Careers 3.0
Future Skills
Future Work

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VP, Managing Director
Stanford University, Visiting Scholar
Extreme Longevity

- Age 100 will be the new normal
- People will work longer
- Education and skills required

13.2 Million workers over age 65 in 2022

Today there are 7.3 Million

Source: U.S. Census Bureau
The VUCA World

**Definition**

(VUCA) — Volatile, Uncertain, Complex, Ambiguous

WEF Global leader’s top concerns

- Economic
- Environmental
- Geopolitical
- Societal
- Technology
Globally-connected World
Flat world Labor

globally-connected world
Increased global interconnectivity puts diversity and adaptability at the center of organizational operations

- Firms born global
- 60% goods made overseas
- Global supply chains- Virtual teams
- Competition: Microwork
Future Work & Skills 2020 Forecasts

Technology World

- Data doubles annually
- Sensors
- Robotics
- Analytics
- Gaming

**computational world**
Massive increase in sensors and processing power make the world a programmable system.
Work trends

Macro Trends

Microwork
Lifelong Employment
Growth
Virtual Organizations

T-Shaped People
Skill Disparities

Technology
Work
Superstructing

**Definition**

New forms of value creation. Collaboration, future workplace designs for productivity, Virtual organizations.
Ten Work Skills for the Future

- Sense-Making
- Social Intelligence
- Novel and Adaptive Thinking
- Cross Cultural Competency
- Computational Thinking
- New Media Literacy
- Trans-disciplinarity
- Design Mindset
- Cognitive Load Management
- Virtual Collaboration
Sense-Making

Definition:
As automation increases, we need the uniquely human capacity for critical thinking and determining the deeper meaning in data.

- Give meaning to data
- Higher level thinking skills
- Interpretation overlay
- Healthcare
- Manufacturing
Autonomous cars

Sensors + GPS + Artificial Intelligence

SF taxi system permits
Nevada legal May 2012
Toyota Prius ships 2018

1. Improved safety
2. Handicapped driver option
3. Time saver
New Media Ecology
Requires new Media Literacy

**Skill:** New literacy beyond text

- Expression through Multimedia
- Changes communication
- Changes Art, Media, Fashion industries
- Requires new skills
Deep Diversity

Demographic Shifts

- Women’s Leaders
- Multicultural
- Aging workforce
Cross Cultural Competency

Definition

Ability to operate in different cultural settings.

- Global adaptability
- Cross cultural fluency
- Adapt to differences
- Protocols
- Language
Virtual Collaboration

**Definition**

Ability to work productively, drive engagement and demonstrate presence as a member of a virtual team

- Lead virtual teams
- Influence over distance
- Create cohesiveness
- Collaborate with technology
Anybot

TelePresence + Robotics
Novel and Adaptive Thinking

Definition
Proficiency at thinking and coming up with solutions and responses beyond that which is rote or rule-based

- Creative thinking
- Compete with Machines

Future Work Skills 2020 Results – 10 Work Skills for the Future
Watson
Smart Machines and Automation

Intelligent Systems and Robotics

smart machines
from stand-alones to new human-machine symbiosis
Robot Barber
Education and Skills

Macro Trends

Higher Education
Lifelong Learning

Work
Technology and Learning

Society
Working Learners

Technology
Student Centric
Job Growth is for College Graduates

Percentage of Workforce by Educational Level

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of People</th>
<th>High School Graduates</th>
<th>Associate's Degree</th>
<th>Some College, No Degree</th>
<th>Bachelor's Degree</th>
<th>Master's Degree or Better</th>
</tr>
</thead>
<tbody>
<tr>
<td>1973</td>
<td>91 million</td>
<td>32%</td>
<td>10%</td>
<td>19%</td>
<td>9%</td>
<td>7%</td>
</tr>
<tr>
<td>1992</td>
<td>129 million</td>
<td>34%</td>
<td>10%</td>
<td>19%</td>
<td>19%</td>
<td>10%</td>
</tr>
<tr>
<td>2007</td>
<td>154 million</td>
<td>30%</td>
<td>11%</td>
<td>17%</td>
<td>21%</td>
<td>11%</td>
</tr>
<tr>
<td>2018</td>
<td>166 million</td>
<td>28%</td>
<td>10%</td>
<td>17%</td>
<td>23%</td>
<td>10%</td>
</tr>
</tbody>
</table>

Education brings better job prospects – U.S., 2011

<table>
<thead>
<tr>
<th>Education Level</th>
<th>Unemployment Rate (in %)</th>
<th>Median Weekly Earnings (in $)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than high school diploma</td>
<td>14.1</td>
<td>451</td>
</tr>
<tr>
<td>High school diploma</td>
<td>9.4</td>
<td>638</td>
</tr>
<tr>
<td>Some college, no degree</td>
<td>8.7</td>
<td>719</td>
</tr>
<tr>
<td>Associate degree</td>
<td>6.8</td>
<td>768</td>
</tr>
<tr>
<td>Bachelor's degree</td>
<td>4.9</td>
<td>1,053</td>
</tr>
<tr>
<td>Master's degree</td>
<td>3.6</td>
<td>1,263</td>
</tr>
<tr>
<td>Professional degree</td>
<td>2.4</td>
<td>1,665</td>
</tr>
<tr>
<td>Doctoral degree</td>
<td>2.5</td>
<td>1,551</td>
</tr>
</tbody>
</table>

Average: 7.6%                     Average: $797

Education and Economic Impact

On average, adding 1 year of schooling for all workers in a U.S. metropolitan area is estimated to increase the local GDP by 10.5% and each worker’s real wage by 8.36%.

<table>
<thead>
<tr>
<th>Currently workers in</th>
<th>Complete on average this many years of schooling</th>
<th>The metro-area GDP would increase by</th>
<th>And real wage per worker would increase by</th>
</tr>
</thead>
<tbody>
<tr>
<td>Atlanta</td>
<td>13.95</td>
<td>6.8%</td>
<td>5.4%</td>
</tr>
<tr>
<td>Boston</td>
<td>14.54</td>
<td>0.4%</td>
<td>0.3%</td>
</tr>
<tr>
<td>Chicago</td>
<td>14.00</td>
<td>6.2%</td>
<td>4.9%</td>
</tr>
<tr>
<td>Cleveland</td>
<td>13.85</td>
<td>7.9%</td>
<td>6.3%</td>
</tr>
<tr>
<td>Dallas</td>
<td>13.47</td>
<td>12.4%</td>
<td>9.7%</td>
</tr>
<tr>
<td>Los Angeles</td>
<td>13.30</td>
<td>14.4%</td>
<td>11.3%</td>
</tr>
<tr>
<td>New York</td>
<td>14.05</td>
<td>5.7%</td>
<td>4.6%</td>
</tr>
<tr>
<td>Philadelphia</td>
<td>14.08</td>
<td>5.4%</td>
<td>4.3%</td>
</tr>
<tr>
<td>San Francisco</td>
<td>14.20</td>
<td>4.1%</td>
<td>3.2%</td>
</tr>
<tr>
<td>Washington DC</td>
<td>14.58</td>
<td>--</td>
<td>--</td>
</tr>
</tbody>
</table>
Jobs by Education Level and Industry

Healthcare Professional and Technical

- High school or less: 30%
- Some college, no degree: 5%
- Associate's degree: 7%
- Bachelor's degree: 25%
- Master's degree or higher: 33%

STEM

- High school or less: 27%
- Some college, no degree: 10%
- Associate's degree: 12%
- Bachelor's degree: 42%
- Master's degree or higher: 9%

Education

- High school or less: 40%
- Some college, no degree: 8%
- Associate's degree: 7%
- Bachelor's degree: 38%
- Master's degree or higher: 7%

Managerial and Professional Office

- High school or less: 21%
- Some college, no degree: 13%
- Associate's degree: 13%
- Bachelor's degree: 43%
- Master's degree or higher: 10%
By 2020, 75% of jobs will require some type of technical training.
The Future of you and your career

Personal Foresight

Higher Education

Technology

Work

Society

Education

Skills

Technology
Time Spent on Career Planning

Hours Spent in a Year

- Sleeping: 2766.4 hours
- Leisure and sports: 946.4 hours
- Eating and drinking: 436.8 hours
- Caring for others: 436.8 hours
- Household activities: 400.4 hours
- Education: 320.8 hours
- Planning a wedding: 160 hours
- House hunting: 39 hours
- Planning a vacation: 22.5 hours
- Car purchase: 10 hours
- Career planning: 1.5 hours

Sources:
www.reuters.com/article/2008/04/03/idUS126258+03-Apr-2008+PRN20080403
www.bls.gov/tus/charts/
www.reuters.com/article/2008/04/03/idUS126258+03-Apr-2008+PRN20080403
www.reuters.com/article/2008/04/03/idUS126258+03-Apr-2008+PRN20080403
www.dahlweddingcompany.wordpress.com/
Why should people pay attention to career planning?

Nearly 1/3 of Your Life Will Be Spent Working

### What has changed?

<table>
<thead>
<tr>
<th>Career Yesterday</th>
<th>Career Today</th>
</tr>
</thead>
<tbody>
<tr>
<td>Life = 70-80 years old</td>
<td>Life = 100 +</td>
</tr>
<tr>
<td>Work = 25-30 years</td>
<td>Work = 50-60 years</td>
</tr>
<tr>
<td>Lifelong career</td>
<td>New job every 4 years</td>
</tr>
<tr>
<td>Economic cycles less frequent</td>
<td>Economic cycles more frequent every 7-10 years</td>
</tr>
<tr>
<td>Classical World</td>
<td>Technology World</td>
</tr>
<tr>
<td>Global = exporting</td>
<td>Global = talent competition</td>
</tr>
<tr>
<td>Education = 1 X</td>
<td>Education = Ongoing</td>
</tr>
</tbody>
</table>
Transdisciplinarity

Definition

Literacy in and ability to understand concepts across multiple disciplines

- Depth
- Breadth
- High level of skills
- Specialized
- Generalist
You Inc.

Business plan
Every stage of life
- Finance plan
- Health plan
- Work plan
- Education plan
- Family plan
- Retirement plan
Future Skills 2020
Future Work 2020

www.apolloresearchinstitute.org

Social Technology + Society + Music