-1011	First-Line Supervisors of Correctional Officers	52,280	70,530
33-2011	Firefighters	315,460	57,120
33-2021	Fire Inspectors and Investigators	14,200	74,160
33-2022	Forest Fire Inspectors and Prevention Specialists	2,270	54,080
33-3011	Bailiffs	15,900	53,040
33-9021	Private Detectives and Investigators	34,600	49,540
33-9031	Gambling Surveillance Officers and Gambling Investigators	10,660	39,210

33-9032	Security Guards	1,202,940	37,070
35-1011	Chefs and Head Cooks	172,370	58,920
37-1012	First-Line Supervisors of Landscaping, Lawn Service, and Groundskeeping Workers	126,020	55,740
39-2011	Animal Trainers	19,240	38,810
39-4031	Morticians, Undertakers, and Funeral Arrangers	24,200	51,030
39-5012	Hairdressers, Hairstylists, and Cosmetologists	294,840	34,970
39-5091	Makeup Artists, Theatrical and Performance	4,130	47,390
39-9032	Recreation Workers	281,750	34,410
41-1012	First-Line Supervisors of Non-Retail Sales Workers	227,150	84,570
41-3011	Advertising Sales Agents	108,100	61,270
41-9022	Real Estate Sales Agents	197,720	54,300
41-9031	Sales Engineers	59,340	116,950
41-9041	Telemarketers	81,580	34,480
43-4061	Eligibility Interviewers, Government Programs	150,190	50,270
43-4111	Interviewers, Except Eligibility and Loan	160,550	40,300
43-4131	Loan Interviewers and Clerks	203,940	47,380
43-4161	Human Resources Assistants, Except Payroll and Timekeeping	101,440	47,710
43-6011	Executive Secretaries and Executive Administrative Assistants	483,570	70,310
43-6012	Legal Secretaries and Administrative Assistants	152,790	50,680
43-9021	Data Entry Keyers	154,230	37,790
43-9022	Word Processors and Typists	37,200	46,450
47-1011	First-Line Supervisors of Construction Trades and Extraction Workers	777,420	76,760
47-2111	Electricians	712,580	61,590
47-3013	Helpers--Electricians	68,670	38,340
47-4011	Construction and Building Inspectors	133,640	67,700
47-4051	Highway Maintenance Workers	150,860	47,360
47-5013	Service Unit Operators, Oil and Gas	46,150	55,750
47-5041	Continuous Mining Machine Operators	15,700	61,420
47-5071	Roustabouts, Oil and Gas	43,830	46,340
47-5081	Helpers--Extraction Workers	7,360	45,520
49-1011	First-Line Supervisors of Mechanics, Installers, and Repairers	589,880	75,820
49-2011	Computer, Automated Teller, and Office Machine Repairers	77,580	45,760
49-2022	Telecommunications Equipment Installers and Repairers, Except Line Installers	159,670	61,270
49-2091	Avionics Technicians	21,280	77,420

49-2095	Electrical and Electronics Repairers, Powerhouse, Substation, and Relay	24,790	96,600
49-2096	Electronic Equipment Installers and Repairers, Motor Vehicles	8,900	45,570
49-2097	Audiovisual Equipment Installers and Repairers	24,720	48,380
49-3011	Aircraft Mechanics and Service Technicians	137,630	75,020
49-3021	Automotive Body and Related Repairers	151,910	48,740
49-3023	Automotive Service Technicians and Mechanics	676,570	47,770
49-3052	Motorcycle Mechanics	14,330	46,270
49-3091	Bicycle Repairers	13,980	38,320
49-9012	Control and Valve Installers and Repairers, Except Mechanical Door	47,780	70,100
49-9031	Home Appliance Repairers	29,950	47,170
49-9044	Millwrights	37,930	62,980
49-9062	Medical Equipment Repairers	64,400	60,670
49-9071	Maintenance and Repair Workers, General	1,503,150	46,700
51-4023	Rolling Machine Setters, Operators, and Tenders, Metal and Plastic	24,750	47,040
51-4062	Patternmakers, Metal and Plastic	2,150	49,670
51-4081	Multiple Machine Tool Setters, Operators, and Tenders, Metal and Plastic	127,790	41,600
51-5111	Prepress Technicians and Workers	23,590	45,070
51-5112	Printing Press Operators	151,450	41,860
51-7032	Patternmakers, Wood	260	48,630
51-8013	Power Plant Operators	31,490	97,010
51-8031	Water and Wastewater Treatment Plant and System Operators	120,710	54,890
51-9081	Dental Laboratory Technicians	34,190	47,690
51-9141	Semiconductor Processing Technicians	26,450	45,850
51-9162	Computer Numerically Controlled Tool Programmers	28,030	63,440
53-1041	Aircraft Cargo Handling Supervisors	9,020	58,920
53-2022	Airfield Operations Specialists	18,320	51,140
53-5021	Captains, Mates, and Pilots of Water Vessels	34,520	88,730
53-5031	Ship Engineers	8,860	94,270
53-7071	Gas Compressor and Gas Pumping Station Operators	4,400	61,870
53-7072	Pump Operators, Except Wellhead Pumps	11,570	54,690
		28,306,660	67,428