DISRUPTIVE TECHNOLOGIES AND THEIR IMPACT ON THE FUTURE OF WORK

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Who am I?
AGENDA

‣ What is Advancing AI Wisconsin?
‣ What do we mean by Disruptive Technologies and Artificial Intelligence?
‣ What impact will they have on the future of work?
‣ How do we build a strong Talent Pipeline in an era of Artificial Intelligence?
‣ What role might you play? What actions can you take immediately?
‣ Q&A
Advancing AI Wisconsin is a grassroots initiative to increase awareness of a set of technologies often referred to as “Digital Disruption Technologies” and their impact on Wisconsin businesses, workforce needs, educational programming and the State overall.

MISSION

We enable Wisconsin stakeholders to successfully adapt to the imminent impact of Artificial Intelligence and other Digital Disruption Technologies in the context of the Fourth Industrial Revolution.

VISION

We will create meaningful momentum in discussions and collaboration among and between Wisconsin business and technology leaders, educators, policy makers, and economic development professionals on the topic of Artificial Intelligence and other Digital Disruption Technologies.
The end of passports? How Australia plans to make travel documents obsolete.

Kathy Henrich @kshenri · Oct 9

Banks team up with IBM in trade finance blockchain ft.com/content/7dc873...
via @FT

DISRUPTION!!!
Figure 2: Job impacts of cognitive processing and robotic automation: The hollowing out of the workforce

- **Low-skilled but high dexterity and perception**
- **High-skilled but with cognitive augmentation and support in some cases**

**Skills**
- Requires some judgment within a rules base
- Highly complex, requires judgment and/or creativity

Let Humans Be Humans
Humans Must Interact With Technology
Jobs Will Certainly Be Lost
New Jobs Will be Created
We Must Prepare!
○ K12
○ Post-secondary
○ Corporate Reskilling
Building the Future of Work

https://advancingaiwisconsin.com/home/talent-whitepaper/
## Top 10 skills

<table>
<thead>
<tr>
<th>in 2020</th>
<th>in 2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Complex Problem Solving</td>
<td>1. Complex Problem Solving</td>
</tr>
<tr>
<td>2. Critical Thinking</td>
<td>2. Coordinating with Others</td>
</tr>
<tr>
<td>3. Creativity</td>
<td>3. People Management</td>
</tr>
<tr>
<td>4. People Management</td>
<td>4. Critical Thinking</td>
</tr>
<tr>
<td>5. Coordinating with Others</td>
<td>5. Negotiation</td>
</tr>
<tr>
<td>6. Emotional Intelligence</td>
<td>6. Quality Control</td>
</tr>
<tr>
<td>7. Judgment and Decision Making</td>
<td>7. Service Orientation</td>
</tr>
</tbody>
</table>

Source: Future of Jobs Report, World Economic Forum
JOBS FOR THE FUTURE – CURRENT VIEW

### Occupation Growth Rate, 2016-26

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Growth Rate, 2016-26</th>
<th>2016 Median Pay</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solar photovoltaic installers</td>
<td>105%</td>
<td>$39,249 per year</td>
</tr>
<tr>
<td>Wind turbine service technicians</td>
<td>96%</td>
<td>$52,260 per year</td>
</tr>
<tr>
<td>Home health aides</td>
<td>47%</td>
<td>$22,600 per year</td>
</tr>
<tr>
<td>Personal care aides</td>
<td>37%</td>
<td>$21,500 per year</td>
</tr>
<tr>
<td>Physician assistants</td>
<td>37%</td>
<td>$101,480 per year</td>
</tr>
<tr>
<td>Nurse practitioners</td>
<td>36%</td>
<td>$100,910 per year</td>
</tr>
<tr>
<td>Statisticians</td>
<td>33%</td>
<td>$80,500 per year</td>
</tr>
<tr>
<td>Physical therapist assistants</td>
<td>31%</td>
<td>$56,610 per year</td>
</tr>
<tr>
<td>Software developers, applications</td>
<td>30%</td>
<td>$100,080 per year</td>
</tr>
<tr>
<td>Mathematicians</td>
<td>29%</td>
<td>$105,810 per year</td>
</tr>
<tr>
<td>Bicycle repairers</td>
<td>29%</td>
<td>$27,630 per year</td>
</tr>
<tr>
<td>Medical assistants</td>
<td>29%</td>
<td>$31,540 per year</td>
</tr>
<tr>
<td>Physical therapist aides</td>
<td>29%</td>
<td>$25,600 per year</td>
</tr>
<tr>
<td>Occupational therapy assistants</td>
<td>29%</td>
<td>$59,610 per year</td>
</tr>
<tr>
<td>Information security analysts</td>
<td>28%</td>
<td>$92,600 per year</td>
</tr>
<tr>
<td>Genetic counselors</td>
<td>28%</td>
<td>$74,120 per year</td>
</tr>
<tr>
<td>Operations research analysts</td>
<td>22%</td>
<td>$79,200 per year</td>
</tr>
</tbody>
</table>

Which data skill sets are needed most in an array of industries:

<table>
<thead>
<tr>
<th>Industry</th>
<th>Analytics-enabled jobs</th>
<th>Data science jobs</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Data-driven decision makers</td>
<td>Functional analysts</td>
</tr>
<tr>
<td>Finance and Insurance</td>
<td>26%</td>
<td>51%</td>
</tr>
<tr>
<td>Health Care and Social Assistance</td>
<td>32%</td>
<td>44%</td>
</tr>
<tr>
<td>Information</td>
<td>43%</td>
<td>23%</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>45%</td>
<td>25%</td>
</tr>
<tr>
<td>Professional, Scientific, and Technical Services</td>
<td>30%</td>
<td>29%</td>
</tr>
<tr>
<td>Retail Trade</td>
<td>46%</td>
<td>35%</td>
</tr>
</tbody>
</table>

Source: PWC
EDUCATION IS THE BEST PROTECTION

The best paid, least vulnerable occupations are doctors, dentists and CEOs.

The best paid, most vulnerable occupations include accountants, benefits managers, credit analysts, and various insurance professionals.

Some lower-wage jobs with higher-education requirements are less likely to be automated.

Low-paid occupations also tend to be most at-risk. They include cashiers, drivers, and food service workers.

Least likely to be automated → Most likely to be automated

DATA: FREY & OSBORNE, BUREAU OF LABOR STATISTICS

- Doctoral or Professional Degree
- Master's
- Bachelor's
- Associate's
- Postsecondary Nondegree Award
- Some College
- High School Diploma or Equivalent
- No Formal Education Credential
SKILLS FOR THE FUTURE: HUMANICS

Data Literacy

Technological Literacy

Human Literacy

Developed through Experiential Learning

Feb 14: Testimony to IT Subcommittee.

Dr Charles Isbell from Georgia Institute of Technology had a similar response when asked about skills that all college students need to prepare for AI:

AI SKILLS PIPELINE: INTERDEPENDENCE

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**"Inventor"**
- New Algorithms/math

**"Engineer"**
- Apply Existing Technology to solve new issues

**"Utilizer"**
- Domain Expert
- HealthCare

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**K-12**
- STEM Interest
- Technical Skills
- "Maker Culture"
- Career Awareness

**Post-Secondary**
- Non-Traditional Students
- Credential based

**Industry Reskilling**
- Informing Education
- Experiential Learning
21st Century Leadership – Focus on Talent

This session will provide an opportunity for gaining insights and shared benchmarking and best practices around talent pipeline development and re-skilling teams. Leave with specific ideas for creating success in highly competitive spaces and for optimizing recruitment and retention strategies.

Answered: 8 Skipped: 8

**ANSWER CHOICES**

- Learn how to best influence and change organization culture in order to create truly innovative organizations
- Learn what breakthrough innovation organizations are doing to acquire and retain talent
- Identify advantages and tactics for re-skilling your current workforce
- Validate ideas with peers and generate insights
- Additional Ideas (please specify)
OPTIONS TO ACQUIRE AI CAPABILITY

BUY
Linkedin: 9x growth in last 5 years
Tencent: At least 3x growth in next 3 years
JFG: Data Scientists are new “pro athletes”

BUILD
Domain Expertise required to train the data for industry specific
Design Thinking, Artificial Intelligence Capabilities, etc.
Experiential learning, agile

OUTSOURCE
Integration into SAP, Salesforce, Workday, etc.
IT Outsourcers integrating into helpdesk, service management
KSH VIEW OF RE-SKILLING

**ENVISION**
- Technical Capabilities
- Design Thinking
- Agile

**ASSESS**
- Role Requirements
- Worker Skills, Motivation, Performance

**RE-SKILL**
- Better Job
- Retain Expertise
- Experiential learning

**SHARE**
- Profit
- Other Benefits

Transformational Leadership Skills

* KSH Trademark Pending
RECOMMENDATIONS:

Get Educated
Identify of New Opportunities for Experimentation
Engage with Local Schools (K-12, Tech, Post-Secondary)
Stay Connected to Advancing AI Wisconsin

- Twitter: @AdvancingAIWI
- LinkedIn: https://www.linkedin.com/groups/8636828
- Join our mailing list: https://advancingaiwisconsin.com/ (bottom of page)
RESEARCH...

PwC economists assess how and when workers will be affected by coming waves of automation

We don’t believe that automation will lead to mass technological unemployment by the 2030s any more than it has done in the decades since the digital revolution began......But we should not be complacent about the coming waves of automation: there will be challenges to many workers to adapt to these changes through enhancing their skills and retraining for new career in some cases.....”

- John Hawksworth, Chief Economist at PwC

About half the activities...have the potential to be automated by adapting currently demonstrated technology....

While less than 5% of all occupations can be automated entirely....about 60% of all occupations have at least 30% of constituent activities that could be automated....

More occupations will change than will be automated away.

ROLE OF ADDITIONAL STAKEHOLDERS

**Government**
- Reskilling Incentives
- Tax Policy
- Immigration Policy

**Labor Unions**
- Apprenticeships
- Reskilling

**Workforce Development**
- Inclusive vs. Exclusive
- Reskilling recommendations
- Catalyst with all stakeholders