OVERVIEW

• Introduction
• Research Methodology
• Sample Gap Analysis between Job Ads and Training Package Content
• Key Findings (The Hard Way)
• Key Findings (The Soft Way)
• Skills Definition and Significance
STEM majors are least likely to remain underemployed after graduating.

<table>
<thead>
<tr>
<th>Major</th>
<th>A</th>
<th>B</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engineering</td>
<td>29%</td>
<td>18%</td>
<td>197,955</td>
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<tr>
<td>Computer and Information Sciences, and Support Services</td>
<td>30%</td>
<td>18%</td>
<td>111,930</td>
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<tr>
<td>Communication, Journalism, and Related Programs</td>
<td>39%</td>
<td>24%</td>
<td>107,261</td>
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<tr>
<td>Mathematics and Statistics</td>
<td>39%</td>
<td>26%</td>
<td>37,461</td>
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<tr>
<td>Foreign Languages, Literature, and Linguistics</td>
<td>43%</td>
<td>27%</td>
<td>30,887</td>
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<tr>
<td>Physical Sciences</td>
<td>40%</td>
<td>27%</td>
<td>45,446</td>
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<tr>
<td>Social Sciences</td>
<td>44%</td>
<td>28%</td>
<td>174,791</td>
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<tr>
<td>English Language and Literature/Letters</td>
<td>45%</td>
<td>29%</td>
<td>56,628</td>
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<td>Visual and Performing Arts</td>
<td>45%</td>
<td>31%</td>
<td>118,513</td>
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<td><strong>Business, Management, Marketing, and Related Support Services</strong></td>
<td>47%</td>
<td>31%</td>
<td><strong>601,092</strong></td>
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<tr>
<td>Biological and Biomedical Sciences</td>
<td>51%</td>
<td>35%</td>
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<td>Education</td>
<td>50%</td>
<td>36%</td>
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<tr>
<td>Health Professions and Related Programs</td>
<td>49%</td>
<td>36%</td>
<td>430,320</td>
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<td>Public Administration and Social Service Professions</td>
<td>53%</td>
<td>37%</td>
<td>85,478</td>
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<tr>
<td>Psychology</td>
<td>54%</td>
<td>38%</td>
<td>162,229</td>
</tr>
</tbody>
</table>
INDUSTRY 4.0

1st
Mechanization, water power, steam power
SOCIAL CHANGES

Coexistence with nature
Hunting society
The birth of human beings (13,000 BC)
End of the 18th century
Latter half of the 20th century
From the 21st century

Source: Prepared based on materials from the Japan Business Federation (Keidanren)
ROBOTS WILL DOMINATE THE WORKPLACE

AUTOMATION LOOMING LARGE IN LABOR PICTURE

Automation Might End Most Unskilled Jobs In 10 Years

Automation Linked To Jobless Count
SKILLS FOR A DIGITAL FUTURE
SHIFT FROM NEO-CLASSICAL TO DIGITAL ECONOMY
DIGITAL ECONOMY

Labour

Technology

Knowledge

Innovation
NATIONAL INDUSTRY SKILLS FORUMS

- Future Skilling our people in an age of digital transformation
- Industry Leadership – new thinking about jobs and careers
White man say Telegraph is the future. But we've been using wireless technology for years.
**Hard Skills**: are skills related to technical aspects to do some tasks in the job and frequently take account of the acquisition of knowledge Technical aspects of tasks

- Cognitive skills
- Tangible deliverables
- Subject-based, a certain field, or technology
- Use of tools/software (Page et al., 1993)
Soft Skills: the interpersonal, human, people, or behavioural skills needed to apply technical skills and knowledge in the workplace

- intra- and interpersonal (socio-emotional) skills,
- personal development
- social participation
- workplace success (Kechagias, 2011)
THREE QUESTIONS AND A SUBTITLE

- What skills do we **think** we want?
- What skills are we actually **asking** for?
- What skills are we **getting**?
  - **Subtitle**: What skills do we develop when we have the opportunity?
**METHODOLOGY**

- Forum notes data separated by industry
- Job advertisements for Electricians, Truck drivers and Corrections Officers
- Performance Evidence data from Units in respective qualifications
- Introduce resultant data to key phrase extracting AI
- Categorise key phrases into one of five skill types
  - Three soft skills; **Personal, Interpersonal, Situational**
  - Two hard skills, **Technical, System skills**
TRUCK DRIVER REQUIRED SKILLS

- Technical
- Advertising
- Training
- Forum
CORRECTIONS OFFICER REQUIRED SKILLS

- Technical
- Advertising
- Training
- System
- Interpersonal
- Personal

Situational

Forum
CORRECTIONS OFFICER REQUIRED SKILLS

- Technical
- Advertising
- Interpersonal
- System
- Personal
- Training

Skills levels:
- 100
- 80
- 60
- 40
- 20
KEY FINDINGS (THE HARD WAY)

- The importance of soft skills varies between occupations and industries
- The importance of soft skills depends not just who you ask but when you ask
- The importance of soft skills often increases the further away you get from doing actual work
SKILLS CATEGORY

Tier 1

Tier 2

Tier 3
SKILLS CATEGORY

Tier 1

Soft Skills
Communication, Customer Service, Problem Solving, Critical Thinking, Innovation, Creativity, Teamwork

Tier 2

Hard Skills
Cognitive Skills: Coding, Operating Equipment, Using new Systems

Tier 3

Advanced Skills
Job-specific: Regulations, Compliance, Interpreting Policies
SKILLS CATEGORY

**Tier 1**
- **Soft Skills**: Communication, Customer Service, Problem Solving, Critical Thinking, Innovation, Creativity, Teamwork

**Tier 2**
- **Hard Skills**: Cognitive Skills: Coding, Operating Equipment, Using new Systems

**Tier 3**
- **Advanced Skills**: Job-specific: Regulations, Compliance, Interpreting Policies

**Soft Skills**
- Leadership, Resilience, Adaptability, Attitude, Change Management, Continuous Learning, Flexibility, PD, Entrepreneurship, Agility
INNOVATION – ENTREPRENEURSHIP

• Soft Skills for Innovation:
  o entrepreneurial orientation
  o strategic influencing
  o communication skills
  o talent for relationship building and maintenance
  o tolerance for uncertainty
  o passion and optimism (Martino et al, 2011)
POSITIVE PSYCHOLOGICAL CAPITAL

- An individual's positive psychological state of development that is characterized by:
  - (1) self-efficacy
  - (2) optimism
  - (3) hope
  - (4) resiliency (Larson and Luthans, 2006)
SKILLS CATEGORY

Tier 1

- Advanced Skills
  - Regulations, Compliance, Interpreting Policies

- Soft Skills
  - Communication, Customer Service, Problem Solving, Critical Thinking, Innovation, Teamwork

Tier 2

- Hard Skills
  - Cognitive Skills: Coding, Operating Equipment, Digital Literacy, New Systems

Tier 3

- Leadership, Resilience, Adaptability, Attitude, Change Management, Continuous Learning, Flexibility, Entrepreneurship, Agility

- Self efficacy
- Optimism
- Hope
- Resiliency
SKILLS CATEGORY

- **Tier 1**
  - Soft Skills

- **Tier 2**
  - Hard Skills

- **Tier 3**
  - Advanced Skills

Leadership, Resilience, Adaptability, Attitude, Change Management, Continuous Learning, Flexibility, **Entrepreneurship**, Agility

- **Self efficacy**
- **Optimism**
- **Hope**
- **Resiliency**
ARE THESE SKILLS REALLY SOFT?

• Resistance to Acquisition
• Organizational Resistance
• Managerial Support
• Level of Mastery  (Laker & Powell, 2011)
REFERENCES


