Ohio Department of Higher Education

Board of Trustees Annual Conference
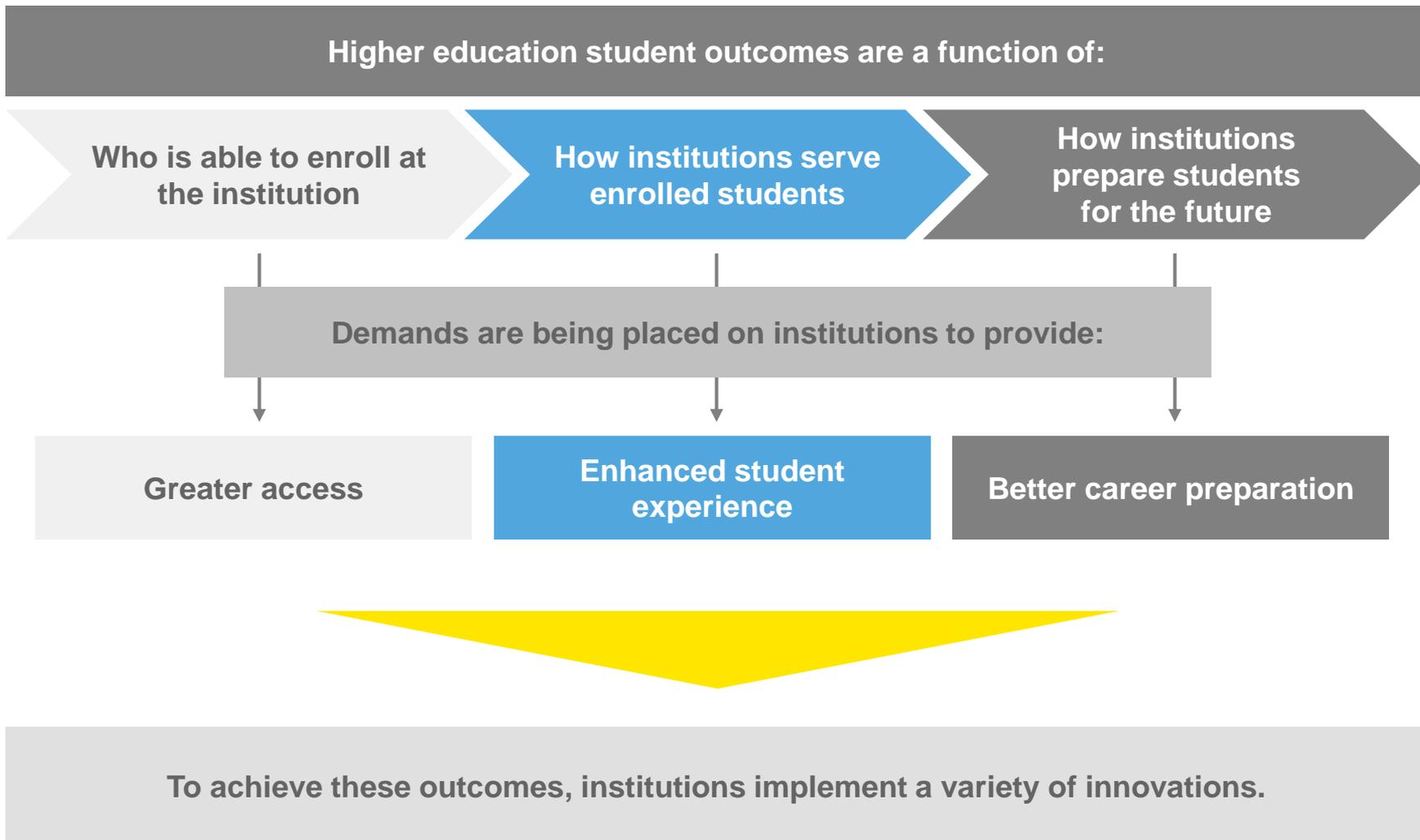
November 9, 2017

Agenda

- ► **The role of innovation in higher education**
- ► Student success efforts
- ► Digital revolution
- ► Industry collaborations
- ► Key roles for board members

The role of innovation in higher education
To drive improved student outcomes, higher education institutions increasingly turn to innovation in their approaches

Higher education student outcomes are a function of:

| Who is able to enroll at the institution | How institutions serve enrolled students | How institutions prepare students for the future |

Demands are being placed on institutions to provide:

| Greater access | Enhanced student experience | Better career preparation |

To achieve these outcomes, institutions implement a variety of innovations.

The role of innovation in higher education
Three innovations can help institutions rethink the traditional model of education in preparing students for an ever-changing world

Current state of higher education outcomes

Long-term vision for the future

Innovations to drive improved outcomes:

Greater access	Enhanced student experience	Better career preparation
Student success efforts	**Digital revolution**	**Industry collaborations**
Measures to attract, serve and prepare students at all income levels for success	Creating a digital ecosystem to improve decision-making and address students' needs	Collaborating with industry partners to incorporate in-demand skills into the student experience

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- ► **Student success efforts**
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Student success efforts

Student demographics are changing; forecasts estimate institutions will serve a population of older, more ethnically diverse and lower-income students

Students face many **demands and responsibilities** outside of the classroom.

28% Have children or dependents[1]

25% Take full course loads while working full-time[2]

38% Are enrolled part-time[2]

The population of students **over the age of 25** is projected to **grow faster** than the under-25 population.

42% Forecasted percent of enrolled students 25 and older by 2025

16% - 20% Growth in enrollment of students 25+

Student populations are forecasted to be **more ethnically and racially diverse** in 2025.

22% Increase in African-American student population

32% Increase in Hispanic student population

**These populations are more likely to be lower income.**

Nontraditional students are **more than twice as likely** to be low-income as traditional students.

Non-white children are **three times more likely** to come from low-income backgrounds than white children.
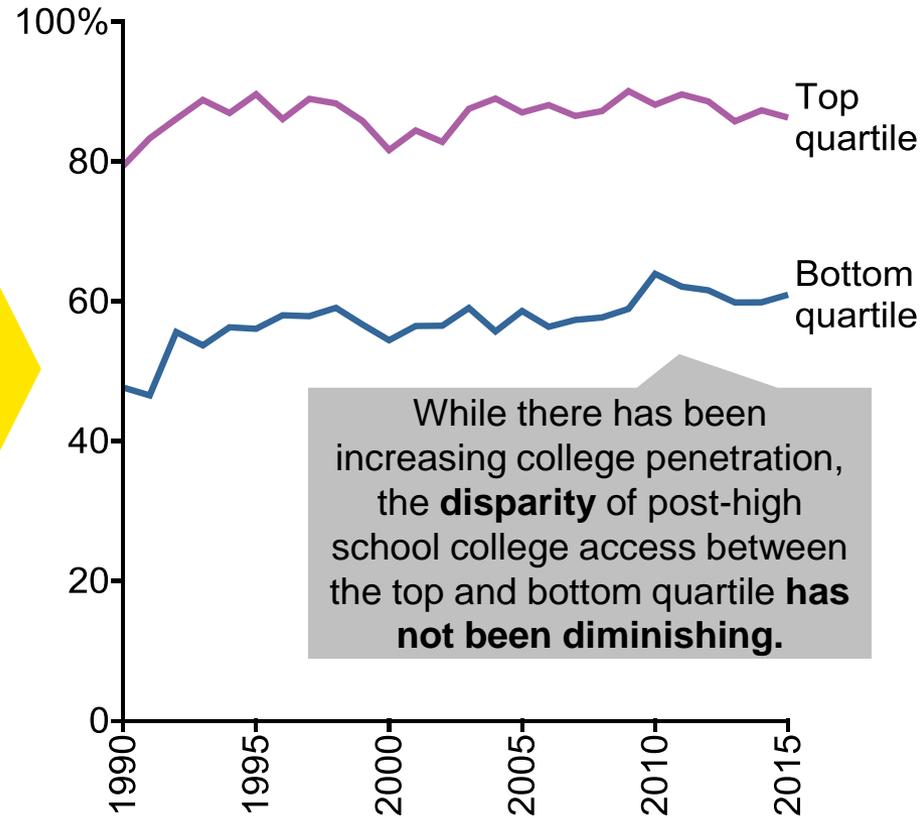
Student success efforts

Even though the percentage of the population who completed college has been rising steadily, the inequality of post-high school college access persists

Percentage of the 25- to 29-year-old population with bachelor's or higher degree
Selected years 1940-2016
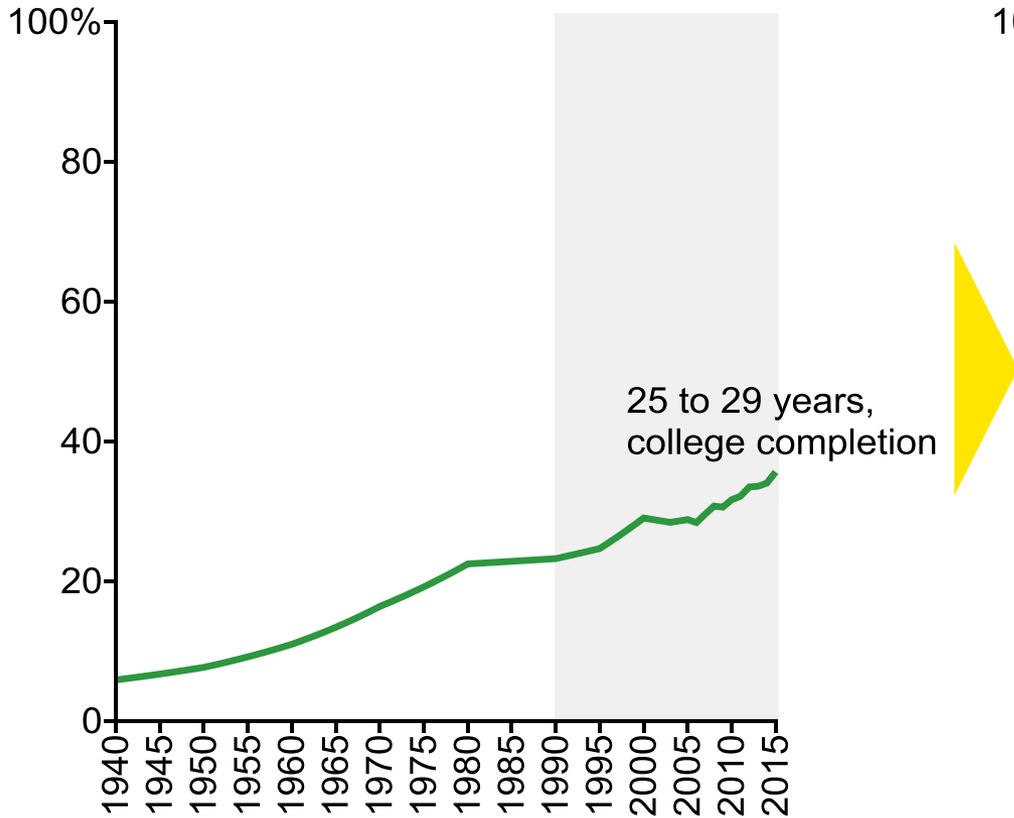
Post-high school college access for top and bottom family income quartile students
1970-2015

25 to 29 years, college completion

Top quartile

Bottom quartile

While there has been increasing college penetration, the **disparity** of post-high school college access between the top and bottom quartile **has not been diminishing.**

Student success efforts
Discrepancies in the return on higher education exist between high-income students and low-income students at colleges across the US

In general, a college degree **continues to be valuable** and **provides an additional ~$1m** in lifetime earnings over a high school degree.

Bachelor degree provides a **~2x** earnings premium over a high school diploma.

But **not everyone can access** this benefit; children of families in the bottom two income quartiles are much less likely to attend or be able to afford college …

For the bottom income quartile, average net price of tuition is **>80%** of average family income.

INCOMPLETE

… and when they do, they are **less likely to graduate** or **achieve career income** able to lift them out of lower-income status.

Only **21%** of low-income/ first-generation students graduate in six years compared to **57%** of non-low-income/non-first-generation students.

As a result, some have begun to question whether pursuing higher education is actually worth it for low-income students.

Student success efforts
Certain institutions outperform in channeling students from low-income families to long-term financial success

The Equality of Opportunity Project	▶ Study by Stanford economist Raj Chetty ▶ Ranks the performance of US institutions in providing **accessibility**, **success** and **mobility** for low-income students

Accessibility	✖	**Success**	=	**Mobility**
The likelihood that a student with a lower-income enrolls in the college		The likelihood that – once enrolled – the lower-income student succeeds in achieving a high income		The likelihood of a student both enrolling and succeeding

Parthenon-EY study of high-performing institutions	▶ Analyzed public data and interviewed presidents and provosts within ~10% of the institutions top ranked in **success** and **mobility** ▶ Identified **primary drivers**, **common strategies** and **actionable leading practices**

Student success efforts

High-performing institutions prioritize low-income student success by focusing on four critical areas to get students into, through and beyond college

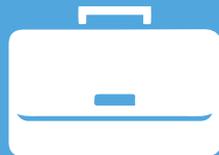**All high-performing institutions mention serving low-income students as a priority, with 44%** having it core to their mission and/or one of their **top three priorities.**

College affordability

Networks of support and engagement

College and career readiness

Self-confidence and sense of belonging

Into college

Through college

Beyond college

Student success efforts
Institutions are reaching out to students early and creating systems to get them up to speed once they arrive on campus

Into college

A representative sample of institutions identified by the Equality of Opportunity Project as being leaders in increasing student access and success reported …

College affordability

66% offer specialized financial aid

Networks of support and engagement

66% offer low-income student recruitment programs
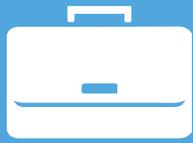
College and career readiness

56% offer college readiness or adjustment programs

Self-confidence and sense of belonging

89% offer programs engaging with local area high schools

Large four 4-year public university

The fundamentals

Summer program for high school and middle school students

The innovation

► Serves underrepresented minority and female students
► Focuses on strengthening abstract reasoning and problem-solving skills
► Free of charge for students; funded through grants and private industry collaborations

Student success efforts
Institutions are creating access to a network of systems and individuals to support students academically, financially and personally

Through college

A representative sample of institutions identified by the Equality of Opportunity Project as being leaders in increasing student access and success reported …

College affordability

56% offer emergency funding to be able to keep students in school

Networks of support and engagement

89% offer advising/ counseling tailored to low-income students

College and career readiness

56% offer college readiness or adjustment programs

Self-confidence and sense of belonging

56% fund and promote social clubs and mentorship opportunities

Large private university

The fundamentals

Academic and informational support for at-risk student populations

The innovation

► Provides social support to first-generation college students through a "family unit" made up of faculty, peers and alumni to help students access a network of services

► University priority, established through an organizational restructuring in 2014

Student success efforts
Institutions see their commitment to student success as continuing beyond graduation, with a focus on alumni mentorship and industry engagement

Beyond college

A representative sample of institutions identified by the Equality of Opportunity Project as being leaders in increasing student access and success reported …

College affordability

Networks of support and engagement

College and career readiness

Self-confidence and sense of belonging

56% mention lack of debt as a key determinant of long-term career success

66% mention offering alumni counseling relationships

56% have career preparation integrated into the college experience

56% fund and promote social clubs and mentorship opportunities

Community college

The fundamentals

Seeks input from business and industry to understand skill demands

The innovation

► Engages with community-based nonprofits as well as public/private funders to build customized training programs

► Free job training provided to students, funded primarily by federal and local, public and private institutions

Agenda

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- ► **Digital revolution**
- ► Industry collaborations
- ► Key roles for board members

The growing EdTech market offers digital solutions for improving delivery systems for academics, services and infrastructure

EdTech has been the center of significant investment and growth

15k
Number of companies currently operating in the EdTech market

$1.03b
Amount invested in EdTech in the US in 2016

17%
Projected growth of the EdTech market, 2015-20

Digital solutions can leverage data to enhance the user experience, whether the user is a student or an institution

User: student
A company that connects students to schools and programs globally based on the student's individual profile and data

User: institution
University use of a customer relationship management (CRM) tool that integrates student communications data to increase enrollment of highly qualified candidates and modify graduate program offerings

Digital revolution
"Digital" is more than a website, online learning or an app – it impacts every aspect of higher education

From "What's your digital strategy?" *to* "What's your university strategy in a digital world?"

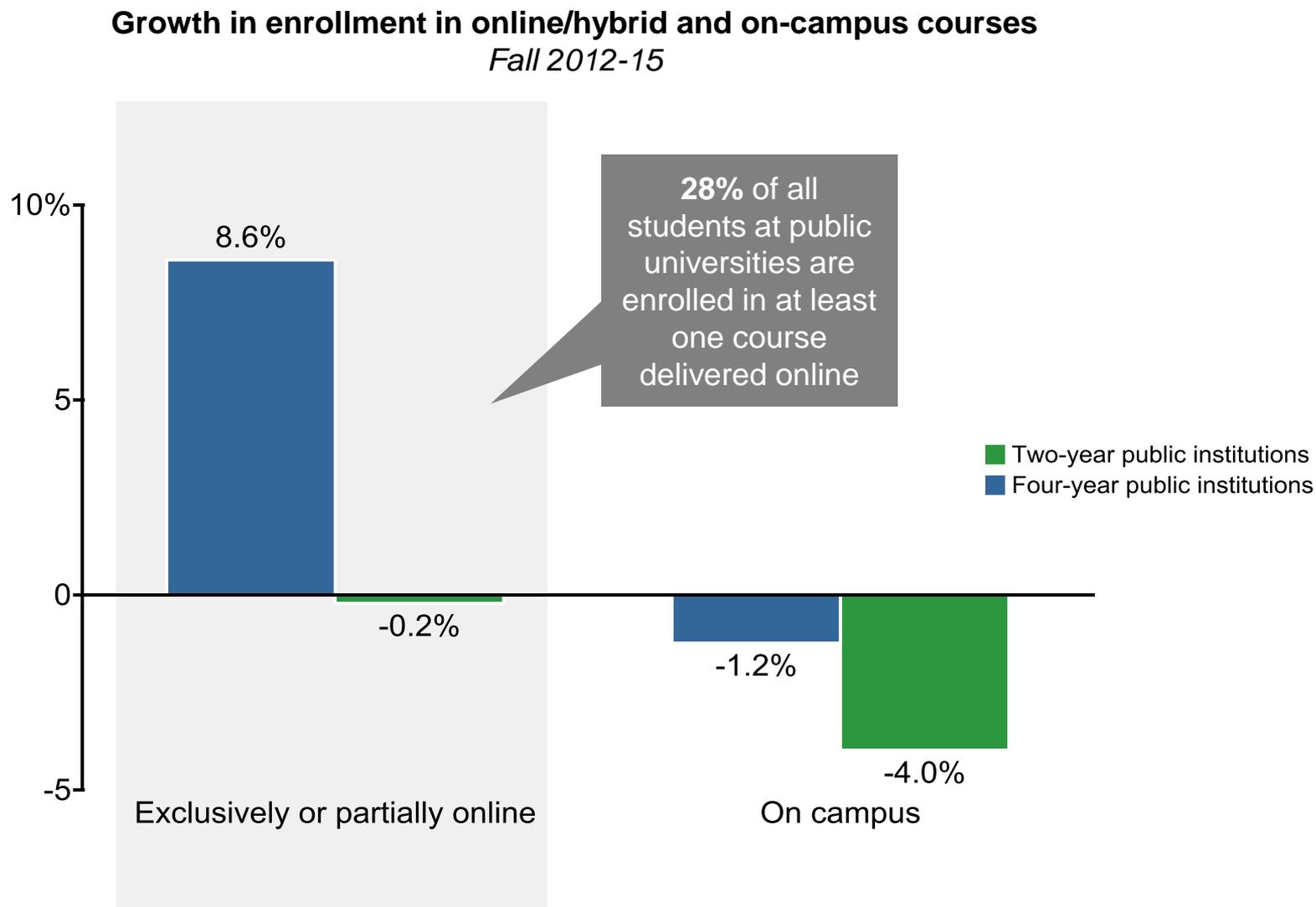| Academics	Services	Core infrastructure and operations
An institution's ability to **effectively deliver** an education that **meets students' needs**	Student, staff and faculty **expectations** for **service delivery** within higher education, given the context of the broader digital world	**Secure and streamlined** operations that **integrate** across platforms and ensure **strong administrative functionality**

A comprehensive digital strategy touches on all aspects of an institution.

Institutions have made big strides in online and hybrid online courses and programs: enrollment growth is occurring almost exclusively within online and hybrid

Growth in enrollment in online/hybrid and on-campus courses
Fall 2012-15

28% of all students at public universities are enrolled in at least one course delivered online

- 8.6%
- -0.2%
- -1.2%
- -4.0%

Exclusively or partially online

On campus

■ Two-year public institutions
■ Four-year public institutions

Source: IPEDS

Digital revolution: academics
But this is just the first step of the digital revolution: the digital landscape is changing *what* universities teach and *how* that learning happens

New technology frontiers

What

More institutions are developing **robotics programs** to spur innovation within **research and academics.**

Investment growth, 2013-16

225%

A four-year public university is home to a laboratory (robotics, engineering, applied continuum mechanics and health care), where research is focused on the intersection of **robotics and medical applications.**

How

Virtual and augmented reality technology are changing how institutions engage with **current and prospective students.**

Investment growth, 2013-16

37%

A large private university and a local hospital are collaborating to use a virtual reality platform. The university is building a health education campus that will use the latest technology to allow medical students to use **virtual cadavers.**

Digital revolution: services
Beyond curriculum, institutions are also seeing success by innovating around point solutions that better serve students *outside* the classroom

The point solution digital campus

Laundry app to find available machines, check laundry status	**Real-time location data** for campus buses and shuttles	**Virtual classrooms** so students do not need to be on campus for class	**Expanded library access** through cloud-based resources	**Chatbot system** to answer incoming student questions as they navigate the transition to college or careers post-college

These uses of technology are helpful, but they are often siloed and have not yet fulfilled the promise of the digital revolution, though there is high potential.

Digital revolution: core infrastructure and operations
Thinking comprehensively about digital's role across an institution, IT experts in the sector consistently rank information security among their top 10 priorities

Information security

Description	Develop a **holistic, agile approach** to information security to create a **secure network**, develop **security policies** and **reduce institutional exposure** to information security threats

Priority ranking (out of 10), 2000-17

Un-ranked	#1	↑
2000	**2017**	**Trend**

Information security is top of mind, bringing with it a unique set of challenges, opportunities and outcomes.

Digital revolution: core infrastructure and operations
Cybersecurity is a priority in higher education, as this sector ranks among the top five facing a high number of cyber attacks

The wealth and type of data at universities make them cyber attack prime targets.

35%	**66%**	**1.36m**
Percent of security breaches that take place in higher education	Percent of breaches due to hacking, malware or unintended disclosures	Number of identities exposed through breaches in education (2014)

The impact of cybersecurity breaches can be significant.

$6.5m

Average cost of a data breach in the US (2015)

Nonfinancial cost

► **Loss of confidence** in institution by faculty, staff and students

► **Reputational damage** with the potential to impact enrollment and research funding

Digital revolution: core infrastructure and operations
Universities can take proactive actions to mitigate the risk of and develop responses to cyber attacks by leveraging existing industry tools …

University case study 1: strategic leadership

► Initial cybersecurity leadership position revolved around technical duties and left gaps in management areas

► Over time, became more closely aligned with academic and business areas in addition to partnering with the CIO

► Ultimately added to the president's senior staff group

University case study 2: robust information

► Found that most security incidents were coming from the colleges

► Developed a Dean's Security Dashboard to give a clear picture of security incidents, attendance at security training programs, regulatory compliance score for their college and initiatives to address risk

University case study 3: rapid response

► Implemented a multi-pronged approach to increase the security of the university's network, including rolling out a new password policy and firewall, as well as a two-factor identification system

► Focuses on system design that allows for a rapid response to attacks, rather than additional controls on the system itself

Digital revolution: core infrastructure and operations
… and exploring new technologies like blockchain

Blockchain is an emerging cybersecurity technology …

$2.3 billion
Expected blockchain market size by 2021

61.5%
Forecasted annual growth in blockchain (2016-21)

Decentralized
Distributes how data is stored and transferred to remove a single point of entry

Rapid response
Detects and mitigates cyberattacks in real time

Reduction in human error
Can eliminate the need for passwords and logins

… with application opportunities in higher education

Security
Collecting, storing and protecting identities and student records

Teaching
Content co-creation and delivery across secure global networks
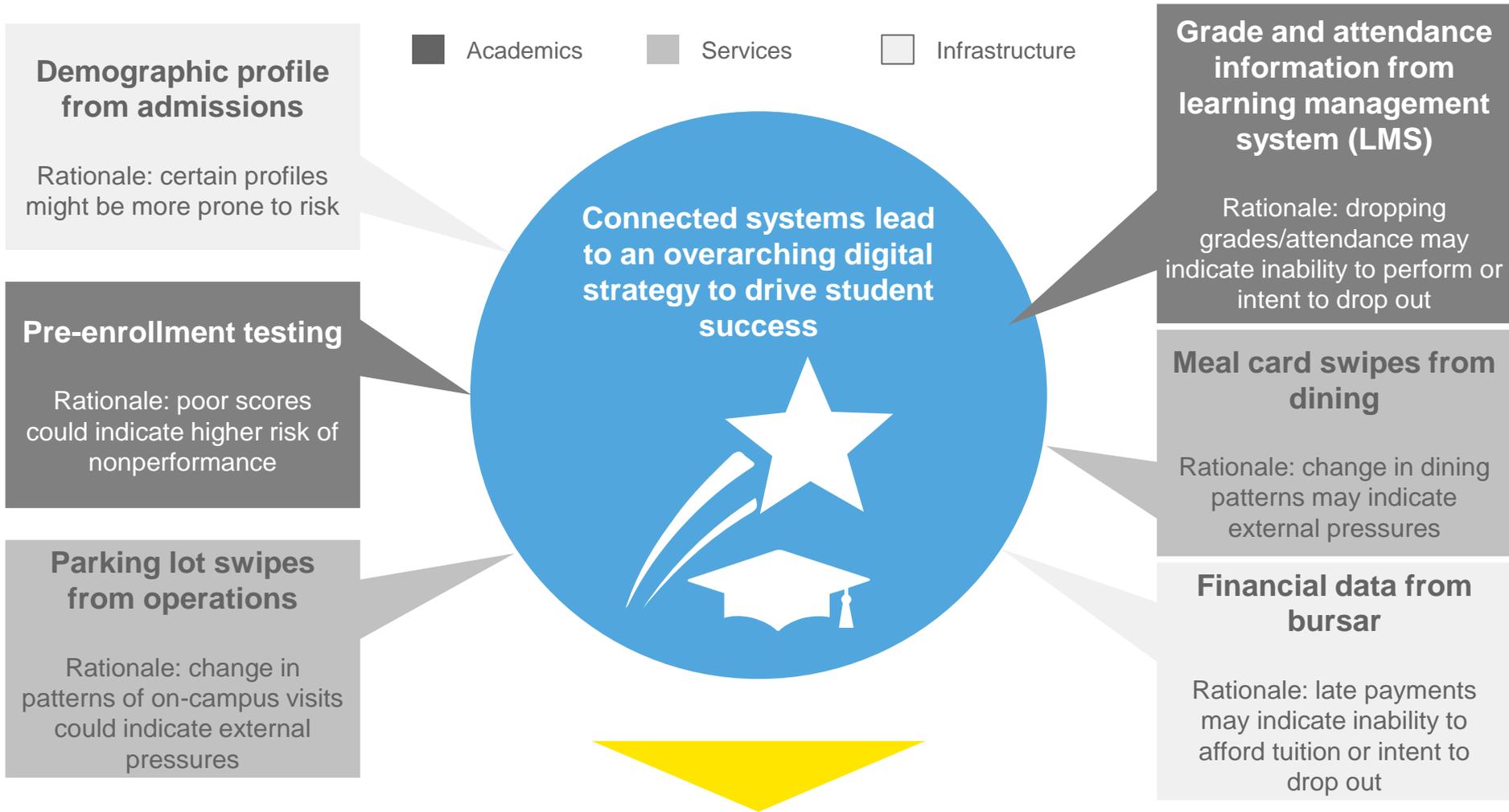
Learning
Tracking and verifying student progress in alternative credentialing programs

Financing
Distributing funds to students and institutions based on progress and achievement
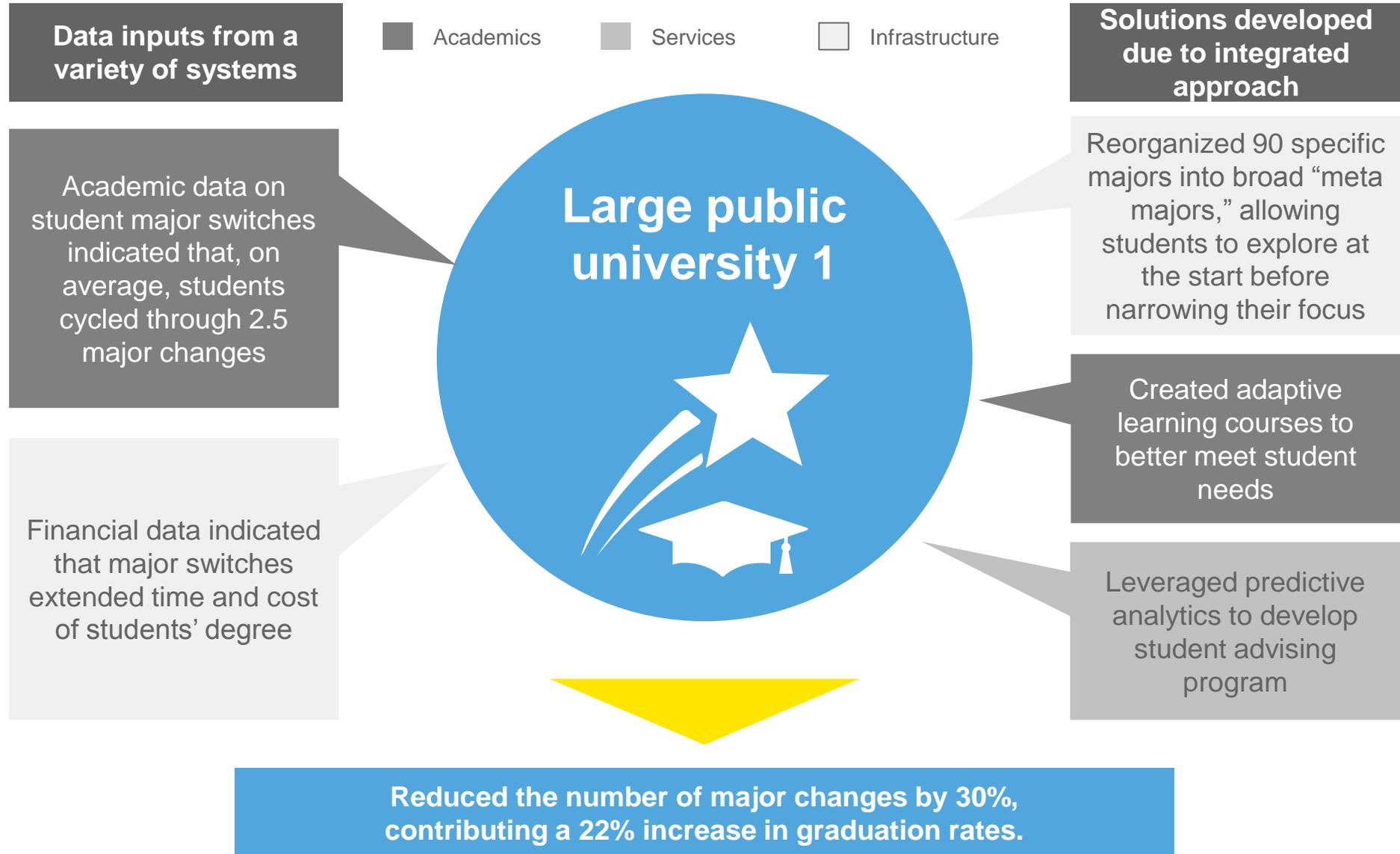
Digital revolution: bringing it all together
In linking data points across academics, services and infrastructure, institutions can understand students holistically and better ensure their success

Legend: ■ Academics ■ Services □ Infrastructure

Connected systems lead to an overarching digital strategy to drive student success

Demographic profile from admissions

Rationale: certain profiles might be more prone to risk

Pre-enrollment testing

Rationale: poor scores could indicate higher risk of nonperformance

Parking lot swipes from operations

Rationale: change in patterns of on-campus visits could indicate external pressures

Grade and attendance information from learning management system (LMS)

Rationale: dropping grades/attendance may indicate inability to perform or intent to drop out

Meal card swipes from dining

Rationale: change in dining patterns may indicate external pressures

Financial data from bursar

Rationale: late payments may indicate inability to afford tuition or intent to drop out

Institutions can make improvements to link their systems and digital innovations together seamlessly.
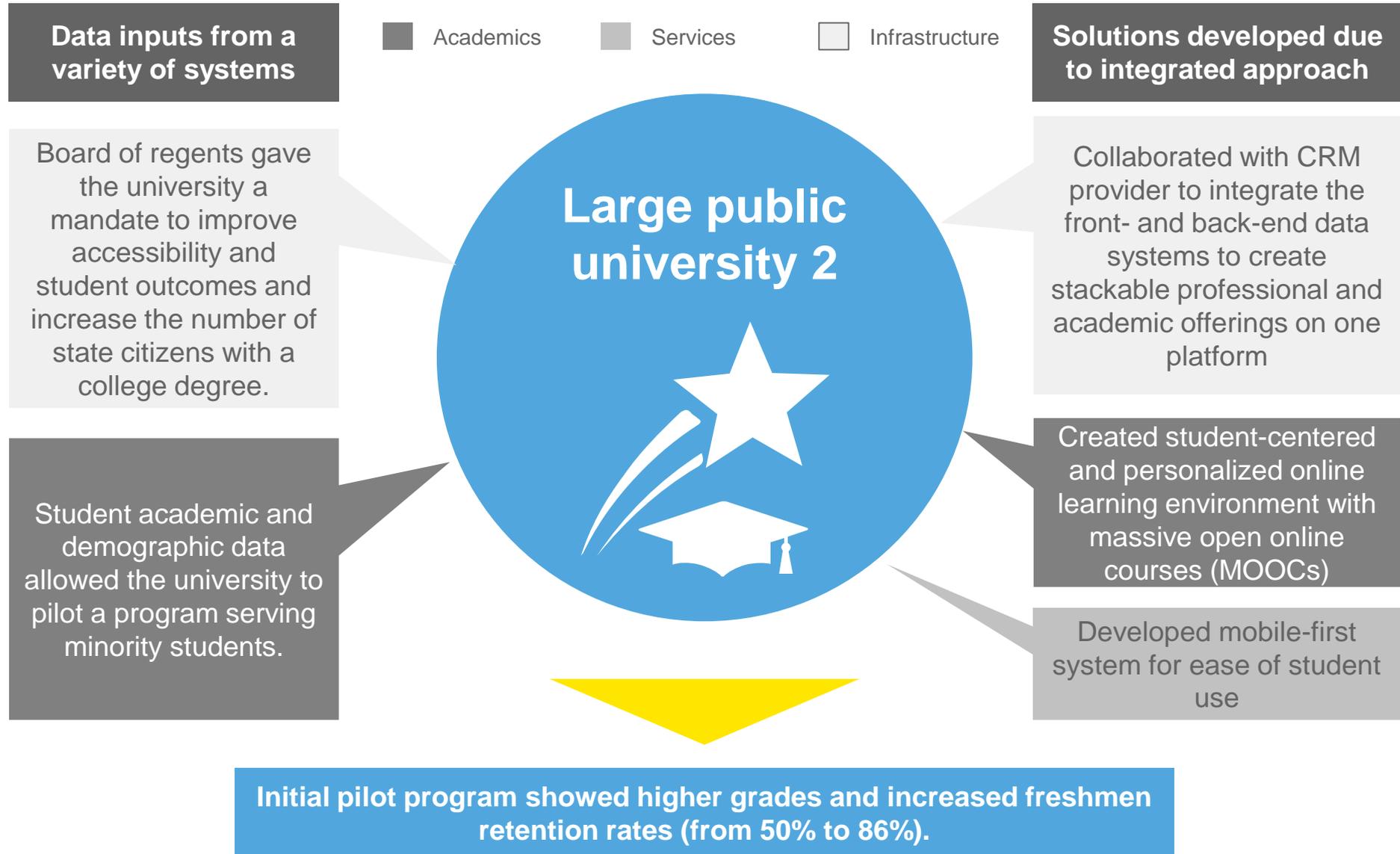
Digital revolution: bringing it all together
There are public institutions leveraging this digital ecosystem to produce outcomes in terms of student success

Data inputs from a variety of systems

■ Academics   ■ Services   □ Infrastructure

Solutions developed due to integrated approach

Academic data on student major switches indicated that, on average, students cycled through 2.5 major changes

Financial data indicated that major switches extended time and cost of students' degree

Large public university 1

Reorganized 90 specific majors into broad "meta majors," allowing students to explore at the start before narrowing their focus

Created adaptive learning courses to better meet student needs

Leveraged predictive analytics to develop student advising program

Reduced the number of major changes by 30%, contributing a 22% increase in graduation rates.

Digital revolution: bringing it all together
There are public institutions leveraging this digital ecosystem to produce outcomes in terms of student success

Data inputs from a variety of systems

■ Academics   ■ Services   □ Infrastructure

Solutions developed due to integrated approach

Board of regents gave the university a mandate to improve accessibility and student outcomes and increase the number of state citizens with a college degree.

Large public university 2

Collaborated with CRM provider to integrate the front- and back-end data systems to create stackable professional and academic offerings on one platform

Student academic and demographic data allowed the university to pilot a program serving minority students.

Created student-centered and personalized online learning environment with massive open online courses (MOOCs)

Developed mobile-first system for ease of student use

Initial pilot program showed higher grades and increased freshmen retention rates (from 50% to 86%).

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- ► The role of innovation in higher education

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- ► Digital revolution

- ► **Industry collaborations**

- ► Key roles for board members

Industry collaborations
The economy is changing rapidly, prompting institutions to integrate with industry partners to address in-demand skills

"99% of the 11.6m jobs created between the recession and 2016 required more than a high school education" – Georgetown Center on Education and the Workforce

"The gig economy is growing; by 2020, EY predicts that a third of workers at ~33% of large employers will be contingent ('gig') workers" – EY

"47% of all jobs could be automated in the next 20 years" – Oxford Martin

"65% of the children entering grade school this year will end up working in careers that haven't even been invented" – Duke University

"Compared to 57% of the manufacturing jobs lost in the recession, only 12% of manufacturing jobs created after the recession required a high school degree or less" – Georgetown Center on Education and the Workforce

"One trait […] that is going to be absolutely essential [for future leaders] is agility, and the ability to be curious and self-aware so you fit in and connect in a lot of different contexts […] The ability to build trust is really important because teams are changing and are more virtual and cross-border" – EY

To keep up with these rapid trends, institutions of all sizes and types are increasingly looking to integrate with industry.

Industry collaboration
Institutions are responding by collaborating with industry in more innovative ways to provide career preparation for students that is more economically relevant

Experiential learning: private university

Partnerships with a **diverse set of employers** to integrate **hands-on work** experience into **curriculum**

The fundamentals

Connects students to **internship and externship opportunities** through business and alumni networks

The innovation

► **First look:** Students explore professions by **visiting alumni or industry partners onsite**
► Part of an **integrated four-year-long approach** to career development

Access to degree: large public university and retail coffee chain

Partnerships with **individual companies** to provide **tuition benefits** to **current employees** to support degree attainment

The fundamentals

Provided full tuition coverage for students

The innovation

► **Broad access** mission for any degree at any level for any qualifying employee
► **Fully for the benefit of student-employees:** Would not necessarily make employees better at their jobs, so no clear employment benefit for the coffee chain's employees
► Strongly supported at **highest levels of leadership**

Industry collaboration

Institutions are responding by collaborating with industry in more innovative ways to provide career preparation for students that is more economically relevant

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Industry-specific career preparation: large state college and a public utility

Partnership with **businesses** and **industry associations** to provide **sector- or job-specific training** to prepare students for industry success

The fundamentals

Natural gas technician certificate: 12-week certification course to introduce students to careers in energy, with a focus on skill development

The innovation

► **First collaboration of its kind** in the energy sector
► Taught at a **utility's training facility** by industry experts
► **100% of graduates** of first class were hired by the utility

High-demand fields that may provide similar opportunities include **construction**, **advanced manufacturing**, **health care** and **insurance**.

Economic development: economic development zone

A **broad collaboration** with **company or industry** to build a **physical hub** for research, innovation and community-building activities

The fundamentals

A dedicated center on campus that houses industry activities alongside academic functions

The innovation

► Rehabilitated an urban neighbourhood to create an **"innovation district"**
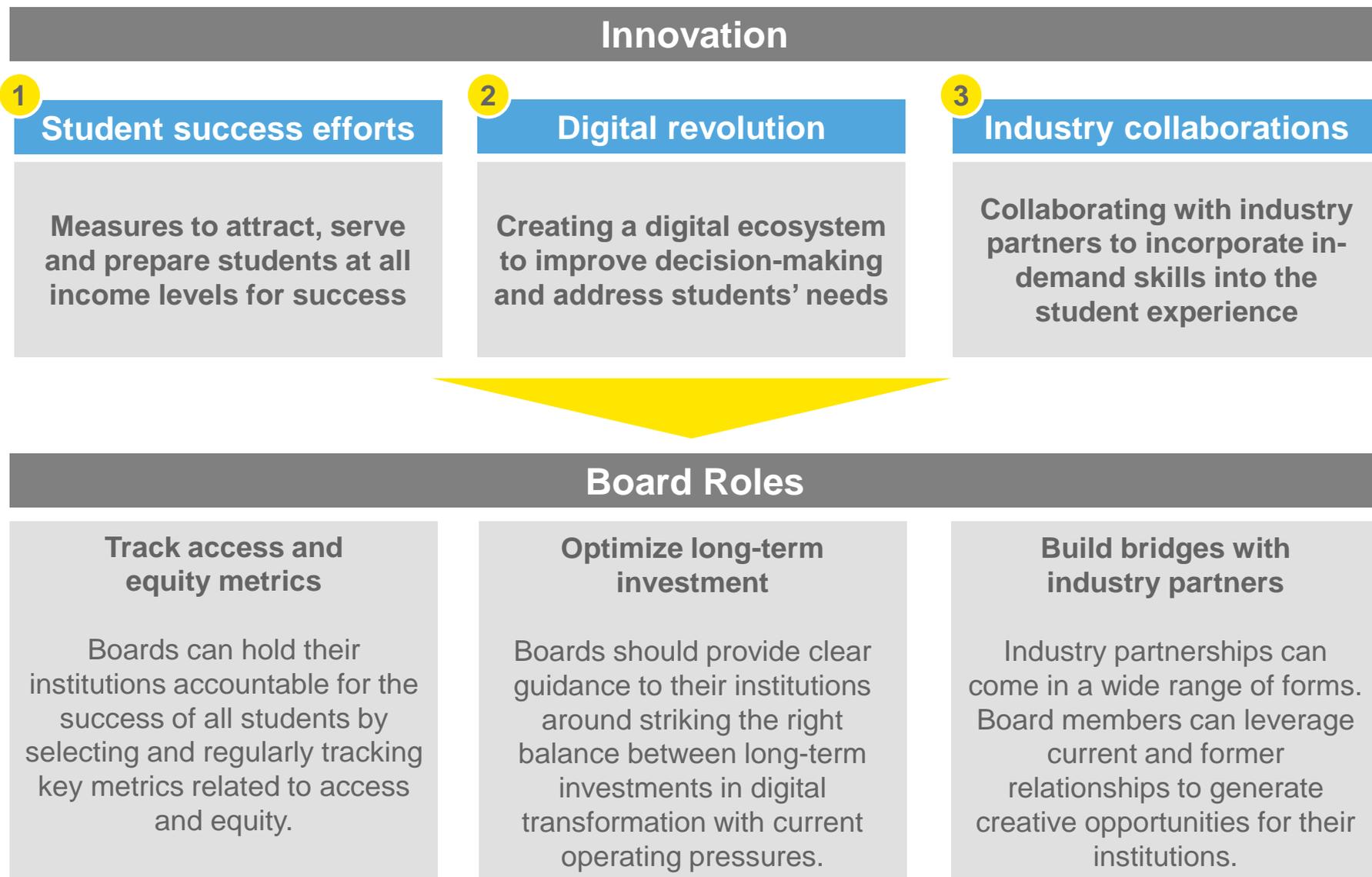► **Home to** ~200 **start-ups** and a number of **major corporations**

This type of collaboration is a **long-term investment** whose impact cannot be fully measured for a number of years.

Agenda

▶ The role of innovation in higher education

▶ Student success efforts

▶ Digital revolution

▶ Industry collaborations

▶ **Key roles for board members**

Key roles for board members
Board members can take a number of actions to build the conditions for innovation within their institutions

Innovation

1 **Student success efforts**

Measures to attract, serve and prepare students at all income levels for success

2 **Digital revolution**

Creating a digital ecosystem to improve decision-making and address students' needs

3 **Industry collaborations**

Collaborating with industry partners to incorporate in-demand skills into the student experience

Board Roles

Track access and equity metrics

Boards can hold their institutions accountable for the success of all students by selecting and regularly tracking key metrics related to access and equity.

Optimize long-term investment

Boards should provide clear guidance to their institutions around striking the right balance between long-term investments in digital transformation with current operating pressures.

Build bridges with industry partners

Industry partnerships can come in a wide range of forms. Board members can leverage current and former relationships to generate creative opportunities for their institutions.

Presenters

Kasia Lundy
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Kasia is a leader in the firm's Education practice, with a focus on the US market. In 2003, Kasia moved to Harvard University, where over the course of six years she held several senior administrative roles, including Chief of Staff to the President and Provost.

Since rejoining Parthenon-EY in 2009, Kasia has focused exclusively on education sector engagements. Her work in the sector spans primary, secondary, and higher education systems, and includes higher education institutions (both public and private), school districts, state education agencies, and private foundations.

Kasia's higher education engagements have included strategic planning, governance and organization structure design, revenue generating strategies (online strategies, program development, alternative revenues), academic outcome improvement strategies, and operational efficiency improvement strategies.

Kasia holds a B.A. in Economics from Harvard University and earned her M.B.A from Harvard Business School.

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Samantha Fisher
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Samantha is a Vice President in Parthenon-EY's Education practice, with a focus on the US market. She has nearly 15 years of experience in management and strategy consulting on projects located across 20+ countries, predominantly focusing in the education industry.

Samantha has worked across the spectrum of education, from non-profit to for-profit, private to public, small to large, and at all ranges of selectivity. She helps leaders of these organizations advance their mission outcomes with the help of improved strategies and operations.

Her areas of focus include strategic planning, market entry and growth, operating model design and transformation, digital and analytics strategy, performance management and stakeholder management.

Samantha has an M.B.A. from INSEAD and a B.A. in Economics and International Business from Brandeis University.

About Parthenon-EY and the Education practice

About Parthenon-EY

Parthenon joined Ernst & Young LLP on August 29, 2014. Parthenon-EY is a strategy consultancy, committed to bringing unconventional yet pragmatic thinking together with our clients' smarts to deliver actionable strategies for real impact in today's complex business landscape. Innovation has become a necessary ingredient for sustained success. Critical to unlocking opportunities is Parthenon-EY's ideal balance of strengths – specialized experience with broad executional capabilities – to help you optimize your portfolio of businesses, uncover industry insights to make investment decisions, find effective paths for strategic growth opportunities and make acquisitions more rewarding. Our proven methodologies along with a progressive spirit can deliver intelligent services for our clients, amplify the impact of our strategies and make us the global advisor of choice for business leaders.

About Parthenon-EY's Education practice

Parthenon has served as an advisor to the education sector since its inception in 1991. The Parthenon-EY Education practice – the first of its kind across management consulting firms – has an explicit mission and vision to be the leading strategy advisor to the global education industry. To achieve this, we invest significantly in dedicated management and team resources so that our global experience extends across public sector and non-profit education providers, foundations, for-profit companies and service providers, and investors. Parthenon-EY has deep experience and a track record of consistent success in working closely with universities, colleges, states, districts, and leading educational reform and service organizations across the globe.

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