Future Innovation Trends Influencing the Higher Education Business Model

Implications and Strategies for University Leadership

Executive Summary From
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Outlining macro factors affecting the landscape of higher education, identifying benefits and threats.

Updating the Academy

Future focus on two dimensions: (1) teaching and learning and (2) accelerating research.

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Applying these trends to the future business model.

Lessons

Concluding with actionable steps for higher education leadership to manage the transition.

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INTRODUCTION

Introducing the Changing Landscape of Global Higher Education

Convergence of <u>Three</u> Macro Trends Influencing Higher Ed Modalities:

1. **Singularity** emerging among immersive online experience, personalized learning, and enhancements in collaboration tools

2. **Seamless** Offline Residential and Online Learning Environments

3. **Syndication Globally**, Co-authoring and Teaming Networks promoting of Research and Translation based on Open Innovation.

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UPDATING THE ACADEMY

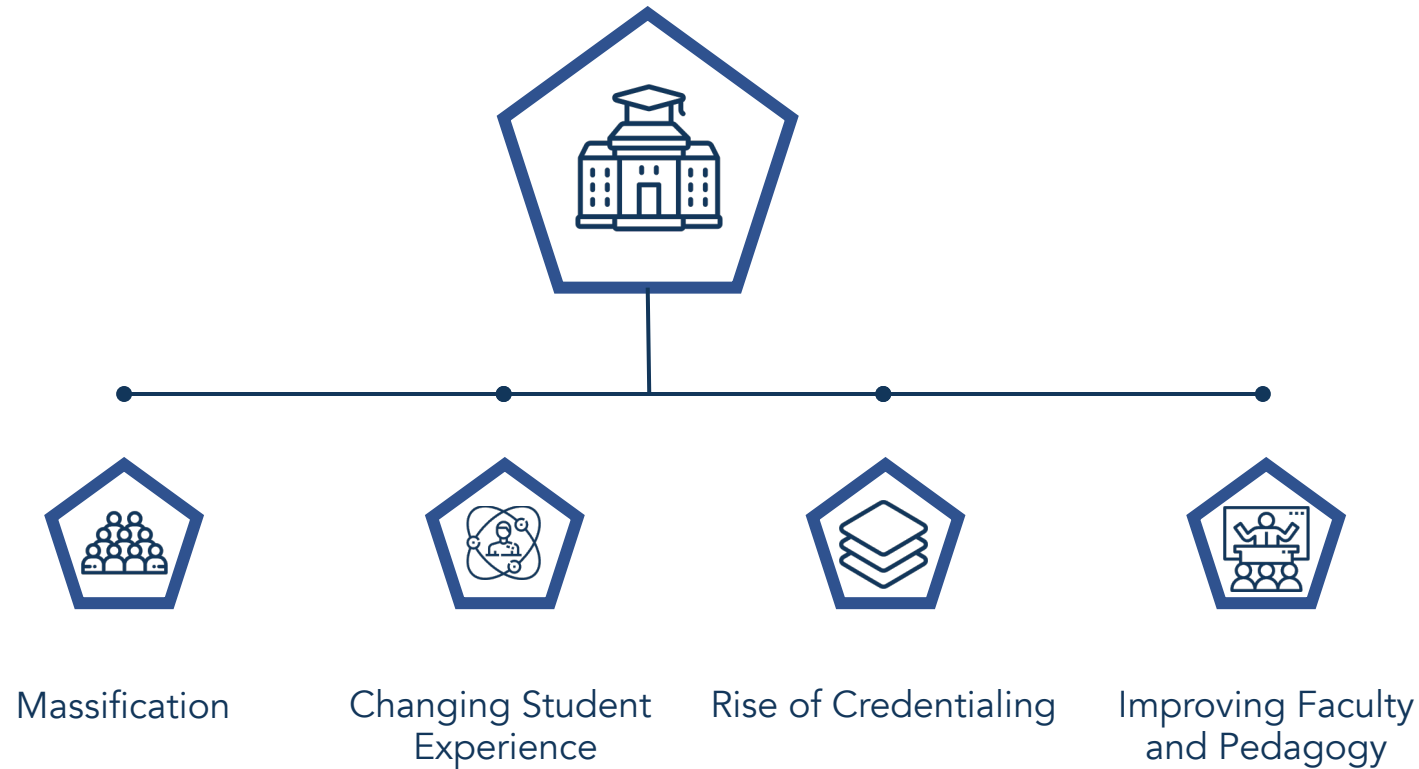Trends influencing university learning

Acceleration of research

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UPDATING THE ACADEMY

Trends influencing university teaching and learning

Acceleration of research

Four Key Trends Influencing the University

Massification   Changing Student Experience   Rise of Credentialing   Improving Faculty and Pedagogy

Trend One: Massification

Questions that leaders ought to consider:

How will the student experience change to reflect increased access across society and globally to support the growing knowledge economy?

How will the knowledge economy's continual change effect students' need for lifelong access to education?

With the competition for talent now a fully global phenomenon, how will educational institutions alter their curriculums, services, etc. to account for this shift?

Major themes influencing massification:

Changing student demographics

Rise of ongoing/lifetime learning

Transnational & multi-institution partnerships
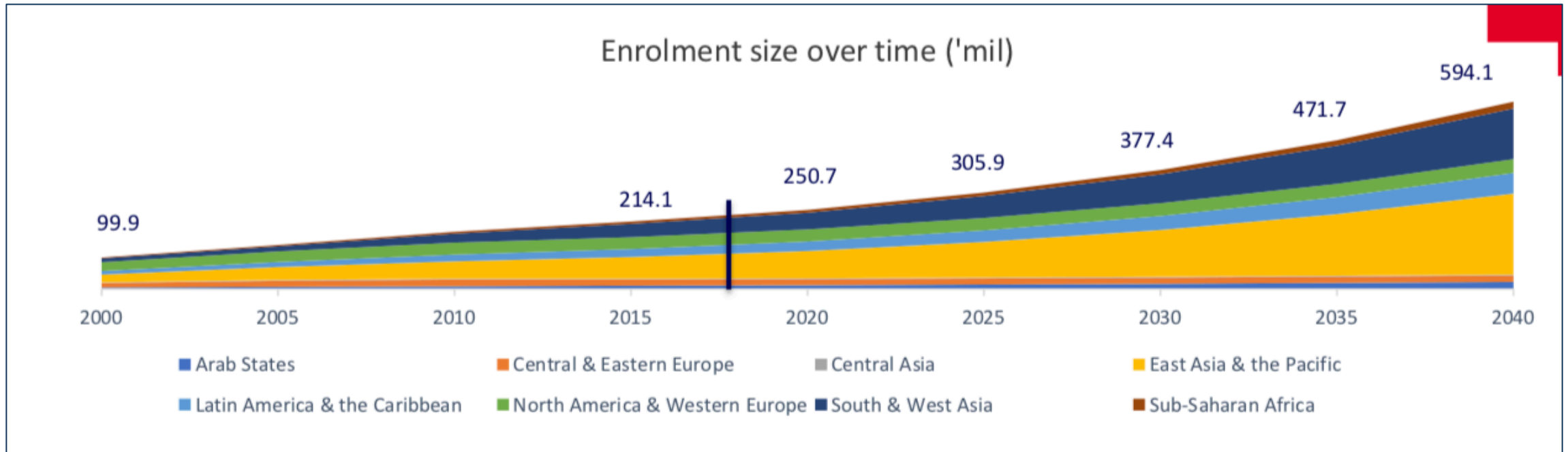
Increasing need for vocational/applied learning

Technology as a driver of collaboration

Institutions will face increasing enrollment numbers worldwide

However, this growth will not be distributed equally, and so areas with lower amounts of growth must compensate for this shift towards the west as a center of education.

Asian and Pacific regions are projected to see over 270% increases in enrollment, and all other areas are projected to at least double by 2040…

… except the U.S., which will see just 16% growth, and will now have to compete with multiple centers of education.

Enrolment size over time ('mil)

99.9   214.1   250.7   305.9   377.4   471.7   594.1

2000   2005   2010   2015   2020   2025   2030   2035   2040

- Arab States
- Central & Eastern Europe
- Central Asia
- East Asia & the Pacific
- Latin America & the Caribbean
- North America & Western Europe
- South & West Asia
- Sub-Saharan Africa

The rate of enrollment will drastically increase globally in the next 20 years, partially due to the rapid rise, from both a population and economic standpoint, of countries like China and India.

Question to consider: How can institutions invest in technologies that will facilitate an increase in enrollment at the necessary rate?

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Massification is no longer a primarily European and American trend.

Institutions must factor mobility of talent into their long term visions; a failure to do so would be detrimental to their capability to retain strong students.

Mean years of schooling, 1950
Average number of years of total schooling across all education levels, for the population aged 25+

Our World in Data

0 years   6 years   12 years
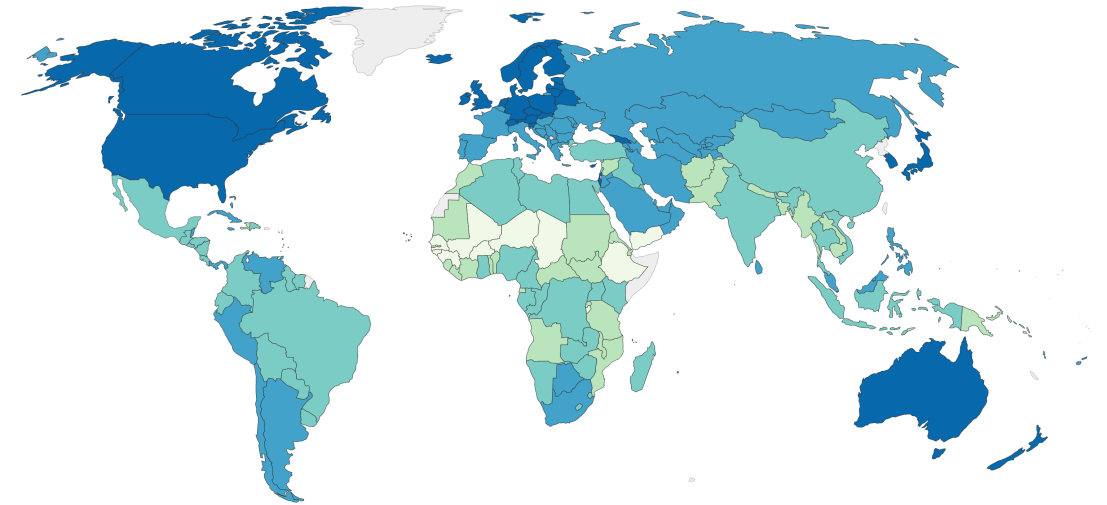No data   3 years   9 years   15 years
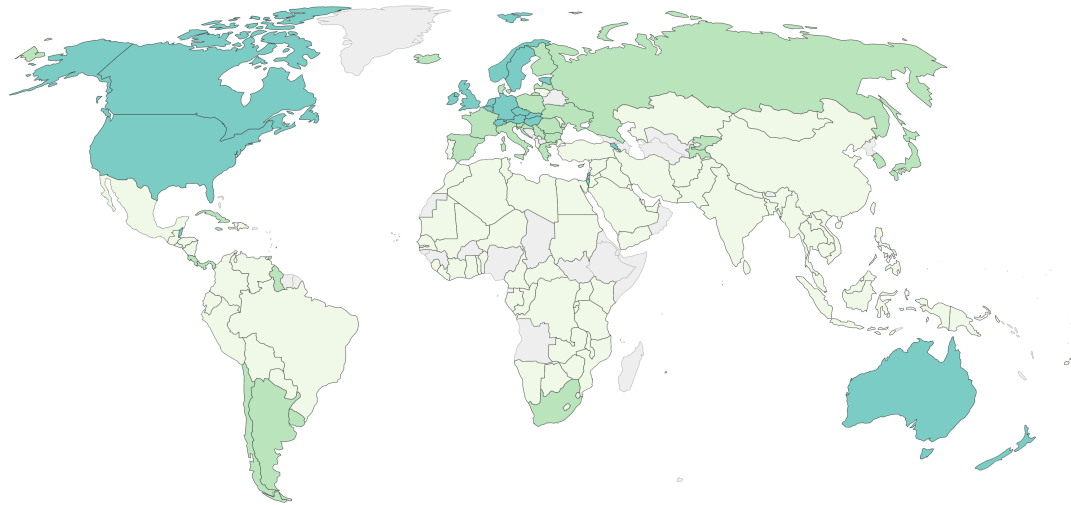
Source: Lee-Lee (2016), Barro-Lee (2018) and UNDP, HDR (2018)   OurWorldInData.org/global-rise-of-education • CC BY

Mean years of schooling, 2017
Average number of years of total schooling across all education levels, for the population aged 25+

Our World in Data

0 years   6 years   12 years
No data   3 years   9 years   15 years

Source: Lee-Lee (2016), Barro-Lee (2018) and UNDP, HDR (2018)   OurWorldInData.org/global-rise-of-education • CC BY

Access to education has seen drastic changes over the past 70 years, as globalization and technology have helped to minimize the drastic differences in educational institutions worldwide.

Question to consider: What lessons can countries who have grown at a slower pace take from stronger educational systems to further minimize this gap?

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Most of the world will have at least upper secondary education by end of century.

This rapid change in education demographics will undoubtedly create unforeseen circumstances and needs, and institutions that invest in their capabilities will be best positioned to capitalize.

Projected world population by level of education

This visualization shows the Medium projection by the International Institute for Applied Systems Analysis (IIASA). The researchers who created this projection describe it as their "middle of the road scenario that can also be seen as the most likely path".

Our World in Data

- Post Secondary
- Upper Secondary
- Lower Secondary
- Primary Incomplete
- Primary
- No Education
- Under 15

Source: Global Projection, Medium SSP2 - IIASA (2016)

OurWorldInData.org/future-population-growth • CC BY

The rise in post secondary education is partially due to the rise of the middle class in the most populous western countries. But the large number of upper secondary populations implies a growing market for specialized schools in various trade industries.

Question to consider: How will smaller universities and institutions invest in their ability to attract talent that may otherwise enter the workforce immediately?

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Trend Two: Student Experience

Questions that leaders ought to consider:

How will student services be delivered to an increasingly large and diverse (geography, age) student population?

How can students have consistency in instruction as they move across institutions and delivery formats?

How can education become more affordable to ensure better equality in access?

What support will students need to survive and thrive in project-based coursework and experiential training for credit?

Major themes influencing student experience:

Non-traditional student support

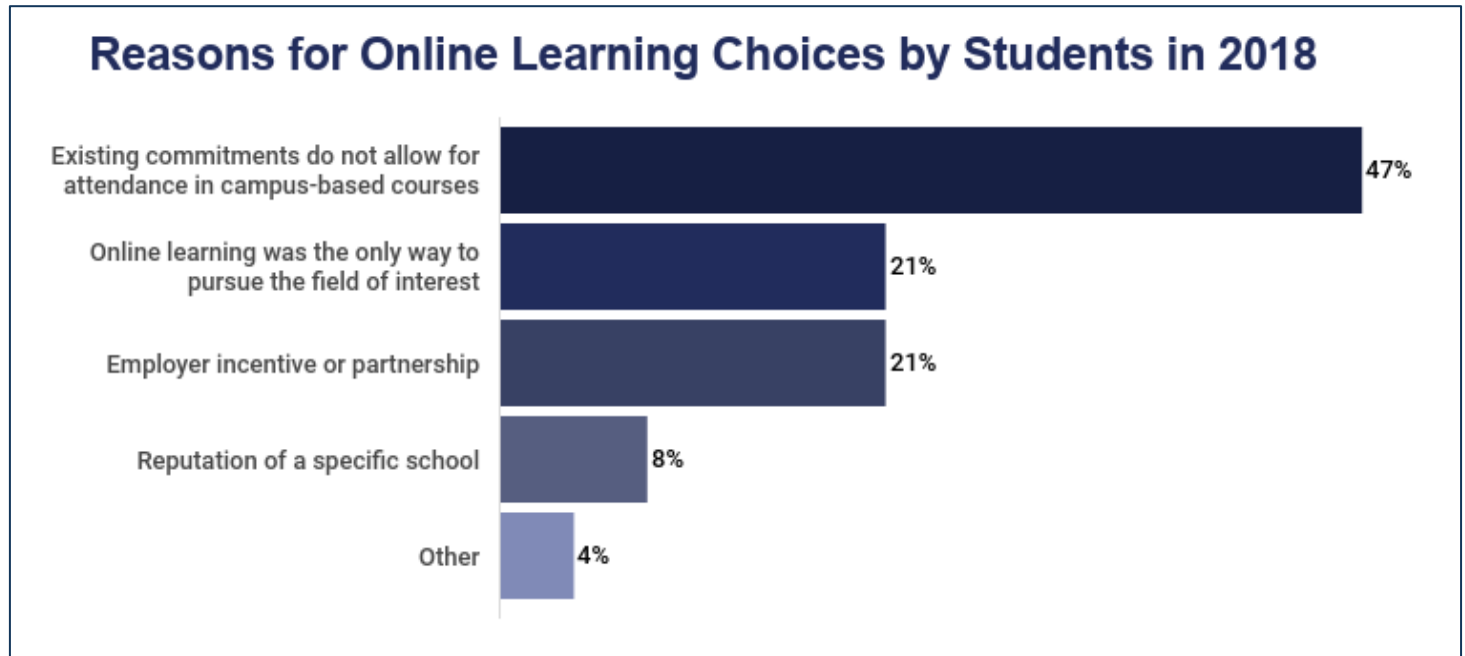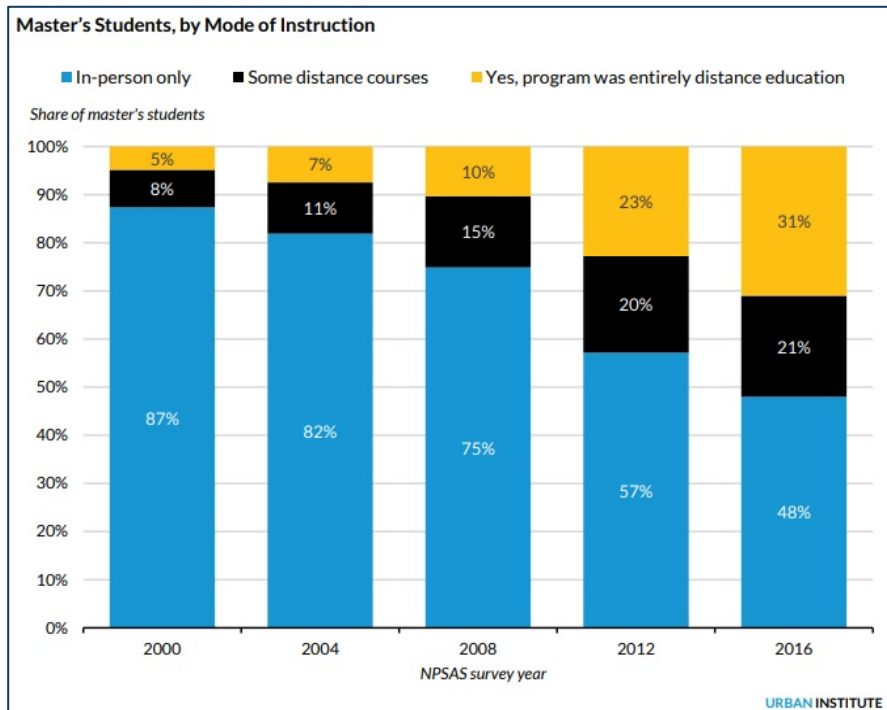Online student support

Experiential learning

Articulation

Affordability

The upper strata of tertiary education was shifting online long before the pandemic.

Faculty and staff may be tempted to disregard online integration as a temporary shift, but data suggests that as technical capabilities expand, comfort with online learning increases, particularly at higher levels.

It is imperative for universities to recognize that as technological advances allow for increased access to education, they also allow for unprecedented access to other commitments, such as virtual internships or other skill-based learning endeavors.

Master's Students, by Mode of Instruction

■ In-person only   ■ Some distance courses   ■ Yes, program was entirely distance education

Share of master's students

NPSAS survey year	In-person only	Some distance courses	Entirely distance education
2000	87%	8%	5%
2004	82%	11%	7%
2008	75%	15%	10%
2012	57%	20%	23%
2016	48%	21%	31%

NPSAS survey year

URBAN INSTITUTE

Reasons for Online Learning Choices by Students in 2018

Reason	Percentage
Existing commitments do not allow for attendance in campus-based courses	47%
Online learning was the only way to pursue the field of interest	21%
Employer incentive or partnership	21%
Reputation of a specific school	8%
Other	4%

While 80% of online master's students report living within 100 miles of campus, institutions are able to increasingly draw candidates from around the world to enroll.

Question to consider: Are universities ensuring that the quality of these programs matches that of on campus programs? How are student services and experiential components delivered?

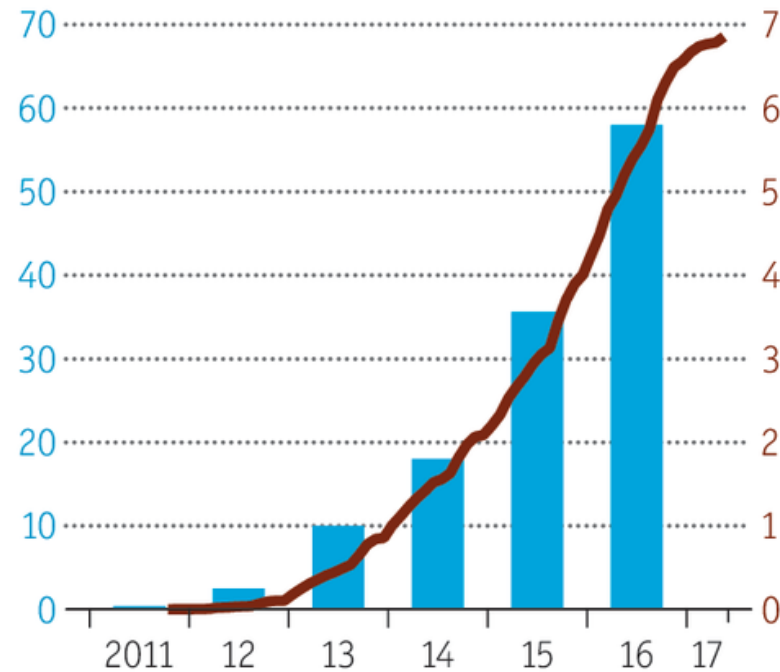# Free, open courses have also continued to grow exponentially.

This circumvention and/or supplementation of typical university curriculums and programs suggests universities are not currently meeting students' needs, or at the very least are facing increased competition for attention of their students.
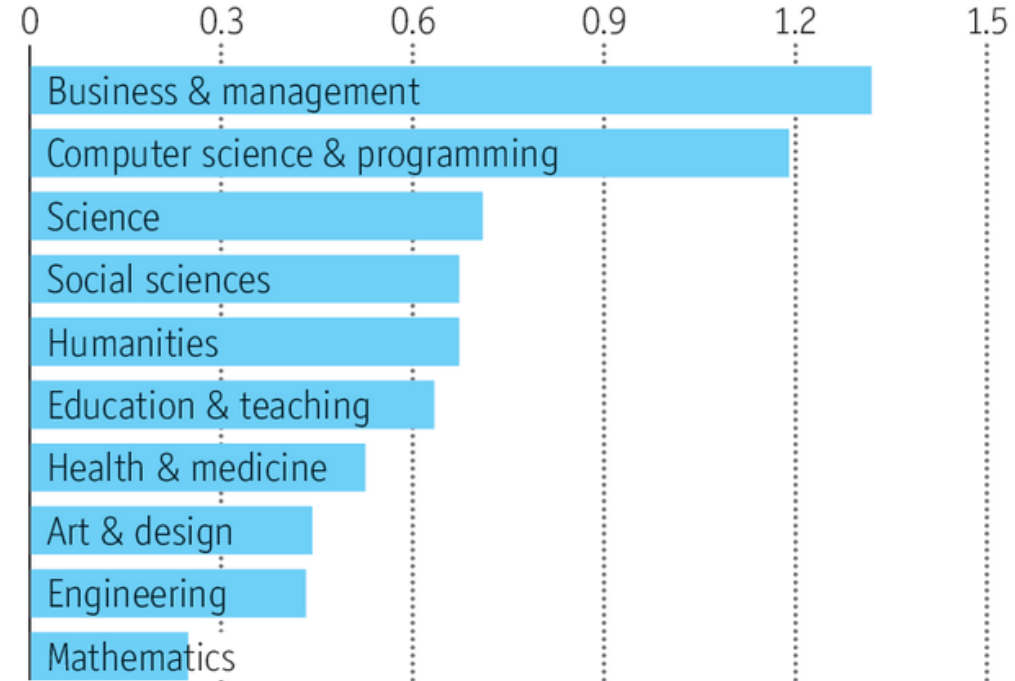
Learning curve

Massive open online courses, main international providers

Registered users, m

Cumulative number of courses*, '000

Courses by subject, 2011-17*, '000

- Business & management
- Computer science & programming
- Science
- Social sciences
- Humanities
- Education & teaching
- Health & medicine
- Art & design
- Engineering
- Mathematics

Source: Class Central

Economist.com

*By start date

The prominence of business and various sciences implies students are seeking alternative routes to strengthen their credibility in the workplace, as opposed to less intensive learning for the sake of it.

Question to consider: Are universities making necessary efforts to see what services are provided by MOOCs, and looking into some sort of cooperation or incorporation?

Trend Three: Rise of Credentialing

Questions that leaders ought to consider:

How will educational progress and attainment be tracked and measured as people learn across multiple institutions, on the job, and throughout their lives?

How can credentials be created to improve access, decrease cost, and allow quicker time to employment?

How can the quality of programs be assured as they are quickly created to meet student demand and a changing work landscape?

Major themes influencing credentialing:

Technical vs. Cognitive

Employer acceptance
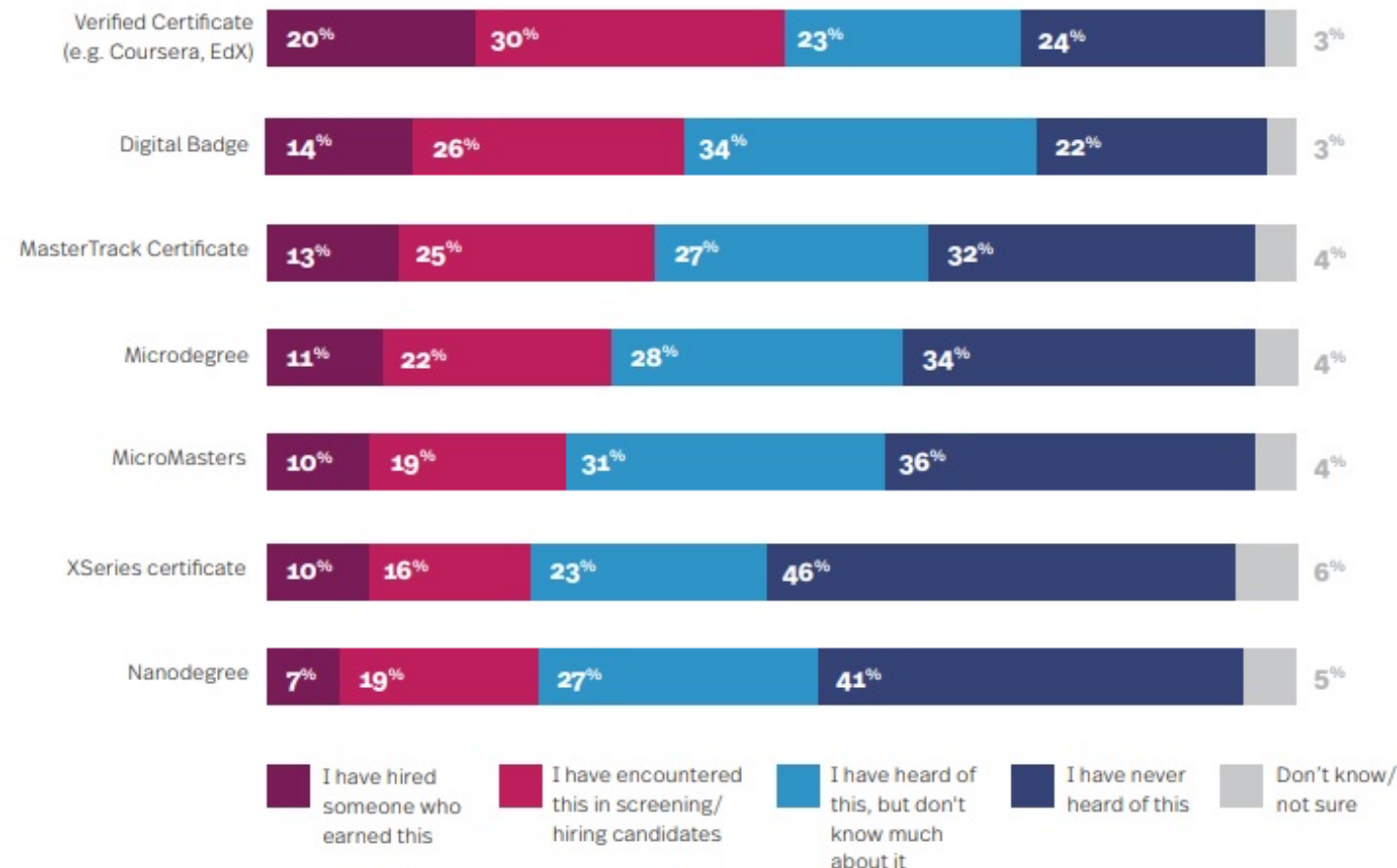
Changing job market

Micro-credentials

Stackable credentials

Credentialing has drastically risen in frequency within the job market

Awareness of micro-credentials among employers is becoming more common, a trend undoubtedly accelerated by the pandemic.

With the rise of platforms like Edx and Coursera, students are consistently seeking a competitive advantage online, which is reflected in the employment process.

Figure 8. Level of Awareness or Experience with the Various Types of "Microcredentials" that May Appear on a Candidates' Resume

	I have hired someone who earned this	I have encountered this in screening/ hiring candidates	I have heard of this, but don't know much about it	I have never heard of this	Don't know/ not sure
Verified Certificate (e.g. Coursera, EdX)	20%	30%	23%	24%	3%
Digital Badge	14%	26%	34%	22%	3%
MasterTrack Certificate	13%	25%	27%	32%	4%
Microdegree	11%	22%	28%	34%	4%
MicroMasters	10%	19%	31%	36%	4%
XSeries certificate	10%	16%	23%	46%	6%
Nanodegree	7%	19%	27%	41%	5%

Given there are many types of micro-credentials, institutions that best integrate them into their systems & curriculums gain strong positioning with employers.

Question to consider: In the future, will there be two spheres of education (i.e. institutional and personally pursued) or will universities try to absorb these platforms into their services and curriculums?

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A growing number of universities and industry leaders worldwide are looking to diversify their educational services.

While some forward-looking universities and companies are participating in this initiative, it is still primarily private platforms that develop, curate, and deliver the educational courses.

MicroMasters® Programs are a Pathway to Today's Top Jobs

MicroMasters programs are a series of graduate level courses from top universities designed to advance your career. They provide deep learning in a specific career field and are recognized by employers for their real job relevance. Students may apply to the university offering credit for the MicroMasters program certificate and, if accepted, can pursue an accelerated and less expensive Master's Degree.

Recognized By Industry Leaders

How a MicroMasters® Program Works

Explore a New Skill
An easy, attainable way for you to start learning about a new topic.

Learn Great Things at Your Own Pace
Complete each course, whenever and wherever you choose - this is mastery made flexible!

Get a Degree
Build towards a bachelor's or master's degree, or earn a full master's degree.

Advance Your Career
Gain relevant skills to up your game at work in a career-focused program.

Or Pursue a Full Master's Degree
Apply to the university that accepts your MicroMasters program certificate for credit and, if accepted, the certificate will accelerate your degree.

Universities must identify the companies working with credentialing platforms to stay ahead of trends: 76% of companies that recognize Edx MicroMasters Programs are in industrials/construction, information technology, or financials.
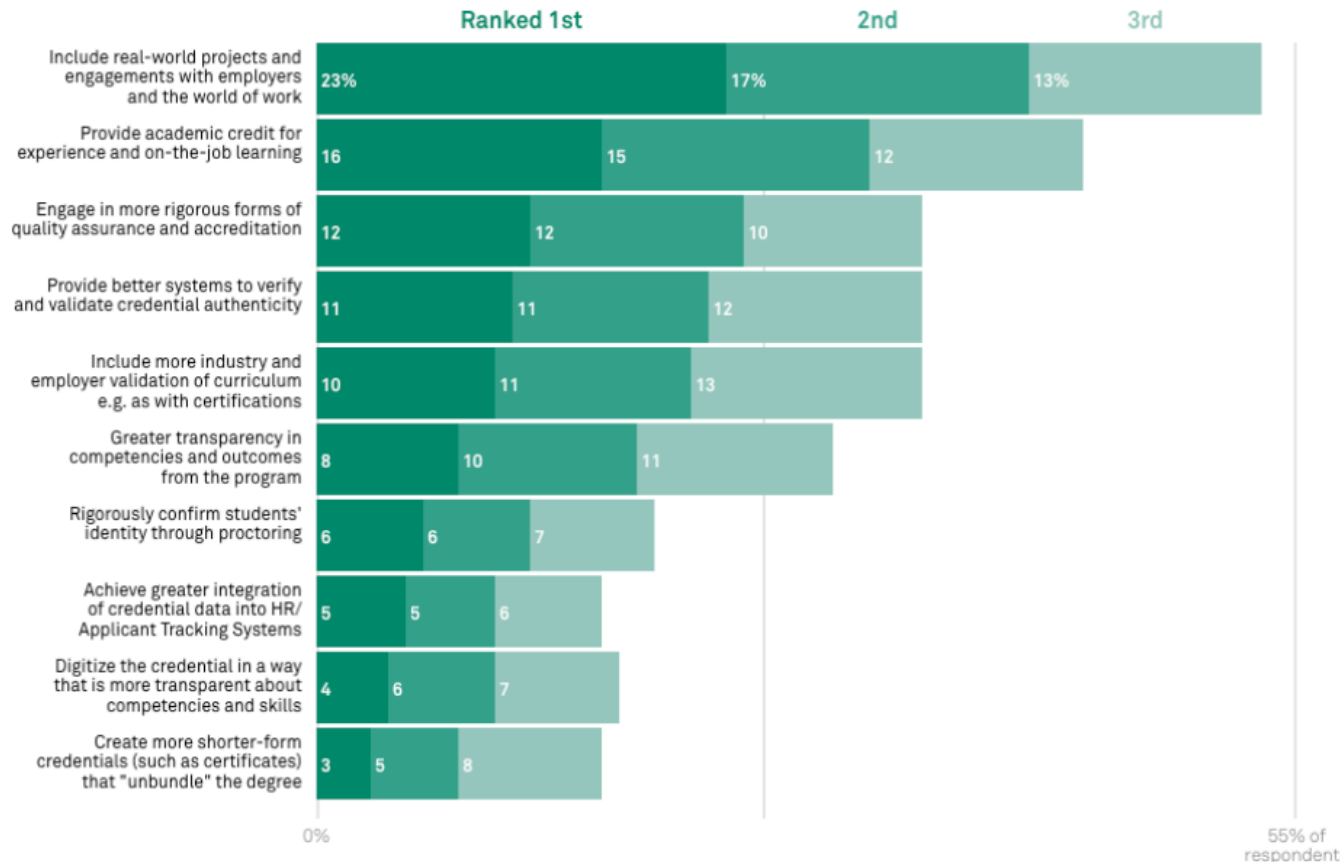
The flexibility provided by these platforms often attracts potential students who have other obligations and may not be able to attend a university full time, a market that will grow in the coming decades.

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Employers want to see various improvements in credentialing.

With room for improvements in this area, educational institutions ought to invest in partnerships with the strongest platforms, lending credibility to them while simultaneously broadening the capabilities of the institutions.

Employers' recommended priorities for colleges and universities

As online education continues to grow, which of the following would you recommend that colleges and universities prioritize, to ensure the quality and utility of online credentials as hiring signals?

	Ranked 1st	2nd	3rd
Include real-world projects and engagements with employers and the world of work	23%	17%	13%
Provide academic credit for experience and on-the-job learning	16	15	12
Engage in more rigorous forms of quality assurance and accreditation	12	12	10
Provide better systems to verify and validate credential authenticity	11	11	12
Include more industry and employer validation of curriculum e.g. as with certifications	10	11	13
Greater transparency in competencies and outcomes from the program	8	10	11
Rigorously confirm students' identity through proctoring	6	6	7
Achieve greater integration of credential data into HR/ Applicant Tracking Systems	5	5	6
Digitize the credential in a way that is more transparent about competencies and skills	4	6	7
Create more shorter-form credentials (such as certificates) that "unbundle" the degree	3	5	8

0%   55% of respondents

Data visualization by Lia Petronio/Northeastern University

Most credentialing currently lacks the capability to provide real experience, a significant gap educational institutions can fill with a partnership.
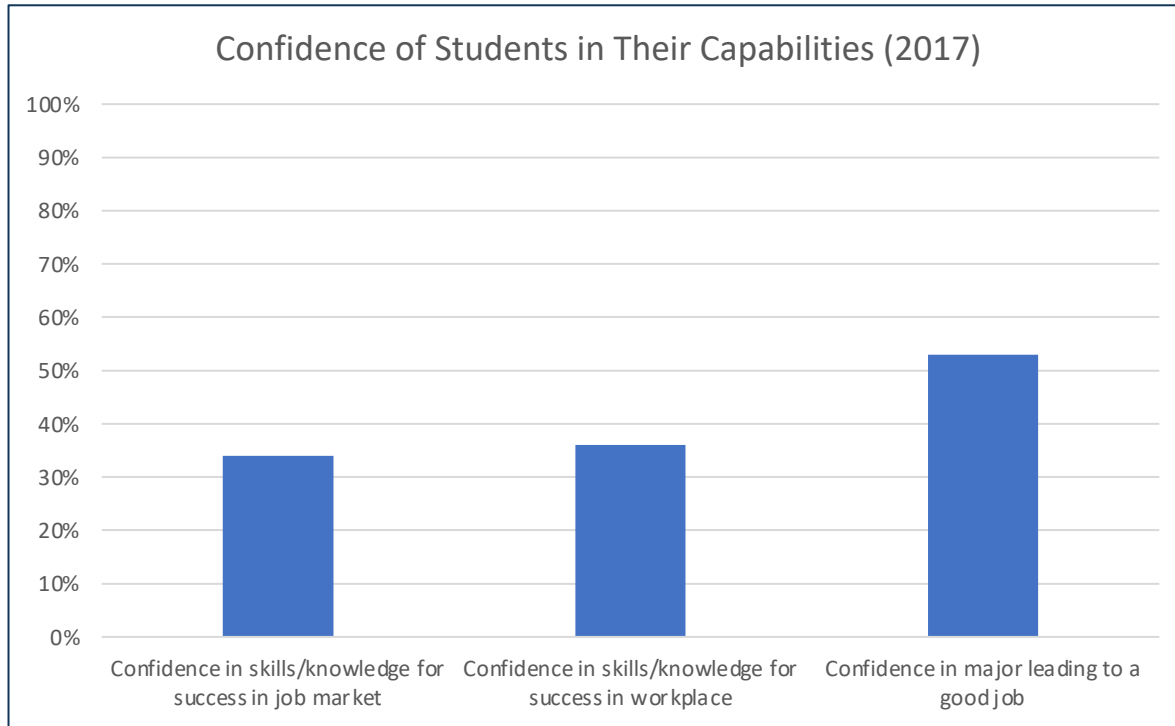
Real world experience and quality assurance were among the most common requests from employers to align hiring signals with credentials.

Question to consider: How can universities constructively collaborate with industry while maintaining their much-needed independence from industry pressures that may compromise the integrity of holistic learning?
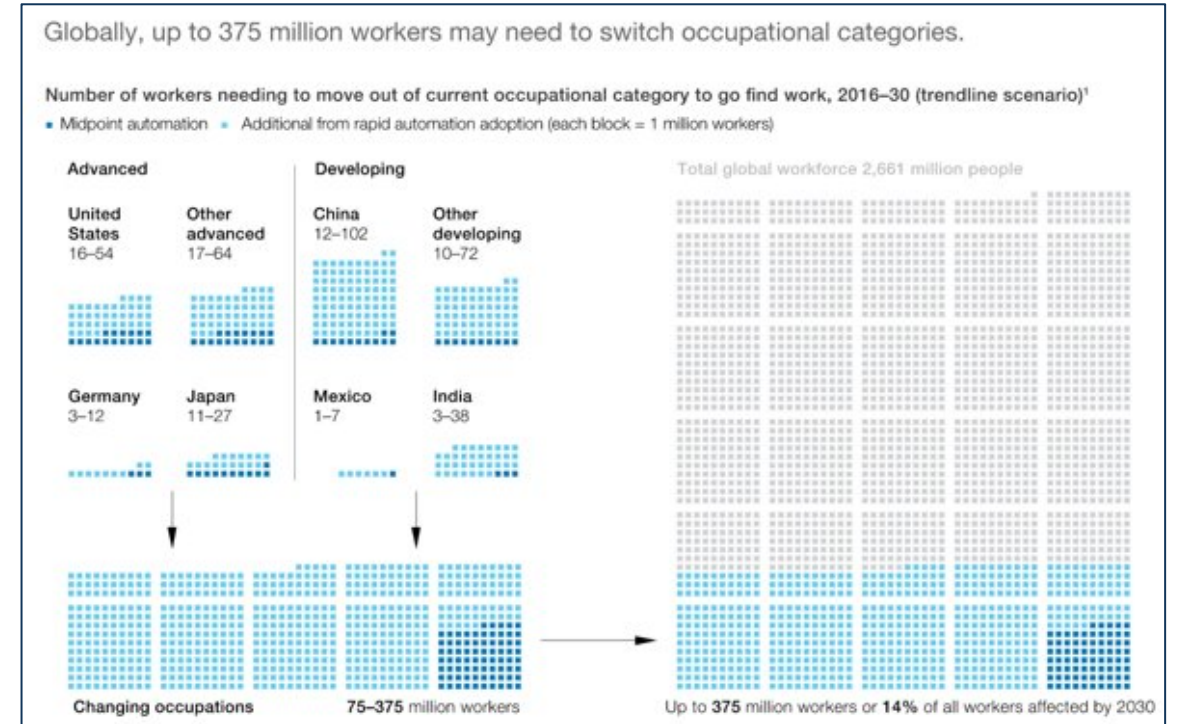
This search for other methods of improvement among students is well-founded concern.

As the world becomes increasingly interconnected, jobs and roles previously unimagined will emerge, and students feel as though their base of knowledge does not suit this massive labor shift.

Only half of students feel as though they will land a job in their desired field, and roughly a third think they will actually be successful.

Confidence of Students in Their Capabilities (2017)

Bar chart with y-axis from 0% to 100%:
- Confidence in skills/knowledge for success in job market: ~34%
- Confidence in skills/knowledge for success in workplace: ~36%
- Confidence in major leading to a good job: ~53%

This concern stems from the permeation of information technology, particularly in advanced economies, which are much further along various automation timelines.

Globally, up to 375 million workers may need to switch occupational categories.

Number of workers needing to move out of current occupational category to go find work, 2016–30 (trendline scenario)[1]

- Midpoint automation
- Additional from rapid automation adoption (each block = 1 million workers)

Advanced		Developing		Total global workforce 2,661 million people
United States 16–54	Other advanced 17–64	China 12–102	Other developing 10–72	
Germany 3–12	Japan 11–27	Mexico 1–7	India 3–38	

Changing occupations — 75–375 million workers — Up to 375 million workers or 14% of all workers affected by 2030

Most curriculums and programs fail to reflect the increased incorporation of information technology in the global economy, and new structures are necessary to align university capabilities with labor market needs.

Question to consider: Business and science are obvious places to start, but how will technology affect other areas of study and research? Will universities have to take different approaches based on the level of technological integration in a certain field?

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Credentials are very helpful for technical roles, while higher education is necessary in most other fields.

Online learning excels in providing content that is technical in nature, but the fourth industrial revolution necessitates the ability to comprehend vast amounts of data, an area where higher education has the structures to execute.

Certificates have a significant benefit for engineering and technical roles, but are too weak to stand alone in most other fields. Universities must act quickly to improve their non-routine cognitive capabilities before this gap is narrowed as well.

FIGURE 13. Workers with certificates in engineering technologies or drafting have median earnings between $75,001 and $150,000—higher than those with certificates in other fields.
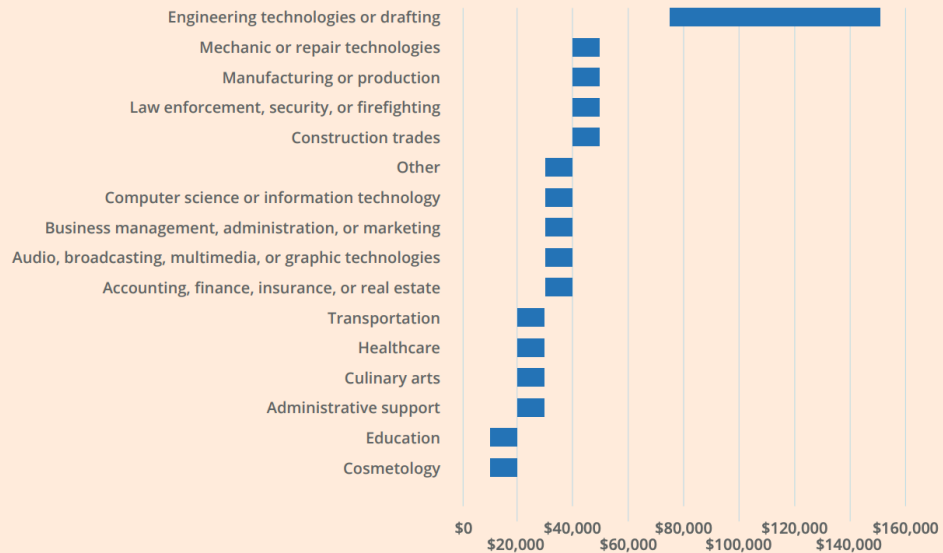
Source: Georgetown University Center on Education and the Workforce analysis of data from the Adult Training and Education Survey (ATES), 2016.

Note: ATES asks respondents to specify their earnings during the 12 months prior to the interview within prescribed wage bands by field of study. We calculated median wage bands based on earnings for prime-age workers (ages 25 to 64) with positive earnings. Fields with fewer than 30 records were not included.

Think

United States employment, by type of work, m

Non-routine cognitive
Routine cognitive
Routine manual
Non-routine manual
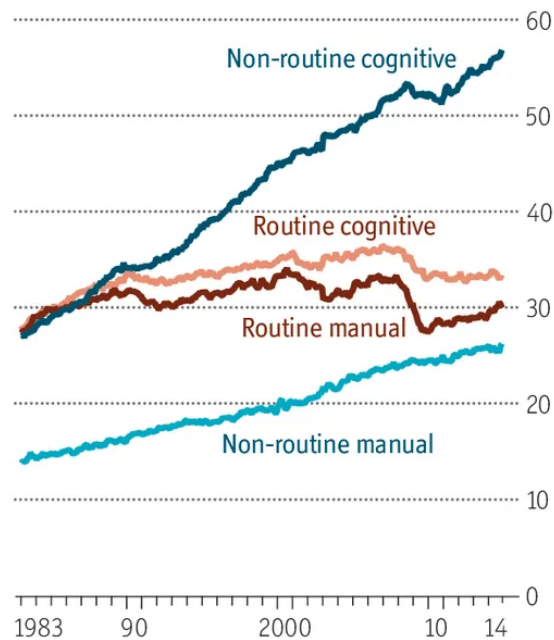
Sources: US Population Survey; Federal Reserve Bank of St. Louis

Economist.com

Because online learning still has major gaps from a cognitive/conceptual learning standpoint, universities must establish themselves as a provider of the interactive/holistic learning process that is essential in the 21st century.

Question to consider: How will universities effectively integrate and emphasize cognitive tools like data analysis, mental models, etc. across multiple disciplines?

Trend Four: Improving Faculty and Pedagogy

Questions that leaders ought to consider:

How will the role of the lecturer change with the availability of high-quality on-demand digital content?

How can faculty better integrate with employers to ensure they are meeting the demands of the changing work landscape and preparing students properly?

How are faculty being prepared to provide quality educational experiences to an increasingly large and diverse student population?

Major themes influencing faculty and pedagogy:

- Digital Course Content
- Online instruction
- Updating curriculum
- Upgrading Pedagogy
- Faculty training

Institutions have increasingly relied on adjunct faculty in recent decades.

Such a reliance on this kind of teaching can become problematic when institutions undergo change or redirect towards the future, as has been necessitated by the rise of digitization and online learning, as well as changing demographics.

Trends in The Academic Labor Force, 1975-2015
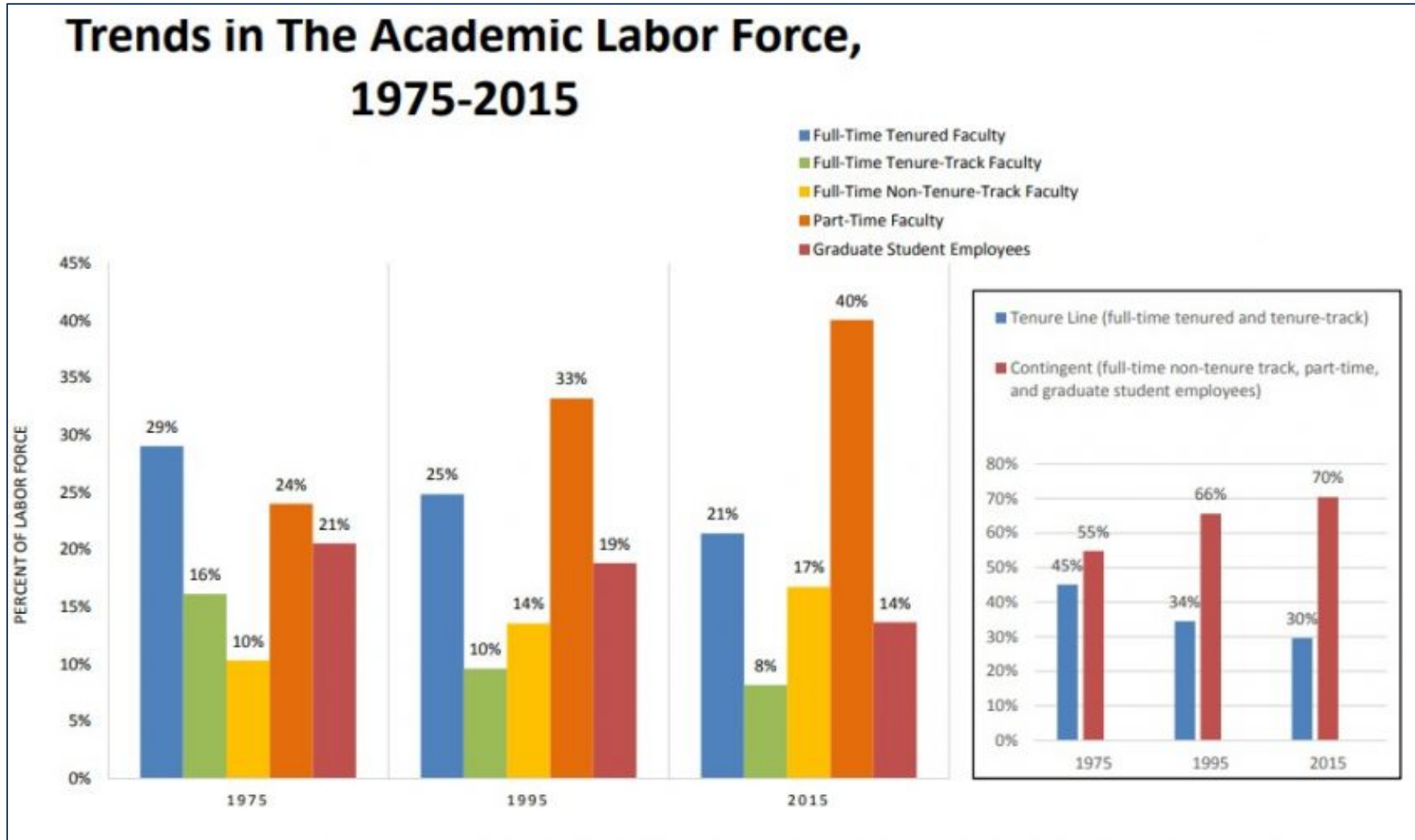
Adjunct professors typically seek multiple income streams and thus have less time for students overall; as a result, an overreliance on them will put a university at a competitive disadvantage in the long term.

Question to consider: For universities that use a significant number of adjunct professors for budget reasons, could a shift in investment towards cost-saving technologies alleviate this overreliance?

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Most professors anticipated a shift back to in-person classes in near-term.

While professors made necessary adjustments such as changing the kinds of assignments required, the majority did not change their expectations of students, implying most changes were temporary in nature.
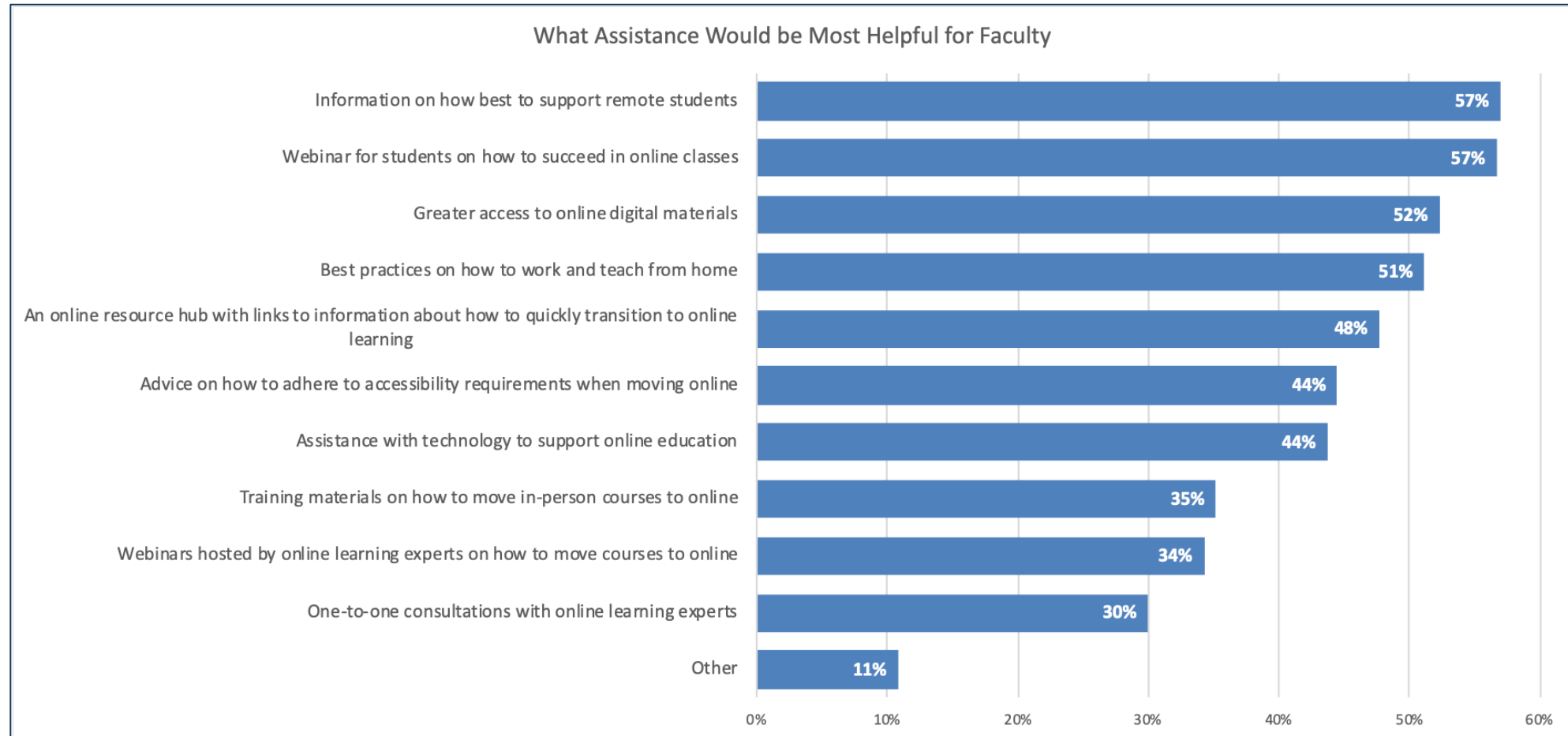
Changes faculty made when moving classes online

Change	No online teaching	Taught online
I changed the kinds of assignments or exams I am asking students to do	69%	60%
I lowered my expectations about the amount of work that my students will be able to do	55%	40%
I (or my institution) allowed students the option to choose pass/fail instead of A-F grades for this semester	46%	45%
I dropped some assignments or exams	45%	42%
I lowered my expectations about the quality of work that my students will be able to do	34%	29%
I dropped some of the readings that I was originally asking students to do	18%	15%
Other	12%	20%

This short-term view of change could be problematic in the future. We recommend professors invest in their tech-related competencies, as tech integration in the classroom will only accelerate.

Question to consider: Given the reliance on adjunct faculty and no formal tech training, how can university and industry leaders collaborate to strengthen faculty skills?

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Faculty may need guidance on navigating current and future trends.

As tech accelerates and more waves of innovation arrive, online pedagogy must accelerate and improve at a similar pace; this improvement begins with faculty and their preparation.

What Assistance Would be Most Helpful for Faculty

Category	Percentage
Information on how best to support remote students	57%
Webinar for students on how to succeed in online classes	57%
Greater access to online digital materials	52%
Best practices on how to work and teach from home	51%
An online resource hub with links to information about how to quickly transition to online learning	48%
Advice on how to adhere to accessibility requirements when moving online	44%
Assistance with technology to support online education	44%
Training materials on how to move in-person courses to online	35%
Webinars hosted by online learning experts on how to move courses to online	34%
One-to-one consultations with online learning experts	30%
Other	11%

Given that 65% of faculty in the U.S. has no experience with online teaching, it is no surprise that the majority of faculty would find assistance helpful for the online transition.

Question to consider: Given the rapid transformation undertaken in the private sector, can universities learn from their counterparts and institute similar measures?

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Three potential initiatives that will improve student quality before arrival at university.

Given students typically spend a relatively brief amount of their academic career in tertiary education, we would be remiss not to provide pre-tertiary solutions that will reap long term benefits for the quality of the entire educational ecosystem.

Ensure all national and local educational programs and investments in innovation capacity address the access, diversity and inclusion of minorities and women—with a goal to increasing their participation tenfold.

Ensure all levels of workforce development programs and training enable a highly skilled, digitally competent, innovative workforce beginning at secondary school levels.

Launch new community-based public and private partnerships to support students and entrepreneurs, by expanding innovation and entrepreneurship curricula in primary through higher education—with a goal to retain and grow regional innovation capacity.

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Going Deeper With GFCC: Teaching and Learning

Universities 4.0 Discussion Paper: University models

QUESTION: How can universities respond and adapt to changing social and economic conditions, transforming their core functions and generating new operational, educational and research models, without relinquishing their essential role in building the global common good?

➤ Implications of Shifting Demographics

➤ Growth in Social Mobility

➤ Technological Disruption Ushered In by the Advent of New LMS Technologies on the Cloud and AI

➤ Financial Pressure and the Rise of 'Unbundling'

➤ The Porous University

Report from James Metson & Cate Roy Forthcoming

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UPDATING THE ACADEMY

Trends influencing university learning

Acceleration of research

Acceleration of Research

The Council of Competitiveness has set a bold objective for leapfrog progress in U.S. research – an example of the scale of opportunity all nations face. They propose a 3-tiered initiative in which universities should try to collaborate with other stakeholders to achieve **10x growth** in the following areas.

10x: Increasing the Number of Innovations Developed in and Deployed by the United States

1. Restore federal research and development (R&D) investment to 1960 levels of two percent of GDP.
2. Establish a new, non-profit American Innovation Investment Fund with initial public-private capitalization of $100 billion.

10x: Increasing the Speed at Which the United States Innovates

1. Extend the mission of national labs to encompass economic competitiveness and permit co-funding with private sector partners.
2. Expand access to and public-private financing for shared research institutions and industry-led pilot demonstration projects.

10x: Increasing the Number and Diversity of Americans Engaged in Innovation

1. Redesign federal economic development programs to support innovation building capacity, eliminating outdated grant criteria and duplicative funding by adopting innovation metrics and performance standards for new block grant programs.
2. Conduct through State Competitiveness and Innovation Councils regional innovation mapping and assessments for building future innovation capacity.

GFCC is harnessing leapfrog research and innovation potential among its partner institutions globally.
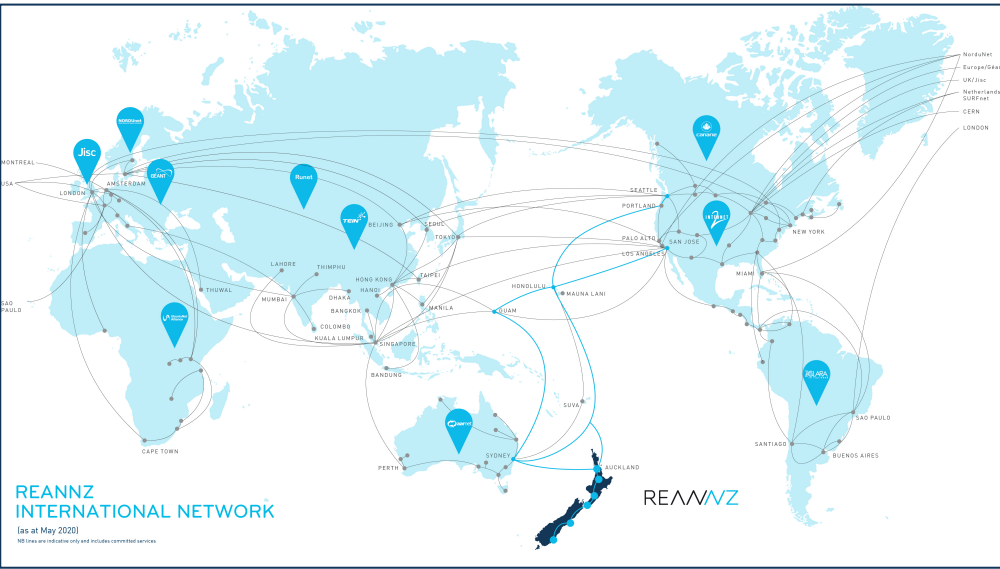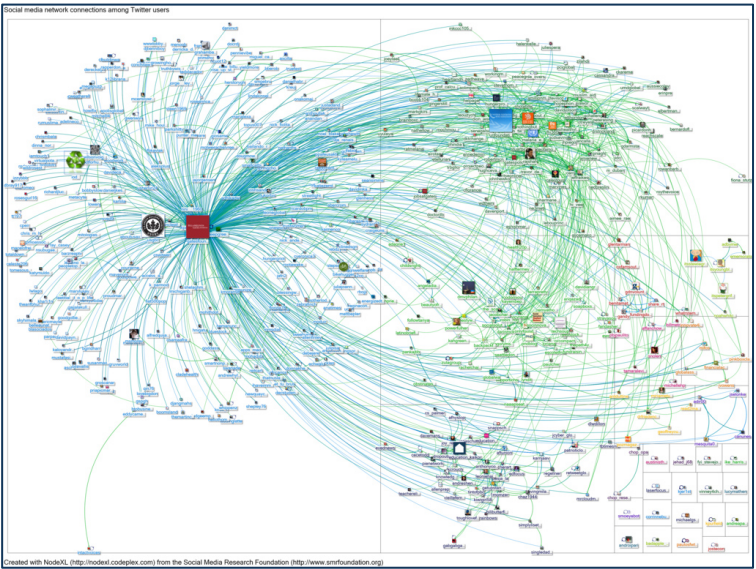
Council of Competitiveness
Competing in the Future Economy
2020

3 Drivers for Exponential Research Models:
Big Data, Machine Learning, and AI
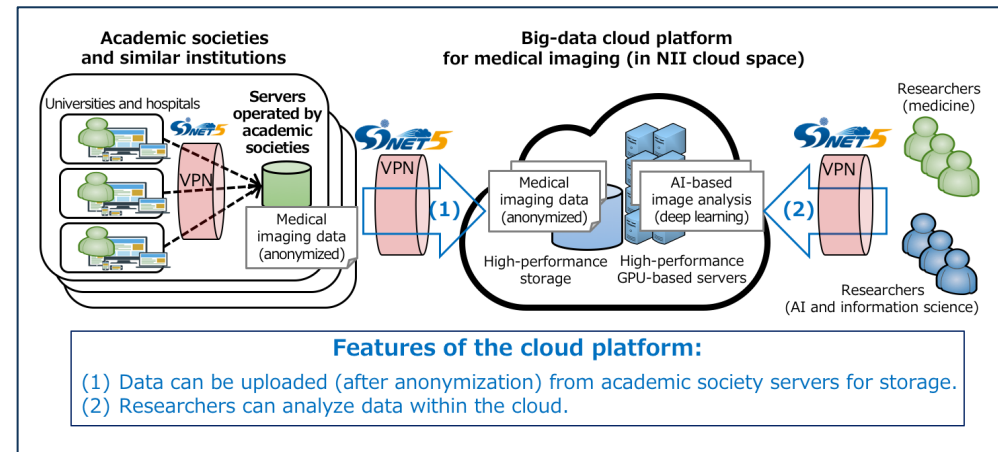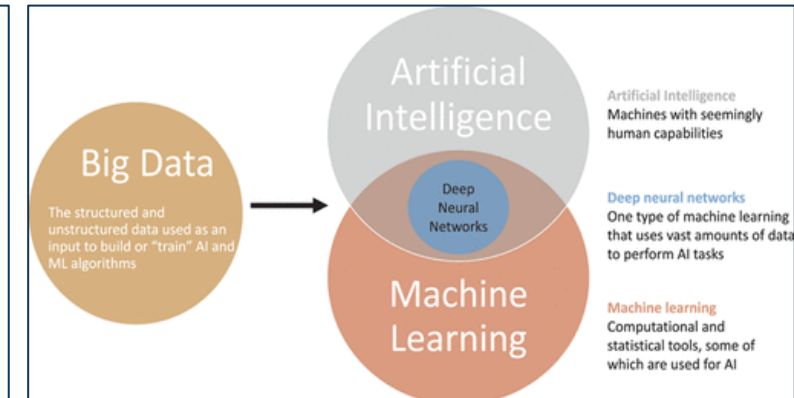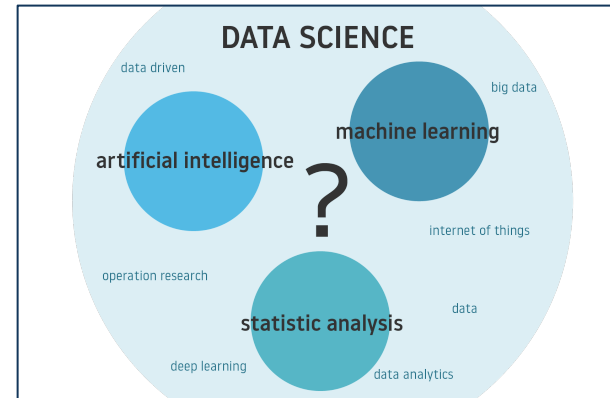
With the advent of the cloud, data analysis, computation, AI and machine learning has EXPLODED, leading to higher throughput research models.

Global Research Networks and Teams
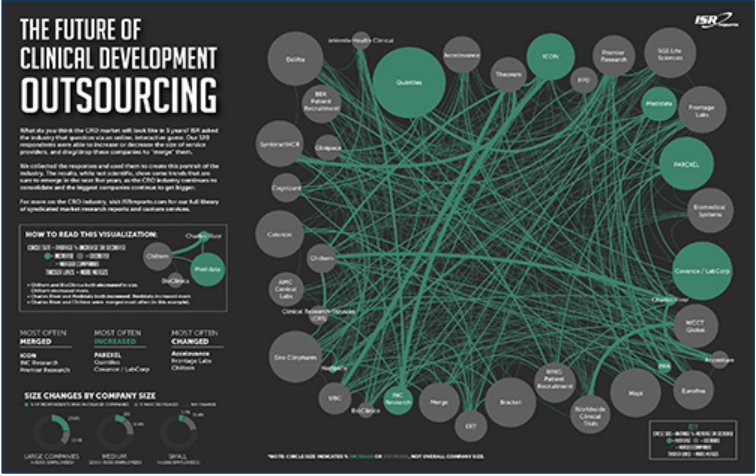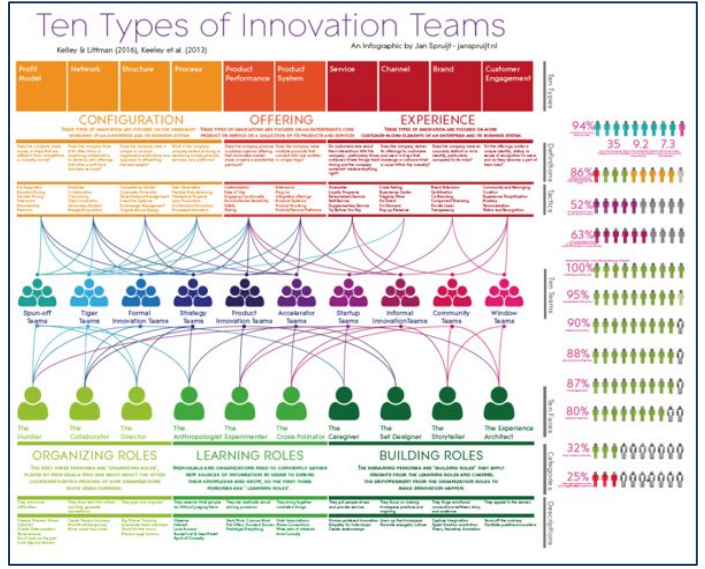
Research and development networks evolve from insular to global to open, with university, public, private and NGO stakeholders integrated across the cloud.
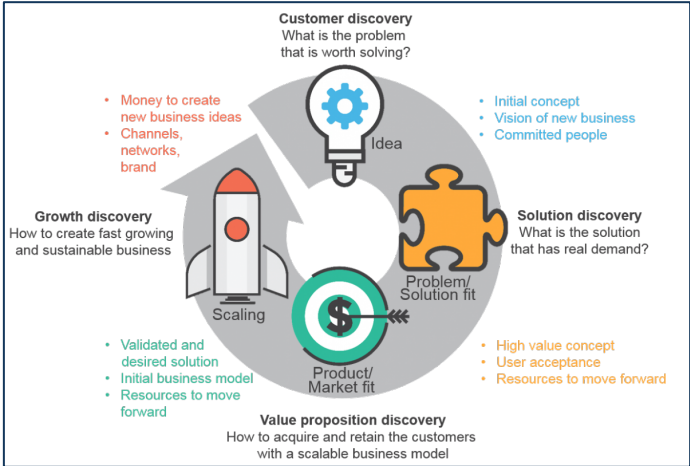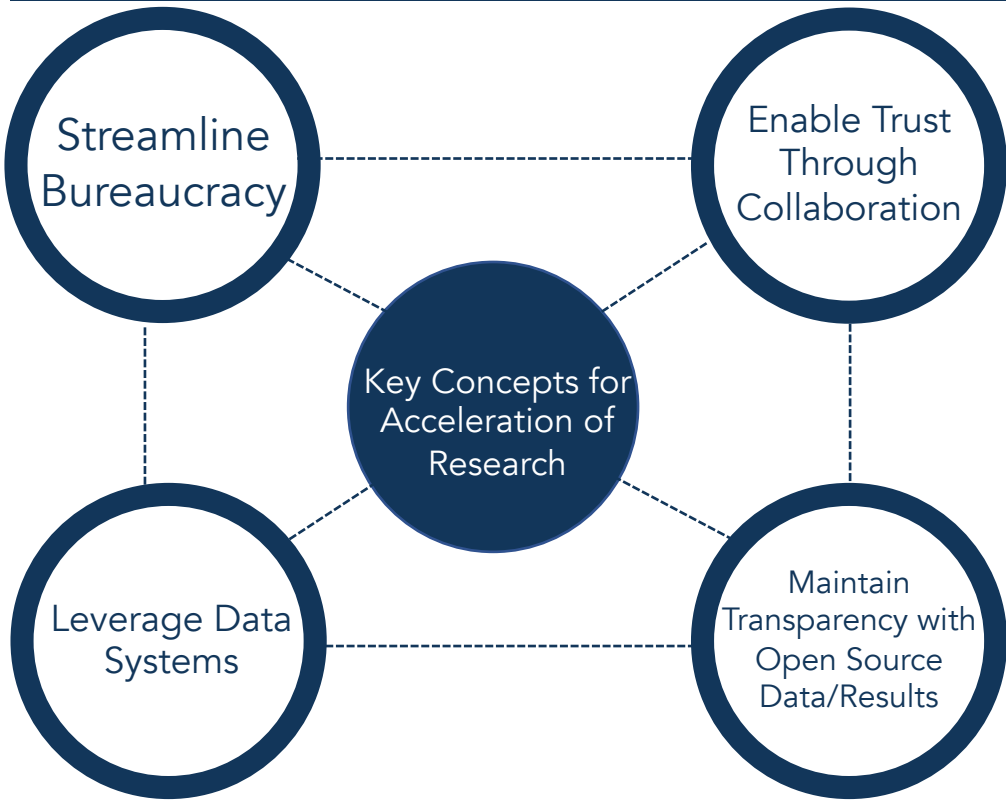
New Models for Research Engagement: COVID-19 Case

The urgency of COVID-19 pandemic accelerated the path to rapid global development and syndication of not only the vaccine vectors, but the Patient Testing Protocols and Standards to rapidly accelerate development.
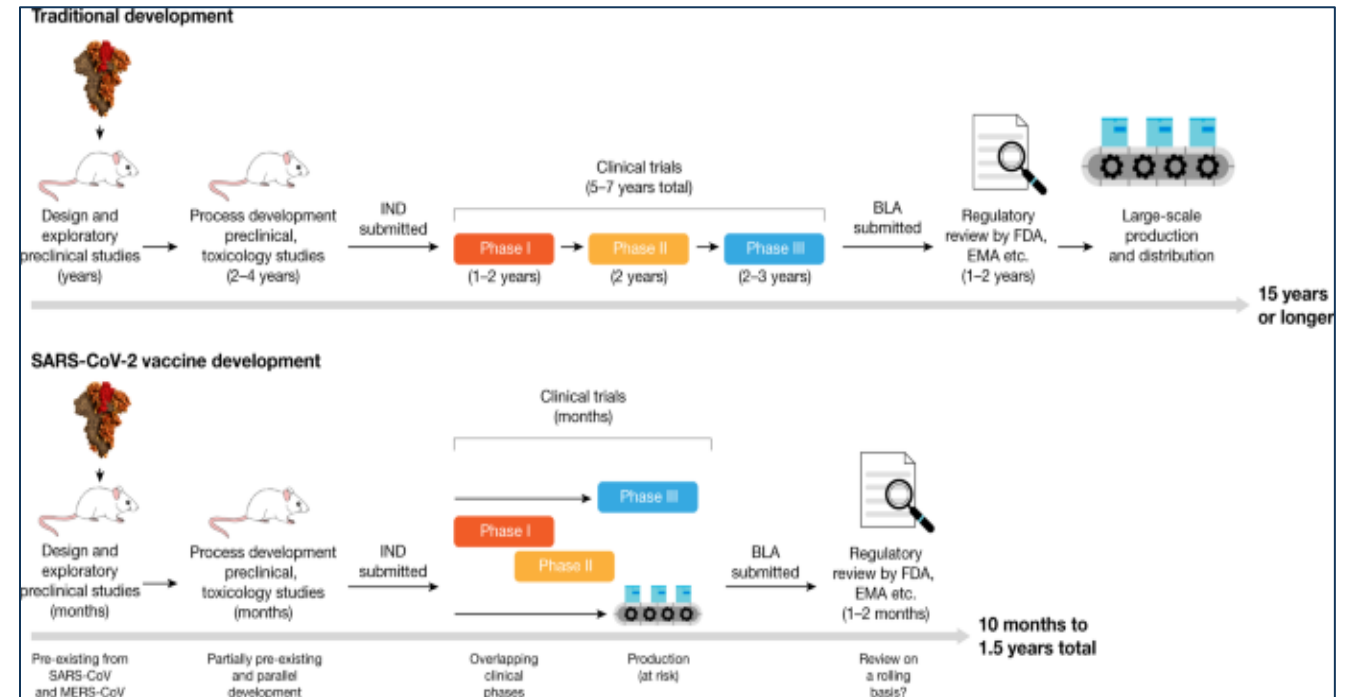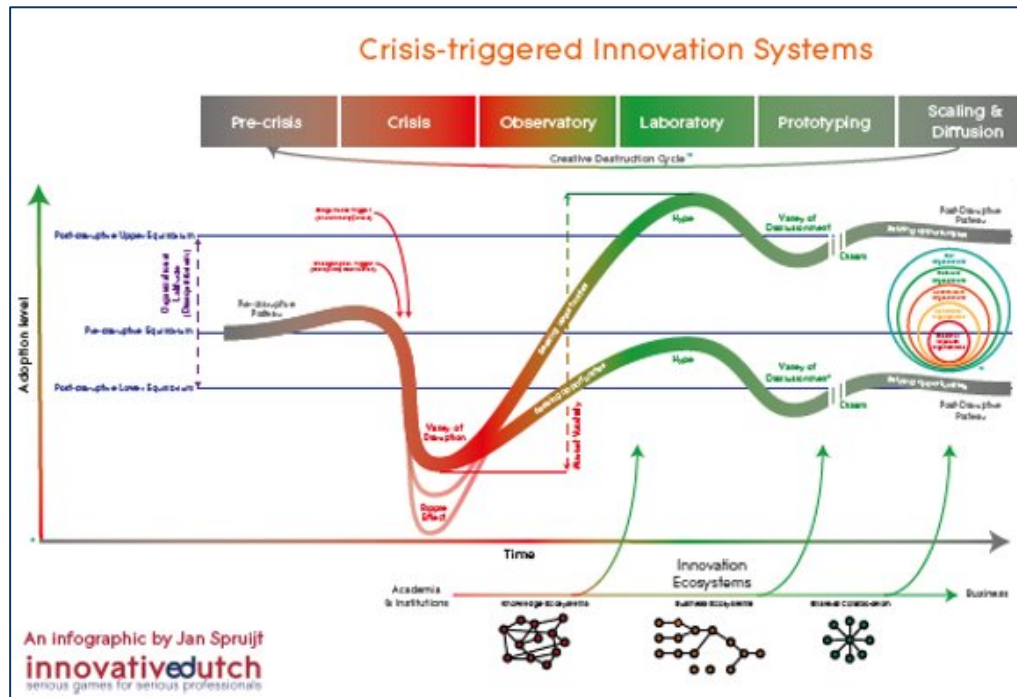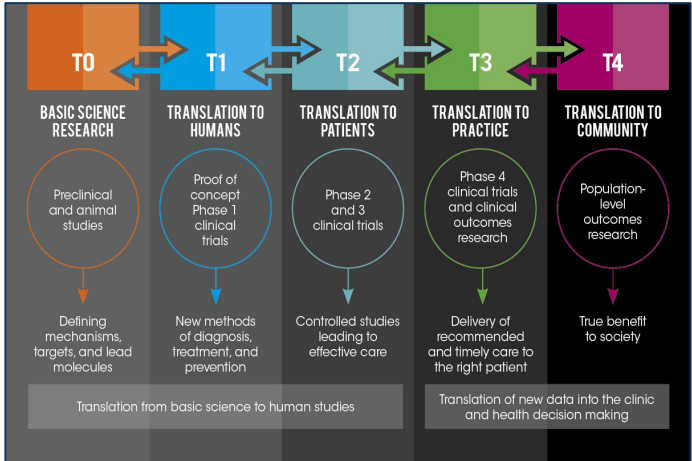

To learn more about the Impact of the pandemic on Higher Education, refer to the GFCC Report COVID-19 IMPACT ON HIGHER EDUCATION, COMPARATIVE ANALYSIS OF THE EUROPAEUM MEMBER UNIVERSITIES, JENNIFER GARCÍA CARRIZO, et. Al, 2020.

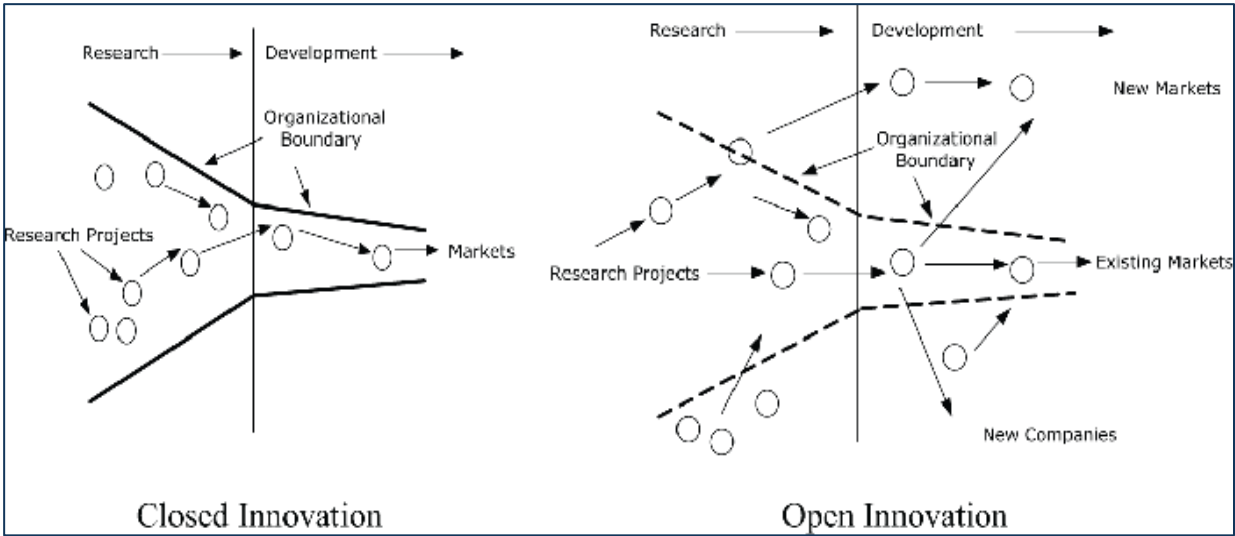# New Models for Research Engagement

Resources like the NFS's 10 Big Ideas and New Models for Research and Innovation, concepts like the Lean Startup and Closed versus Open Innovation, and examples like the Covid-19 international collaboration and research act as benchmarks for where university research needs to go in the future.

Streamline Bureaucracy

Enable Trust Through Collaboration

Key Concepts for Acceleration of Research

Leverage Data Systems

Maintain Transparency with Open Source Data/Results

Introduction

Updating the Academy

US NSF iCorps Lean Process

Research Translation as a System
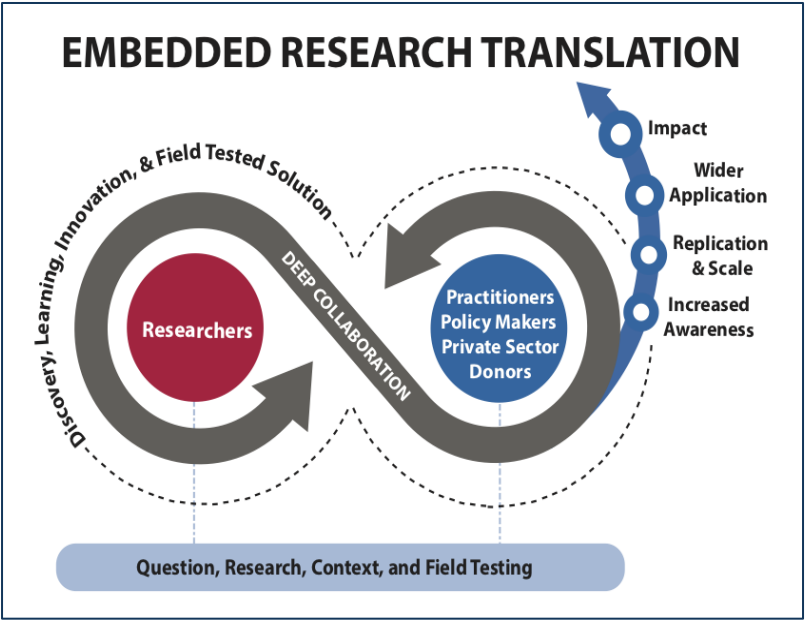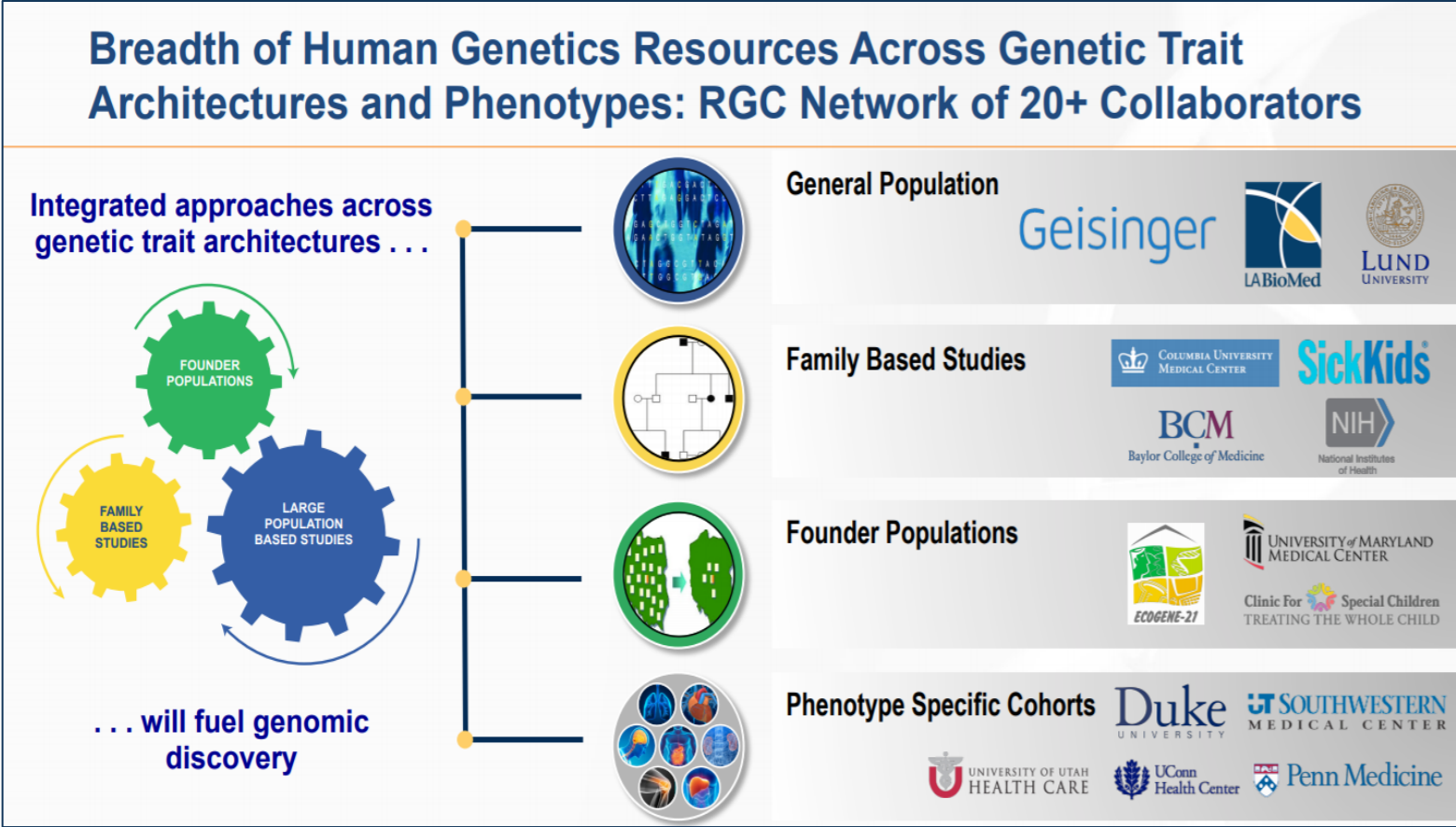

Trends toward Open Innovation

Implications

Lessons

New Models for Research Translation and Commercialization

Breadth of Human Genetics Resources Across Genetic Trait Architectures and Phenotypes: RGC Network of 20+ Collaborators

Integrated approaches across genetic trait architectures . . .

FOUNDER POPULATIONS

FAMILY BASED STUDIES

LARGE POPULATION BASED STUDIES

. . . will fuel genomic discovery

General Population — Geisinger, LABioMed, LUND UNIVERSITY

Family Based Studies — Columbia University Medical Center, SickKids, BCM Baylor College of Medicine, NIH National Institutes of Health

Founder Populations — ECOGENE-21, University of Maryland Medical Center, Clinic For Special Children TREATING THE WHOLE CHILD

Phenotype Specific Cohorts — Duke University, UT Southwestern Medical Center, University of Utah Health Care, UConn Health Center, Penn Medicine

EMBEDDED RESEARCH TRANSLATION

Discovery, Learning, Innovation, & Field Tested Solution

DEEP COLLABORATION

Researchers

Practitioners Policy Makers Private Sector Donors

Impact
Wider Application
Replication & Scale
Increased Awareness

Question, Research, Context, and Field Testing

From the evolution from tech "transfer" to "translation" has ushered in a new era of cooperative research and development taking advantage of Convergence.

Going Deeper with GFCC: Accelerating Research

Universities 4.0 Discussion Paper: Technology as a transformation enabler

QUESTION: What are the key technologies that universities should consider when thinking about the future within the context of the fourth industrial revolution - Industry 4.0, how will new technologies impact universities and what new types of education and enterprise models they could potentially give rise to?

➢ Collaborative, Technology Driven Research

➢ Positioning the University to Tackle Global Challenge

➢ Accelerating the outcomes and impact of research

➢ New Models of Transfer, Translation and Open Science

Report from Aleks Subic Forthcoming

Introduction   Updating the Academy   Implications   Lessons

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Accelerating Learning with the Higher Education Business Model

Teaching and Learning

Accelerating Higher Education Learning
Based on the Trends of the Higher
Education Business Model

New Digital Learning

➢ Universities must realize that the method of instruction delivery will be vastly different over the next few decades

➢ New products must be developed to meet the new types of students that are emerging globally, and specifically online

➢ These can take the form of new stackable credentials and other digital innovations

New Models of Collaboration

➢ Universities must engage in collaboration and consolidation with emerging actors such as private education companies and independent educators, as well as tangent actors such as business, government, and non-profits

➢ This collaboration must better align education and workforce readiness to reduce the skills gap seen by employers, and bring cost of delivery down to democratize access to education

➢ Simply put, the educational experience no longer occurs within one university, and those who engage in educational protectionism will be left behind as the learning experience goes global

Redeploying Capital

➢ Most institutions lag behind industry in terms of efficient allotment of investment between human, digital, and infrastructural capital; rethinking this allocation is critical for future decisions

➢ Faculty, particularly senior faculty, must be trained and supported to integrate digital tools into their pedagogy in an effort to bridge the digital divide

➢ Universities must seek ways to use their existing and leverage new technologies to enhance efficiency of faculty and improve their skills/student interaction

New Capital Investment

➢ Financial capital must be directed towards building a digital infrastructure encompassing existing technology, widespread integration of emerging tools to increase efficiency and capacity of human capital

➢ Universities must be thoughtful in their integration of effective learning processes with new technology as opposed to letting new technology dominate curricular decisions

Research Acceleration

Accelerating Higher Education Learning
Based on the Trends of the Higher
Education Business Model

Global Collaboration

➢ The future of research is globally internetworked at the investigator level- there is no reason to not have the most advanced researchers globally communicating on similar projects and fields of study

➢ Syndication will include university research sites combined with government, NGOs and industry

➢ Seamless cooperative frameworks for joint research and development goals must be developed; jumping into collaboration without any structure will lead to miscommunication and a disjointed process

Leveraging Technology

➢ Research throughput will be dramatically accelerated through the application of big data, machine learning and artificial intelligence

➢ Utilizing cloud based technology and open sourcing data is key to the acceleration of research; when progress is siloed it becomes difficult for diffusion to occur

➢ With this increased technological collaboration, it will also be important that research be made available to the public and even approached as an open platform (whenever possible) to ensure both academic integrity but also democratization of research in parallel with that of education

New Models of Research

➢ The COVID-19 pandemic ushered in new global research and development models in medicine, which should be sustained as well as adopted in other disciplines

➢ Transfer activities will be enhanced through translation and again by the singular convergence

➢ It will be important to look across industry and government models to see what has worked in the past for various accelerated timelines; a significant amount of time can be recouped by looking to remove cumbersome administrative processes and procedures while maintaining research integrity

Potential Pitfalls

Implications of the Trends on the Higher Education Business Model

Increases in Inequality

➤ While new modes of education unlock unprecedented access to information for a truly global population, there is potential for a divergence, rather than convergence, depending on how ubiquitously these technology are integrated into education

➤ There are concerns that a bifurcated system will emerge, where privileged students have access to face to face teaching, research-rich environments while those with lesser opportunities are simply left with automation and algorithms

➤ In addition, without universal university embracement of credential learning, there could develop a two tier system where employers view those with primarily credential learning as weaker job candidates given lack of trusted verification

Alienating Digital Learners

➤ New technologies and MOOCs are not created equal; without university collaboration, student support, and verification in these areas, poor learning experiences may keep current educational inequalities in place

➤ Gains in personalization may be offset by a loss of relational aspects of learning, opportunities for dialogue, and broader experiential learning

➤ Without the social and cultural capital that so often makes the learning experience holistic, fragmented courses and curricula may result in subpar outcomes for those who can only access online resources

Weakening of University Autonomy

➤ While collaboration with industry is key for job preparation, too much outside influence may turn tertiary education into a labor-enhancing institution, rather than a student/person/citizen-enhancing institution

➤ While comparative advantage theory may be useful for a global economy, when applied to global learning it may result in increased specialization, which when taken too far can result in artificial segmentation and global siloes, resulting in a loss of synergies

➤ Universities must remain insulated from the immediate priorities of outside stakeholders to foster groundbreaking science and innovation, rather than yielding to short-termism and a potential devaluing of curiosity driven research

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APPROACHING THE SINGULARITY
Realizing
the Future Value
on Innovation in
Higher Education

Lessons for University Leaders to Manage the Transformation

1.0
Immediate Term:

➤ The need for responsiveness to this transformation is immediate and longstanding
➤ Recruiting champions of this transformation will accelerate the transition process
➤ New educational formats and models must be taken seriously and built into the baseline of strategy moving forward
➤ We must embrace sustainable future investment rather than endorsing short-term protectionism
➤ We must increase access through decreased tuition through strategic technology investments that provide efficiency rather than unsustainable cost-cutting measures
➤ It is key to not lose the liberal arts as this transition occurs; there must still be a focus on the development of the whole individual and interpersonal networks, rather than solely skills training for the job market
➤ While early adopters may complicate the market initially, the results will support the broader ecosystem by pioneering new innovative models

2.0
Medium Term:

➤ The lifecycle of creation and new innovation needs to be faster with translation and application as part of the process
➤ New organizational models, including partnerships and programs across stakeholders should emerge with a strong focus on global priorities such as the energy transition, pandemic resiliency
➤ Research ought to be independent and curiosity driven; however, universities ought to take steps to implement findings into real world solutions when possible
➤ Transparency and accountability must be an utmost priority with a commitment to upholding data transparency to contribute to the global body of knowledge
➤ We need strong leadership in order to carry this out; focus needs to be on cultivating and supporting talent at all levels

3.0
Long Term:

➤ Institutions must focus on institutional quality and international relevance to be positioned for long term success
➤ With such market saturation, universities must differentiate and specialize rather than being broadly mediocre
➤ As universities specialize, they must also strive for stronger global connections, benchmarks, engagement in alliances, transformational projects, new types of arrangements and networks
➤ Faculty knowledge should not be held proprietary but rather as a part of a global body of knowledge: open innovation, acquisition of insight, and societal added value
➤ Deliberate fiscal responsibility and continual investment is needed to ensure the sustainability and systematic improvement of our institutions
➤ Universities should continue to invest in and maintain strong social capital infrastructures alongside new digital infrastructures

This material was developed under the framework of the **GFCC University and Research and Leadership Forum**.

Launched in 2016, the Forum serves as a living think tank for the identification and discussion of trends and the generation of ideas for optimizing the university enterprise. Through this initiative, the GFCC facilitates new collaboration, provides global visibility to relevant experiences and original thought in the field, and sheds light into how global education and research institutions contribute to innovation and competitiveness.

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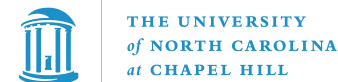
- Partnerships
- Networking
- Benchmarking
- Advice
- Analytics
- Research
- Training

With a footprint in more than 30 countries, the GFCC is a **global multi-stakeholder membership organization that convenes universities, corporations, government agencies and private sector industry organizations and councils**.

Leaders and organizations in our network strive to **advance innovation, productivity and prosperity** in their nations, regions and cities.

Visit www.thegfcc.org and contact info@thegfcc.org for information and membership.

Appendix

Slide 9: https://www.academia.edu/36975860/Massification_of_higher_education_revisited
Slide 10: https://ourworldindata.org/global-education#school-enrollment-and-attendance
Slide 11: https://ourworldindata.org/grapher/projection-of-world-population-ssp2-iiasa
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