Need for Speed:
CTE Industry Partnerships & Skill Development
NCATC, Wichita, KS  September 2023
US Labor Market Trends

- Boomer, Women exits
- ‘Worker Market’
- Hybrid /Remote Work
- Flexible Benefits
- ‘Work for Purpose’
- Speed of Change
What are organizations concerned about regarding their workforce?
(2023 Workplace Learning Report, LinkedIn)

Skill sets for jobs have changed 25% since 2015

By 2027 this number is expected to double

83% of organizations want to build a more people-centric culture

93% of organizations are concerned about employee retention

The #1-way to improve retention is by providing learning opportunities
<table>
<thead>
<tr>
<th>Business Transformation Barriers, 2023-27</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Skills gaps in the local labour market</td>
</tr>
<tr>
<td>2. Inability to attract talent</td>
</tr>
<tr>
<td>3. Outdated or inflexible regulatory framework</td>
</tr>
<tr>
<td>4. Skills gaps among the organization’s leadership</td>
</tr>
<tr>
<td>5. Shortage of investment capital</td>
</tr>
<tr>
<td>6. Insufficient understanding of opportunities</td>
</tr>
</tbody>
</table>

Source
Employee Agility for New Normal

Success requires speed in learning models:

• Skills evolving rapidly
• > 50% of today’s jobs are projected to change/disappear in 10 years
• New jobs require new skills, with new knowledge
• IBM estimates human knowledge will soon double every 12 hours
• Increased turnover rates (>50% indicate evaluation of alternative options)
• Hindered productivity and growth
• Lack of confidence in skills = mental health concerns, reduced employee engagement
Trends Likely to Drive Organizational Transformation

- Increased adoption of new and frontier technologies: 86.2%
- Broader digital access: 86.1%
- Broader application of Environmental, Social and Governance (ESG) standards: 80.6%
- Rising cost of living for consumers: 74.9%
- Slower global economic growth: 73.0%
- Investments to facilitate the green transition of your business: 69.1%
- Supply shortages and/or rising cost of inputs for your business: 68.8%
- Consumers becoming more vocal on social issues: 67.6%
- Consumers becoming more vocal on environmental issues: 67.5%
- Climate-change induced investments into adapting operations: 66.1%
- Supply chains becoming more localized: 60.0%
- Stricter government regulation of data use and technology: 59.2%
- Ageing populations in advanced and emerging economies: 51.6%
- Demographic dividend in developing and emerging economies: 49.6%
- Increased geopolitical divisions: 48.1%
- Ongoing impact of the COVID pandemic: 43.1%

Source:
Technology Adoption, 2023-27

- Digital platforms and apps: 86.4%
- Education and workforce development technologies: 84.9%
- Big-data analytics: 80.0%
- Internet of things and connected devices: 78.8%
- Cloud computing: 78.8%
- Encryption and cybersecurity: 75.6%
- E-commerce and digital trade: 75.3%
- Artificial intelligence: 74.9%
- Environmental management technologies: 64.5%
- Climate-change mitigation technology: 62.6%
- Text, image, and voice processing: 51.8%
- Augmented and virtual reality: 39.1%
- Power storage and generation: 52.1%
- Electric and autonomous vehicles: 51.5%
- Robots, non-humanoid: 51.3%

Source
### Work Augmentation

The predominant impact of intelligent technologies will be to augment work

<table>
<thead>
<tr>
<th>Category</th>
<th>Uniquely Human</th>
<th>Augmentable</th>
<th>Automatable</th>
</tr>
</thead>
<tbody>
<tr>
<td>All Occupations</td>
<td>38%</td>
<td>51%</td>
<td>11%</td>
</tr>
<tr>
<td>Science &amp; Engineering</td>
<td>61%</td>
<td>74%</td>
<td>8%</td>
</tr>
<tr>
<td>Empathy &amp; Support</td>
<td>64%</td>
<td>13%</td>
<td>23%</td>
</tr>
<tr>
<td>Relational Subject Matter Expertise</td>
<td>21%</td>
<td>3%</td>
<td>9%</td>
</tr>
<tr>
<td>Analytical Subject Matter Expertise</td>
<td>9%</td>
<td>61%</td>
<td>30%</td>
</tr>
<tr>
<td>Management &amp; Leadership</td>
<td>54%</td>
<td>20%</td>
<td>26%</td>
</tr>
<tr>
<td>Process &amp; Analysis</td>
<td>40%</td>
<td>9%</td>
<td>49%</td>
</tr>
<tr>
<td>Technical Equipment Maintenance</td>
<td>49%</td>
<td>4%</td>
<td>47%</td>
</tr>
<tr>
<td>Machine Operation and Maneuvering</td>
<td>45%</td>
<td>3%</td>
<td>51%</td>
</tr>
<tr>
<td>Physical Services</td>
<td>45%</td>
<td>21%</td>
<td>34%</td>
</tr>
<tr>
<td>Physical Manual Labor</td>
<td>31%</td>
<td>3%</td>
<td>66%</td>
</tr>
</tbody>
</table>

- Proportion of work time that is uniquely human
- Proportion of worker time that is augmentable
- Proportion of worker time that is automatable

Unrestricted | © Siemens 2023 | DI CS SD TR|
Jobs Created/Displaced by Megatrends

Source
Move to Hiring for Skills Not Credentials

Skills, not credentials

Employers can expand and retain their talent pools through skills-based hiring—moving beyond degrees and job titles on résumés to attract a broader and more diverse set of applicants.

Hiring for skills is 5× more predictive of job performance than hiring for education

Workers without college degrees tend to stay in their jobs 34%

>2× more predictive of job performance than hiring for work experience

Workers without degrees longer than workers with degrees

Article
Taking a skills-based approach to building the future workforce
To evaluate the competency gap key drivers are analyzed:

**COMPETENCY SUPPLY**

- **Attrition**
  - Retirement
  - Resignation of employees
  - Restructuring

- **Productivity**

- **Sourcing/Assessment**
  - External
  - Internal

- **Development/re-skilling**

**COMPETENCY DEMAND**

Current workforce

Future workforce
Core Skills Changing in Next 5 Years

Source:

Note:
Values reported are the mean skill stability percentages estimated by organizations surveyed in each edition of the survey.
CTE Instructors Job Postings Overview

9,620
Unique Postings
21,865 Total Postings

1,535
Employers Competing
1.03M Total Employers

35 Days
Median Posting Duration
Regional Average: 30 Days

2:1
Posting Intensity
Regional Average: 3:1

Source: Lightcast Q3 2023 Data Set
Salary Advertised for CTE Instructors

There are 3,722 advertised salary observations (39% of the 9,620 matching postings).

$68.0K
Median Advertised Salary

Source: Lightcast  Q3 2023 Data Set
## Top Qualifications

<table>
<thead>
<tr>
<th>Qualification</th>
<th>Postings with Qualification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teaching Certificate</td>
<td>1,483</td>
</tr>
<tr>
<td>Valid Driver's License</td>
<td>1,044</td>
</tr>
<tr>
<td>Registered Nurse (RN)</td>
<td>485</td>
</tr>
<tr>
<td>Cardiopulmonary Resuscitation (CPR) Certification</td>
<td>266</td>
</tr>
<tr>
<td>First Aid Certification</td>
<td>220</td>
</tr>
<tr>
<td>Automotive Service Excellence (ASE) Certification</td>
<td>214</td>
</tr>
<tr>
<td>Certified Nursing Assistant (CNA)</td>
<td>150</td>
</tr>
<tr>
<td>Licensed Practical Nurse (LPN)</td>
<td>128</td>
</tr>
<tr>
<td>Basic Life Support (BLS) Certification</td>
<td>125</td>
</tr>
<tr>
<td>English Learner Authorization</td>
<td>90</td>
</tr>
</tbody>
</table>

Source: Lightcast Q3 2023 Data Set
Contacts

Gail Norris
Director, Digital Industries Learning
Mobile 678 640 4889
E-mail gail.norris@siemens.com

Emily Howarth
Program Manager, SD Next Gen
Mobile 470 721 1780
E-mail emily.howarth@siemens.com

Amy Howell
Program Developer, Lorain County Community College
Mobile 513 288 2035
E-mail a.Howell@lorainccc.edu

Annette Vickers
Senior Research Manager, ARM Institute
Mobile 412 855 2641
E-mail annette.vickers@arminstitute.org
Backup
2023 Core Skills and Skill Set Fulfillment

Core skill for workers in 2023

1. Analytical thinking
2. Creative thinking
3. Resilience, flexibility and agility
4. Motivation and self-awareness
5. Curiosity and lifelong learning
6. Technological literacy
7. Dependability and attention to detail
8. Empathy and active listening
9. Leadership and social influence
10. Quality control
11. Systems thinking
12. Talent management
13. Service orientation and customer service
14. Resource management and operations
15. AI and big data
16. Reading, writing and mathematics
17. Design and user experience
18. Multilingualism
19. Teaching and mentoring
20. Programming
21. Marketing and media
22. Networks and cybersecurity
23. Environmental stewardship
24. Manual dexterity, endurance and precision
25. Global citizenship
26. Sensory-processing abilities

Estimated average skill set

Tasks Expected to be Automated within Five Years (%)
Churn of Occupations, 2023-27

Source:
Advantages of Upskilling/Reskilling Employees

**Competitive advantage of companies that focus on people and performance**

- **Performance-focused companies**
- **People-focused companies**
- **Companies focused on performance and people**
- **Typical performers**

### Size
Greater economic profit, $ billion

- 
- 0.1
- 0.4
- 1.1

### Profitability
High returns on invested capital, %

- 6
- 9
- 28

### Resilience
Better revenue growth during the pandemic, %

- 3
- 4
- 6
- 8

---

Report - McKinsey Global Institute

*Performance through people: Transforming human capital into competitive advantage*