Future of Higher Education
Our Response to Disruption

Educause Annual 2018, Oct 31
Jim Phelps
Director of Enterprise Architecture and Strategy

#EDU18, @jimphelps
Shifting Skills

Digital Transformation

Employment and Income Challenges

H.E. Financial Crisis
Learning Outcomes:

**Understand** the impact of the drivers on HE.

**Explain** Digital Transformation and our current place between Disruption and Transformation and why that is important.

**Understand and explain** my vision for a future higher ed institution.

**Assess** the impact of the drivers on your institution.

**Compare** your current state against the future state.

**Construct** a response plan based on the responses identified.
## Future of Higher Education: Summary of Drivers and Responses

<table>
<thead>
<tr>
<th>Digital Transformation (DX)</th>
<th>Shifting Skills</th>
<th>Employment &amp; Income Challenges</th>
<th>Higher Ed Financial Crisis</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Drivers (DX)</strong></td>
<td><strong>Drivers (Workforce)</strong></td>
<td><strong>Drivers</strong></td>
<td><strong>Drivers</strong></td>
</tr>
<tr>
<td>• New technologies that impact all aspects of society</td>
<td>• New classes of jobs, skills, and competencies</td>
<td>• Increasing numbers of existing jobs displaced</td>
<td>• Growing number of institutions closing or merging</td>
</tr>
<tr>
<td>• Unknown “winners and losers”</td>
<td>• Shifting emphasis on “above the line” competencies</td>
<td>• Rising tuition, while many students &amp; households are financially challenged</td>
<td>• Many institutions likely to enter bankruptcy</td>
</tr>
</tbody>
</table>

### Suggested Responses

**Digital Transformation (DX)**
- Build adaptability into your organization.
- Educate leadership and campus about the DX Story.
- Create a futurology practice.
- Build a DX Change Management Office or Practice to engage all of campus in the DX change.
- Develop pedagogy and content for to help students understand the DX.

**Shifting Skills**
- Create a strategic investment fund for reskilling our workforce.
- Build a Strategic Workforce Development Center that focuses on continuous development.
- Create a continuous learning and improvement culture among all staff.
- Actively manage Human Resource debt.

### Future Higher Education Institution

<table>
<thead>
<tr>
<th>Data Driven Foremost</th>
<th>Digital Experience is Central</th>
<th>Automation for student experience</th>
<th>Lifelong learners, working learners are common</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Need to automate to drive efficiencies</td>
<td>• Multiple experience designs support diverse learners</td>
<td>• Automation matches students to courses, peer groups, co-curricular activities, advisors and mentors, supporting services like transportation, food, etc.</td>
<td>• Multimodal education supports lifelong learners, when and where they learn</td>
</tr>
<tr>
<td>• Measure effectiveness of experience</td>
<td>• Hyper-personalization is the norm</td>
<td></td>
<td>• Multiple graceful entry/exit points deliver learning achievements from microcredentials to degrees</td>
</tr>
<tr>
<td>• Measure outcomes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Drive hyper-personalization</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Automate Everything</th>
<th>Workforce Development is strategic</th>
<th>Innovation and Reinvocation are core</th>
<th>Mergers and Partnerships extend the experience</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Match researchers to grants &amp; pre-populate applications</td>
<td>• Constant workforce development focused on reskilling and realigning roles</td>
<td>• Constant feedback and measure drives innovation and reinvention of the experience and drives efficiency</td>
<td>• Learners can attend a partner campus close to work/home</td>
</tr>
<tr>
<td>• Match student applicants with best fit and experience</td>
<td>• Matrixed organization is focused on the digital experience</td>
<td>• New technologies and changes in society require innovation and reinvention to be core to the culture</td>
<td>• 3rd party partners extend the experience to transport, housing, food, etc.</td>
</tr>
<tr>
<td>• Drive efficiencies in facilities and administrative tasks</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
3 Personas

Leo Legacy

Rita Registrar

Betty Business Analyst
Leo Legacy

Started working in University IT as a student on the Help Desk. Worked his way up to a lead on the Student System Team. Has been at the University for 25 years.

He knows his system inside and out and loves getting into the code to solve problems for his business partners. They love Leo and think of him as “their” person.

He has at least 20 years to go until he retires.
Rita is the Registrar. She was brought in to shake up a group that had become intransigent and siloed. Rita has vendors contacting her daily with “solutions” to almost all of her challenges.

Rita is worried about changing regulations and meeting students new expectations for great customer service. She isn’t sure how to make student data available to all the people on campus who ask for it though she is willing to support the data driven future.

She wonders which vendor(s) would help her the most, the fastest and at the lowest cost.
Beatrice Business Analyst

Betty is a business analyst working on HR and Payroll. Betty is extremely good at gathering requirements, defining the business processes, then defining the data structures needed to support those processes.

Betty writes excellent user stories that then become test standards. She is highly valued and everyone wants Betty on their project.

https://en.wikipedia.org/wiki/Beatrice_Tinsley
SaaS Story

Software As A Service Solution
SaaS Story

Will I still have a job? What will I have to do to fit into this new world? The SaaS is nowhere near as good as a system that I would write! It doesn’t do (a), (b) and (c)!
This is a pretty cool looking product. This would really make my students life much easier. The vendor says that I won’t need help from central IT. I wonder what it would take to stand this up for my students? Will the Provost pay for it?
Impact of the Changing Technology

I spend my time asking the vendor for help and feature requests, all while trying to learn the system and how to configure it.

Then I have to tell the business what can and can’t be done.

I used to gather requirements and then work on implementation, now I’m managing relationships and negotiations and trying to triangulate a solution.
1 small disruption

Buy or Build
On Premises

Software as a Solution
Impact of Changing to SaaS

Navigate the Change
Impact of Changing to SaaS

Navigate the Change

Shifting Expectations and Relationships
Impact of Changing to SaaS

Navigate the Change

Shifting Expectations and Relationships

New skills for the same work
Driver: Shifting Skills
Impact of the Changing Technology

Navigate the Change

Shifting Expectations and Relationships

New skills for the same work
Scott Lever - Gartner Analyst

“Nearly 80% of CIO’s and IT leaders project that the skill and knowledge their organization will need in 10 years have little resemblance to the skills and knowledge they have today.”
The Workforce of the Future

What Employees Do

- Accomplishments
- Quality of Work
- Timeliness
- Prioritization
- etc...

How Employees Do

- Prioritization
- Communication
- Collaboration
- Adaptability
- Problem Solving
- Critical Thinking
- Conflict Resolution
- Engagement
- Influence
- Relationship Building
- Business Relationship Management
- Vendor Management
- Customer Experience Focus
- Data Analysis Focus
• Create a **strategic investment fund** for reskilling our workforce

• Build a **Strategic Workforce Development Center** that focuses on continuous development and alignment (including Job Descriptions)

• Create a **continuous learning and improvement culture** among all staff

• Actively manage **Human Resource debt**.
Driver: Digital Transformation
Digital transformation is the change associated with the application of digital technologies to all aspects of human society.
Digital Transformation

Customer Experience Design

Hyper-Personalization

The Internet of Things

AI

Artificial Intelligence

Big Data
Digital Transformation

YOU ARE HERE

Phase 1: Refine
Phase 2: Disrupt
Phase 3: Transform

From: Chris Eagle, U-Michigan, Itana Face2Face 2017, EDUCAUSE Annual
Digital Transformation

Phase 1: Refine
Phase 2: Disrupt
Phase 3: Transform

From: Chris Eagle, U-Michigan, Itana Face2Face 2017, EDUCAUSE Annual
Replacing old with new

By the Harvard Innovation Lab

From: EDUCAUSE 2017 Annual Conference Panel on the Future of IT Workforce
Digital Transformation

Phase 1
- Refine

Phase 2
- Disrupt

Phase 3
- Transform

From: Chris Eagle, U-Michigan, Itana Face2Face 2017, EDUCAUSE Annual
Waymo's self-driving cars are racking up miles faster than ever

Sean O'Kane

Photo by Sean O'Kane / The Verge

The Verge, May 10, 2017
IBM's AI can predict schizophrenia by looking at the brain's blood flow
The Apple Watch can accurately detect hypertension and sleep apnea, a new study suggests

Cardiogram and UCSF previously demonstrated the ability for the Apple Watch to detect abnormal heart rhythm with a 97 percent accuracy.

.... can detect sleep apnea with a 90 percent accuracy and hypertension with an 82 percent accuracy.
Digital Transformation

Phase 1
Refine

Phase 2
Disrupt

Phase 3
Transform

From: Chris Eagle, U-Michigan, Itana Face2Face 2017, EDUCAUSE Annual
Founded May 1935
Washing Machines + Refrigeration = Women's Vote

NPR’s Planet Money, Feb 5, 2015
Digital Transformation

- Phase 1: Refine
- Phase 2: Disrupt
- Phase 3: Transform

YOU ARE HERE

From: Chris Eagle, U-Michigan, Itana Face2Face 2017, EDUCAUSE Annual
● **Build adaptability** in every aspect of your organization.

● Create a “**Futurology**” practice or program to do scenario planning, “what-if” sessions, workforce planning, SWOT, etc.

● Actively manage the **health of organization** as disruption rolls through families and towns.
Driver: Income Challenges
Almost 1 million Americans will see their occupations vanish entirely by 2026

Without new skills...41% will have minuscule or no chance of finding other work
How Americans pay for unexpected expenses

How would you deal with a major unexpected expense, such as $1,000 for an emergency room visit or car repair?

- Pay the costs from your savings: 39%
- Finance with credit card, pay off over time: 19%
- Reduce your spending on other things: 13%
- Borrow from family or friends: 12%
- Take out a personal loan: 5%

61% of Households would need to borrow or cut back.

CNBC - Only 39% of Americans have enough savings to cover a $1,000 emergency
Tuition is eating up more of earnings

Average Tuition as % of Median Earnings

Median Annual Earnings (000s) 68.4 61.0 59.5 58.9 58.7 65.4 59.0 56.9 55.7 54.9 55.1


Washington Post
The Biggest Problem Facing Higher Ed in One Chart
Students are Homeless and Hungry

Nationally:

35% of university students were food insecure in the 30 days preceding the survey. For community college students, the rate is 42%.

Wisconsin Hope Lab
Students are Homeless and Hungry

**Nationally:**

36% of university students were food insecure in the 30 days preceding the survey…. for community college students is 42%

36% of university students were housing insecure in the last year. Housing insecurity affected 51% of community college students….

Wisconsin Hope Lab
Students are Homeless and Hungry

Nationally:

36% of university students were food insecure in the 30 days preceding the survey…. for community college students is 42%

36% of university students were housing insecure in the last year. Housing insecurity affected 51% of community college students….

Wisconsin Hope Lab
Student Loan Debt

($1,530,400,000,000)

Federal Reserve - Consumer Credit G-19
https://www.federalreserve.gov/releases/g19/current/default.htm
Student Loan Debt

Student debt crisis watch: pay $18,000 of your $24,000 loan, owe $24,000

For some, student loan debt is doubling, tripling, and even quadrupling

- For some students, what they borrow can end up being a fraction of what they wind up owing.
Challenges the assumption that students will be able (or willing) to leave the workforce for 4 to 6 years to get an education.
● Create more **graceful entry and exit** points for students

● Leverage **DX technologies** to make sure the student receives the best, most efficient experience

● Drive down administrative costs through **automation**, autonomous systems, etc.

● Look for **partnerships** to offset student tuition
Driver: HE Financial Crisis
Bankruptcy of Higher Education

Harvard Business School professor: Half of American colleges will be bankrupt in 10 to 15 years

Abigail Hess | @AbigailJHess • 9:57 AM ET Wed, 15 Nov 2017

There are over 4,000 colleges and universities in the United States, but Harvard Business School professor Clayton Christensen says that half are bound for bankruptcy in the next few decades.
The Board of Directors of St. Gregory's University have made the decision to suspend operations of the university at the end of the fall 2017 semester. For more information, see the news story below.
Inside Higher Ed: Numbers of Colleges and Universities Drops Sharply Amid Economic Turmoil
Mergers in Higher Education

List of university and college mergers in the United States

From Wikipedia, the free encyclopedia

This is a list of mergers of universities and/or colleges in the United States with the name of the surviving institution, predecessors, and effective date.

This list is incomplete; you can help by expanding it.

<table>
<thead>
<tr>
<th>Contents</th>
<th>[hide]</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 A through D</td>
<td>[edit]</td>
</tr>
<tr>
<td>2 E through K</td>
<td></td>
</tr>
<tr>
<td>3 L through M</td>
<td></td>
</tr>
<tr>
<td>4 N through R</td>
<td></td>
</tr>
<tr>
<td>5 S through Z</td>
<td></td>
</tr>
<tr>
<td>6 See also</td>
<td></td>
</tr>
<tr>
<td>7 References</td>
<td></td>
</tr>
</tbody>
</table>

A through D

- Alderson Broadus University - merger of Alderson Academy and Broadus Institute, 1932
- Alliance International University - merger of California School of Professional Psychology and United States International University, 2001
- American Sentinel University - merger of American College of Computer & Information Sciences and American Graduate School of Management
- Ango University - merger of American Schools of Professional Psychology, the University of Sarasota and the Medical Institute of Minnesota, 2001
- Azusa Pacific College - absorbed Arlington College, 1968
- Azusa Pacific College - merger of Azusa College and Los Angeles Pacific College, 1965
- University of Baltimore - absorbed Eastern College, 1970
- Benedictine College - merger of Mount Saint Scholastica College and St. Benedict's College - 1971
- Big Sandy Community and Technical College - merger of Princeton College Community College and Mayo Technical College.
- Birmingham-Southern College - merger of Southern University (Alabama) and Birmingham College in 1918.
- Boston University School of Medicine - absorbed Boston Female Medical School, 1874
- Boston University - merger of Boston University School of Education and Wheelock College of Education and Human Development, 2017
- Brevard College - merger of Brevard Institute, Weaverville College, and Rutherford College, 1934
- University of California, Berkeley - merger of the College of California and the Agricultural, Mining, and Mechanical Arts College, 1853
- Carnegie Mellon University - formed by the merger of Carnegie Institute of Technology and the Mellon Institute of Industrial Research
- Carson-Newman University - merger of Carson College and Newman College for Women, 1889
- Case Western Reserve University - merger of Case Tech and Western Reserve, 1967
- The Catholic University of America - absorbed Columbus University, 1954
- Central Nazarene College - absorbed Nazarene Bible Institute (1911)
- Chicago College of Performing Arts - absorbed Roosevelt University School of Music, 1954
- University of Cincinnati - absorbed Medical College of Ohio 1866; Cincinnati Law School, absorbed 1889; Cincinnati College of Pharmacy, 1954; Cincinnati College-Conservatory of Music, absorbed in 1862.
- Cincinnati College-Conservatory of Music - formed by merger of Cincinnati Conservatory of Music and the College of Music of Cincinnati in 1956.
Restructuring the University of Wisconsin System

INTERACTIVE RESTRUCTURING MAP OF THE NEW UW SYSTEM

https://www.wisconsin.edu/uw-restructure/overview/
Mergers Can Benefit All Involved — but They’re Never Easy

By Alina Tugend  |  OCTOBER 21, 2018  |  PREMIUM CONTENT FOR SUBSCRIBERS. SUBSCRIBE TODAY

The finances, logistics, and diplomacy are daunting. But if leaders can swallow their pride and work toward compromise, consolidations sometimes make very good sense.
● **Automate everything** possible to drive down costs.

● Look for **merger opportunities** to build footprint, brand and to find efficiencies.

● Find **alternate funding sources** (partnerships) to offset tuition and lost government revenue.

● Eliminate or **collapse departments**.
A Future Higher Education Institution
The University will be a data business first and foremost

- Measure automations - constantly adjust performance
- Measure experiences - constantly align to new needs
- Measure outcomes - highlight the best, fix the worst
- Gain insights, find opportunities.

BIG DATA
The Digital Experience is central

Multiple “experience designs”

Data-driven hyper-personalization
Algorithms matching students with:

- Courses
- Peer Groups
- Co-curricular Activities
- Advisors and mentors
- Transportation
- Food, etc.

Image from: “IT’s Role in Digital Transformation”, Tom Lewis, UW, Common Solutions Group Meeting - Fall 2018
Multimodal education for lifelong learners
Multiple Graceful Entry/Exit Points

Microcredentials
- 3D Printing Design
- Java Basics

Completed Courses

Traditional Degrees
Automate Everything

> Match Researchers to grants & pre-populate applications

> Review student applications and prospects and match them with their best fit and experience

> Streamline Facilities, Maintenance, Administrative tasks
Strategic Workforce Development delivering the Digital Experience

> Strategic workforce development program will be constantly developing roles & skills across the university.

> The workforce will adapt/adopt new technologies quickly and effectively.

> Highly matrixed organization focused on delivering seamless digital experiences.
Innovation and Reinvention will be core

> Innovation constantly focused on the digital experience, improved efficiency, and broadening the reach of the university.

> Constant reinvention and innovation will be core to the culture.
Mergers and Partnerships extend the experience

> Students can attend partner campuses close to work/home/travel.

> 3rd party partners help students across their whole experience (tuition, housing, transportation, dining, etc.).
Learning Outcomes:

**Understand** the impact of the drivers on HE.

**Explain** Digital Transformation and our current place between Disruption and Transformation and why that is important.

**Understand and explain** my vision for a future higher ed institution.

**Assess** the impact of the drivers on your institution.

**Compare** your current state against the future state.

**Construct** a response plan based on the responses identified.
Dynamo

Tim Harford tells the big story behind the way dynamos made electricity useful.

Available now

9 minutes

BBC - 50 Things That Made the Modern Economy - Dynamo
Thank You!
Future of Higher Education
Our Response to Disruption

Educause Annual 2018, Oct 31

Jim Phelps
Director of Enterprise Architecture and Strategy
Chair, Itana (http://itana.org)
phelpsj@uw.edu

This work is licensed under the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 International License. To view a copy of this license, visit http://creativecommons.org/licenses/by-nc-sa/4.0/ or send a letter to Creative Commons, PO Box 1866, Mountain View, CA 94042, USA.
Future of Higher Education
Playbook for Institutions

Summarized from: Jim Phelps, Future of Higher Education - Our Response to Disruption
EDUCAUSE Annual 2018
# Future of Higher Education: Summary of Drivers and Responses

## Drivers (DX)
- New technologies that impact all aspects of society
- Unknown “winners and losers”

## Drivers (Workforce)
- New classes of jobs, skills, and competencies
- Shifting emphasis on “above the line” competencies

## Drivers
- Increasing numbers of existing jobs displaced
- Rising tuition, while many students & households are financially challenged
- Growing number of institutions closing or merging
- Many institutions likely to enter bankruptcy

## Suggested Responses

**Digital Transformation (DX)**
- Build adaptability into your organization.
- Educate leadership and campus about the DX Story
- Create a futurology practice
- Build a DX Change Management Office or Practice to engage all of campus in the DX change
- Develop pedagogy and content for to help students understand the DX

**Shifting Skills**
- Create a strategic investment fund for reskilling our workforce
- Build a Strategic Workforce Development Center that focuses on continuous development
- Create a continuous learning and improvement culture among all staff
- Actively manage Human Resource debt

**Employment & Income Challenges**
- Create more graceful entry and exit points for students / lifelong learners
- Leverage DX technologies to make sure the student receives the best, most efficient experience
- Drive down administrative costs through automation, autonomous systems, etc.
- Look for partnerships to offset student tuition

**Higher Ed Financial Crisis**
- Look for merger opportunities to build footprint, brand or find efficiencies
- Build up endowments / reserves to buffer against continued financial risks
- Find alternate funding sources (partnerships) to offset tuition and lost government revenue
- Eliminate or collapse departments

---

Summarized from: Jim Phelps, Future of Higher Education - Our Response to Disruption
EDUCAUSE Annual 2018
# Future Higher Education Institution

<table>
<thead>
<tr>
<th>Data Driven Foremost</th>
<th>Digital Experience is Central</th>
<th>Automation for student experience</th>
<th>Lifelong learners, working learners are common</th>
</tr>
</thead>
</table>
| • Need to automate to drive efficiencies  
• Measure effectiveness of experience  
• Measure outcomes  
• Drive hyper-personalization | • Multiple experience designs support diverse learners  
• Hyper-personalization is the norm | • Automation matches students to courses, peer groups, co-curricular activities, advisors and mentors, supporting services like transportation, food, etc. | • Multimodal education supports lifelong learners, when and where they learn  
• Multiple graceful entry/exit points deliver learning achievements from microcredentials to degrees |

<table>
<thead>
<tr>
<th>Automate Everything</th>
<th>Workforce Development is strategic</th>
<th>Innovation and Reinvention are core</th>
<th>Mergers and Partnerships extend the experience</th>
</tr>
</thead>
</table>
| • Match researchers to grants & pre-populate applications  
• Match student applicants with best fit and experience  
• Drive efficiencies in facilities and administrative tasks | • Constant workforce development focused on reskilling and realigning roles  
• Matrixed organization is focused on the digital experience | • Constant feedback and measure drives innovation and reinvention of the experience and drives efficiency  
• New technologies and changes in society require innovation and reinvention to be core to the culture | • Learners can attend a partner campus close to work/home  
• 3rd party partners extend the experience to transport, housing, food, etc. |