Heather E. McGowan

Roles: Consultant | Author | Keynote Speaker
Focus: Future of Work + Future of Learning
Clients: Corporate and Higher Education
Passion: Explaining Shifting Context
**Success Measures:** Placement Rate + Starting Salary

**NATURE OF WORK:** Old Economy Paradigm (Context)

- **K-12**
  - Age 5-18/22

- **University**
  - Age 18/22-65

- **Job**
  - Age 18/22-65

- **Career**

- **Ladder**

- **Life Expectancy**: 67
  - Age 66+
  - Pension

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NATURE OF WORK: New Reality Paradigm

Success Measures: Learning Agility + Adaptability

Life Expectancy 90+
Remain Engaged

Engagement

NATURE OF WORK: New Reality Paradigm

Success Measures: Learning Agility + Adaptability

Life Expectancy 90+
Remain Engaged

Engagement

LEVERAGE
LEVERAGE
LEARNING
LEARNING
LEARNING
LEARNING
LEARNING
LEARNING

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PAST: We Learned (In Order) To Work,

NOW: We Must Now Work (In Order) To (Continuously) Learn.
CONTEXT
## CONTEXT: What is Small Business

**Small Business = >500 Employees**

<table>
<thead>
<tr>
<th># of Employees</th>
<th>0</th>
<th>1-4</th>
<th>5-9</th>
<th>10-19</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employees</td>
<td>N/A</td>
<td>6 M</td>
<td>6.5 M</td>
<td>8 M</td>
</tr>
<tr>
<td>Revenue/Firm</td>
<td>$44k</td>
<td>$400k</td>
<td>$1.2 M</td>
<td>$2.4M</td>
</tr>
<tr>
<td>Total Revenue</td>
<td>$1 T</td>
<td>$1.4 T</td>
<td>$1.2 T</td>
<td>$1.4 T</td>
</tr>
<tr>
<td># of Entities</td>
<td>24 M</td>
<td>3.6 M</td>
<td>1 M</td>
<td>600,000</td>
</tr>
<tr>
<td>2007</td>
<td>22 M</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1997</td>
<td>15 M</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Data: US Census 2014
**CONTEXT:** The Majority Of Workers Will Be Freelance By 2027

**Data:** Freelancers Union and UpWork (World Economic Forum)

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CONTEX
T: Largest Companies (Market Cap) of The Last 100 Years

1917:
Value Extraction Of Natural Assets

1967:
Human Made Assets (Scalable Production)

2017:
Rapid Reinvention of Digital Assets (Scalable Learning)

Graphic: Visualcapitalist.com
Concept Credit: Scalable Production vs. Scalable Learning (John Hagel, Deloitte)

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CONTEXT: Our World Was Complicated But It Is Now Complex
Past 10+ Years

- Internet 1995
- Automated Manufacturing
- Smart Phone 2007

Next 10+ Years

- Process AI
- Robotics
- Driverless Car
- Advanced Materials
- Internet of Things
- Social AI

Context: The Road Ahead

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Context: Talent Shifts in The Next Era

Our Mental Models Are Here

<table>
<thead>
<tr>
<th>Timespan</th>
<th>Talent</th>
<th>Tools</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,000,000s</td>
<td>Strength + Speed</td>
<td>Labor Efficiency</td>
</tr>
<tr>
<td>1,000s</td>
<td>Know How + Stamina</td>
<td>Labor Augmentation</td>
</tr>
<tr>
<td>100s</td>
<td>Efficiency + Optimization</td>
<td>Labor Replacement</td>
</tr>
<tr>
<td>10s</td>
<td>Acquired Knowledge + Skill</td>
<td>Cognitive Reduction</td>
</tr>
<tr>
<td></td>
<td>Creativity, Agility + Adaptability</td>
<td>Cognitive Augmentation</td>
</tr>
</tbody>
</table>

Hunter – Gather Era
Agricultural Era
Industrial Era
Information Era
Augmented Era

Concept of Augmented Era © Jeff Kowalski, CTO Autodesk

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**Context:** Talent Shifts in The Next Era

**Talent Shifts in The Next Era**

**Timespan**
- **Industrial Era:** 100s
  - Efficiency + Optimization
  - Labor Replacement
- **Information Era:** 10s
  - Acquired Knowledge + Skill
  - Cognitive Reduction
- **Augmented Era**
  - Creativity, Agility + Adaptability
  - Cognitive Augmentation

**Tools**
- **Industrial Era:**
- **Information Era:**
- **Augmented Era:**

**Concept of Augmented Era © Jeff Kowalski, CTO Autodesk**

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Context: Change Requires Adaptation

VELOCITY OF CHANGE

Steam Engine
Combustion Engine + Electricity
Telephone + Television
Mobile Internet
Cyber-Physical Convergence
Artificial Intelligence + Autonomous Vehicles
Internet of Things

TIME

1750
1850
1950
2050

Life Expectancy
Paradigm Shifts
Lifetimes

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Context: The Illiterate of the 21st Century (Asimov)

LEARN  UNLEARN  RELEARN

Image credit: Giulia Forsythe

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CONTEXT: Machine Capabilities Enter Human Cognitive Labor Domains

TASK

<table>
<thead>
<tr>
<th>HIGH Value</th>
<th>Complex + Ambiguous</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>LOW Value</th>
<th>Discrete + Predictable</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>LOW Value</th>
<th>Known + Repetitive</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Human Employee

Once a Task Can Be Isolated and Discrete

Atomized Worker

Once the Task Success Can Be Defined + Repetitive

Automated Bot

Cost Reduced

Cost Reduced

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CONTEXT: The Impact of Atomization, Automation, and Augmentation

ATOMIZED

AUTOMATED

AUGMENTED

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CONTEXT: The Career Arc (The Old Model)

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VALUE (Perceived)

Learn

Contribute

Retire

TIME

23

35

45

65

50

55

65

70

Panic
**CONTEXT:** The Career Arc (The Old Model) – Perceived Value

- **Brain Plasticity**
- **Acquire Expertise**
- **High Value Zone**
- **JUDGEMENT**
  - Maturity
  - Perspective
  - Wisdom

**VALUE (Perceived)**

**TIME**

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CONTEXT: New Economy + Digital Natives

Digital Natives

- Apple + Amazon (31)
- Google (30)
- LinkedIn + Salesforce (29)
- Facebook (28)

VALUE (Perceived)

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TIME

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CONTEXT: Career Arc + Shifting High Value Zone

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CONTEXT: The Career Arc + Longevity

VALUE (Perceived)

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CONTEXT: The Career Arc and The Panic Zones

- **Skills Demand**
  - 35%
  - 45%
  - 60%

- **Longevity**
  - 50%
  - 55%
  - 65%

- **Current Workforce**
  - 23%
  - 40%
  - 55%

- **Retirement Panic**
  - 60%

- **Missing The Peak Panic**
  - Older Employees in Old Economy Companies

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- **Education Cost Panic**
- **Work Changed Panic**

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SO WHAT DO WE DO?
<table>
<thead>
<tr>
<th>Question</th>
<th>Percentage</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>What Do You Want To Be When You Grow Up?</td>
<td>65%</td>
<td>Job That Do Not Exist Yet</td>
</tr>
<tr>
<td>What Is Your Major?</td>
<td>47%</td>
<td>Automated by 2033</td>
</tr>
<tr>
<td>What Do You Do?</td>
<td>27%</td>
<td>Work In Their Major</td>
</tr>
<tr>
<td></td>
<td>17% Jobs</td>
<td>5 Industries</td>
</tr>
</tbody>
</table>
**Expertise Shifts: The I to the T to the X**

**DISCIPLINARY**

**MULTI-DISCIPLINARY**
(T-Shaped)

**TRANSDISCIPLINARY**
(Human-Machine + Disciplinary Convergence)

*Stocks of Knowledge* (Educated)

*Flows of Knowledge* (Learning Agility)

*Stocks and Flows of Knowledge (John Hagel, Deloitte)*

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New Paradigm = New Goals

**OLD ECONOMY**
- Preparation: LEARN
- Activity (Work): DO
- Goal-Target: Unit of Value

**NEW REALITY**
- Preparation: LEARN TO LEARN
- Activity (Work): LEARN
- Goal-Target: Increased Capability
- Byproduct: Unit of Value

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Do You Focus On Applications or Operating Systems?

Learning Agility + Agency = Operating System

Predetermined Skills = Applications

Ability to Create New Knowledge

Ability to Access Existing Knowledge or Skills
Three Principles of Universal Learning Design

**WHAT of LEARNING**
Content-

**HOW of LEARNING**
Expression

**WHY of LEARNING**
Engagement-Motivation

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(Sinek) Start With Why

Start With Why: Simon Sinek
(Sinek) Start With Why: Apple

WHAT
PRODUCT
We Make Computers And Electronics

HOW
PROCESS
We Challenge The Status Quo By Making Technology Easy To Use

WHY
PURPOSE
In Everything We Do, We Challenge Status Quo, We THINK DIFFERENT

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(Sinek) Start With Why: Students

WHAT
CREATE VALUE

HOW
PRODUCTIVE

WHY
PASSION

2018
Industry 1

2020
Industry 2

2030
Industry 3

2045
Industry 4

2060
Industry 5

How They Use Their Productivity In An Exchange To Create Value For Themselves + Entity

How An Individual is Productive, How They Channel Their Passion To Be Productive

What An Individual Believes, What Drives Them= Their Purpose

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Satir Change Process Model (Modified)

Former Role

Late Stage Status Quo

Resistance (Denial)

Foreign Element (Catalyst)

Integration

New Status Quo

Next Role

Porting Skills to New Challenges

TIME

PERFORMANCE

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How Do You Adapt: Prioritize Learning Agility

OLD MODEL: EDUCATION

FOCUS ON CAREER PREP (FIRST JOB)

FOCUS ON EASILY MEASURABLE

OFTEN MISSED

NEW LEARNING IMPERATIVE

THE POWER OF LEARNING

LEARN

AGILE MINDSET

DOMAIN EXPERTISE

EXPAND + REPLACE

LEARNING CONDITIONS

FOCUS ON ADAPTING + APPLYING

LEARNING CONDITIONS

PORTABLE SKILLS

EXPLICIT

FOUNDATION SKILLS

FOCUS ON CAREER PREP (FIRST JOB)
Emerging Solutions: **Agile Learning Mindset**

**Learning Agility**  
(Learning + Unlearning, Learning Styles)

**Adaptability**  
(Navigate Ambiguity, Unstructured Problems)

**Uniquely Human Skills**  
(Empathy, Social Intelligence, Creativity, etc.)

**Agency**  
(Motivation, Self Awareness, Personality Types)
Emerging Solutions: 10 Future Skills To Build Mindset

Art of Humanness
- Design Mindset
- Sensemaking
- Social Intelligence
- Novel + Adaptive Thinking

Navigating the New World
- Transdisciplinarity
- New Media Literacy
- Cross Cultural Competence
- Virtual Collaboration

Working With Bots
- Computational Thinking
- Cognitive Load Management

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New Economy Shifts Life Blocks

OLD ECONOMY

EDUCATE

WORK

RETIRE

Lifespan = 73 Years

NEW ECONOMY

ENGAGE

LEARN

RETIRE

RECONDITION

Lifespan = 90 Years

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Summary:

• The Future Of Work Is Learning
• New Questions + Definitions of Self (Purpose vs. Practice)
• Social And Emotional Support For Adaptation
• Shifting Life blocks: Rethink Work + Learning
• New Institutions To Support These Emerging Realities.