UTAH SYSTEM OF
HIGHER EDUCATION
Building a Stronger State of Minds

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November 9, 2016

MEMORANDUM

TO: State Board of Regents

FROM: David L. Buhler

SUBJECT: USHE – Information Technology Presentation

Issue

From learning analytics to next-generation credentials, online courses to innovative learning spaces, and personalized learning to administrative efficiency, the future of higher education is rooted in concepts that demand feature-rich and functional technology. The Board recognizes that Information Technology (IT) plays a critical role within the Utah System of Higher Education (USHE) and will be essential to help transition universities to a more efficient, affordable and accessible model. The Board has asked that the Commissioner's Office provide an update on the system wide IT efforts, how these efforts will help the system achieve the 2025 Strategic Plan goals and objectives, and an overview of the most recent system wide IT Strategic Plan.

Background

Information technology is pervasive in so many aspects of daily life that many people fail to realize just how far IT has come in such a short time. Commercial broadband Internet is just two decades old. The first iPhone will celebrate 10 years of existence next June. Students carry more computing power in their pockets than would have been available to their early 1980s counterparts from a machine the size of several classrooms. This exponential growth in the availability and accessibility of computing power has done incredible things for research and education, making things previously only imaginable now possible.

The challenges facing today's universities require the thoughtful, deliberate implementation of technological solutions that reduce complexity. Institutions now use software to track student success, space utilization, classroom scheduling, academic advising, parking permits, building access, and hundreds of other functions – all which were once a strictly manual process. The next step in the IT evolution is to recognize that these individual data points are actually part of a much broader ecosystem, and the modern university needs the ability to pull all of this data together to make holistic decisions based on all available information, not just a small slice of it. By understanding how these individual pieces of data work together and what IT resources are required to achieve that understanding, our institutions will further enhance their success in meeting the Board's strategic objectives of more affordable participation, timely completion and innovative discovery.

The efficient and effective utilization of technological solutions is an absolute necessity to achieve these goals. IT offers transformational promise through increasingly data-driven decision-making, individualized teaching methods not previously attainable in a university setting, and back-office automation that can drive down the cost of providing an education.

THE UNIVERSITY of UTAH   UtahStateUniversity   WEBER STATE UNIVERSITY   SUU SOUTHERN UTAH UNIVERSITY   SNOW COLLEGE   DSU DIXIE STATE UNIVERSITY   UVU UTAH VALLEY UNIVERSITY   Salt Lake Community College

<u>Commissioner's Recommendation</u>

<u>This is an information item; no action is required.</u>

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David L. Buhler
Commissioner of Higher Education

DLB/KLH/SH
Attachment

Strategic technology alignment to USHE goals

Stephen Hess,

Chief Information Officer, University of Utah and USHE

Recent USHE CIO accomplishments

Security

- Implementing two-factor authentication

- Biannual external security audits

Savings

- Annual contract savings of more than $1.2 million

- Greater purchasing power equals deeper discounts

- Standardization of systems creates efficiencies

- Staff can learn from and share knowledge with institutional peers

IT as a strategic driver

Looking at the role of IT in every facet of higher education

"On one hand, higher education is in the midst of a near-perfect "storm" of disruptive forces from students, employers and governments. On the other hand, digital business is enabling significant transformation of the higher education business model and value proposition."

~ Gartner, "The Fluid University Will Succeed in the Digital Business Era"

IT an essential part of higher education

Technology investment allows institutions to:

- **Increase access** for students

- **Promote better student outcomes** using data

- **Manage and improve** critical systems

- **Reduce costs** through efficiency

- **Adopt** new technologies for greater innovation

- **Keep pace** with peers and competitors

Just some of IT's effect …

On Administration	On Faculty	On Students
• Payroll, direct deposit	• Communication & collaboration with students, staff, colleagues (worldwide)	• Registration, tuition, financial aid, fees, online payments
• Benefits administration, HR management, online employment application, performance reviews	• Course info distribution	• Library, research information
• Budgeting, Accounting	• Online courses	• Course materials
• Financial services, online reports	• Media on demand	• Faculty and student communication and collaboration
• Inventory, asset tracking	• Classroom video capture	• Residential living
• Keyless building access	• Classroom network access	• Web access
• Police information	• Student Grades	• Homework, tests
• Building and classroom scheduling	• Research grants, applications submissions	• Online access to lectures
• HVAC	• Computational research	• Online testing
• Utilities, monitor electricity consumption	• Access to journals and other research data	• Creation, submission of original papers, art, music
• Security alarms and surveillance cameras	• Publishing	• Media production
• Sprinkling systems	• Faculty Activity Report	• News reporting
	• Learning Management Systems	• Complex mathematic, statistical computation
	• Storage	• Course evaluations
	• Evaluations	• Campus life

Tech's positive impact on higher ed

- Moves the campus experience online
  - Get information anytime, anywhere, on many devices
  - Administrative services are online
  - Online courses allow for flexible scheduling, fewer trips to campus

- Student analytics guide instructional, service improvements

- Strategically implemented IT systems can cut expenses

- Reduced need for costly physical infrastructure such as buildings, parking, and roads

USHE Strategic Plan through 2025

DRAFT as of January 11, 2016

Utah: A State of Opportunity
Utah State Board of Regents Strategic Plan 2025

Areas of focus for all state institutions:

- Affordable participation

- Timely completion

- Innovative discovery

Key issue: Serve 50,000+ new students

Key Issues in Utah Higher Education

Eight out of ten Utah high school graduates who go to college attend one of Utah's public colleges or universities, making the Utah System of Higher Education (USHE) the primary workforce pipeline in the state. Utah's economic vitality and quality of life rests heavily on the ability of USHE institutions to support their students in earning a degree or certificate.

Increasing capacity to serve 50,000+ new students by 2025
The number of students enrolling at Utah's public colleges and universities is projected to increase by an estimated 50,000 by 2025 — the equivalent of the 2014-15 student bodies at the University of Utah, Southern Utah University, and Dixie State University combined. It will be a significant challenge to grow capacity academically (faculty, course sections, and support staff), physically (capital facilities, infrastructure), and virtually (information technology resources) to keep pace with such rapid enrollment growth over the next decade.

By 2025, USHE student growth is expected to surpass the number of students in the 2014-15 student bodies at the University of Utah, Southern Utah University, and Dixie State University combined.

USHE Student Enrollments 2000–2024

Historical — Projected

Increasing educational attainment of Utahns to meet workforce demand
A recent analysis by the Utah Foundation reported the educational attainment of Utah's labor pool is below the national average. Moreover, the report found over two-thirds of companies surveyed experienced some level of difficulty finding enough skilled or qualified employees. Currently, there is a stark higher education achievement gap between income groups and also between majority/minority communities in Utah. As more first generation college students come to college campuses in the coming years, these students will generally require greater engagement and support to prepare for, progress through, and complete college. And continued attention and support as is needed to ensure Utah women have the same opportunities and support as men to achieve higher educational attainment, specifically graduate degrees.

DRAFT as of January 11, 2016   3

"It will be a significant challenge to grow capacity **academically** (faculty, course sections, and support staff), **physically** (capital facilities, infrastructure), and **virtually** (information technology resources) to keep pace with such rapid enrollment growth over the next decade." (page 3)

"Anticipated growth in demand … cannot be met with the current infrastructure." (page 12)

50K student growth: Technology needed

Academic growth

- Learning management system
- Student analytics
- Strategic scheduling
- Online courses
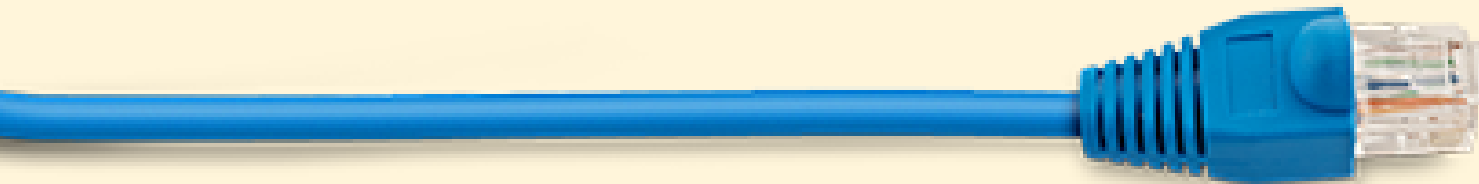- Faculty hiring and evaluation
- Accessibility

Physical growth

IT network runs:

- HVAC
- Security cameras
- Building access
- Fire alarms
- Emergency systems
- Classroom A/V

Virtual growth

- Online courses and degrees
- Increased demand for wireless connectivity
- Virtualized software
- Internet of Things

IT a central part in innovative discovery

Innovative instructional design and pedagogy

• Online and hybrid course design

• Using new technology

• Instructional analytics to improve learning outcomes

• Online testing

Maintaining consistency in quality of gen ed courses

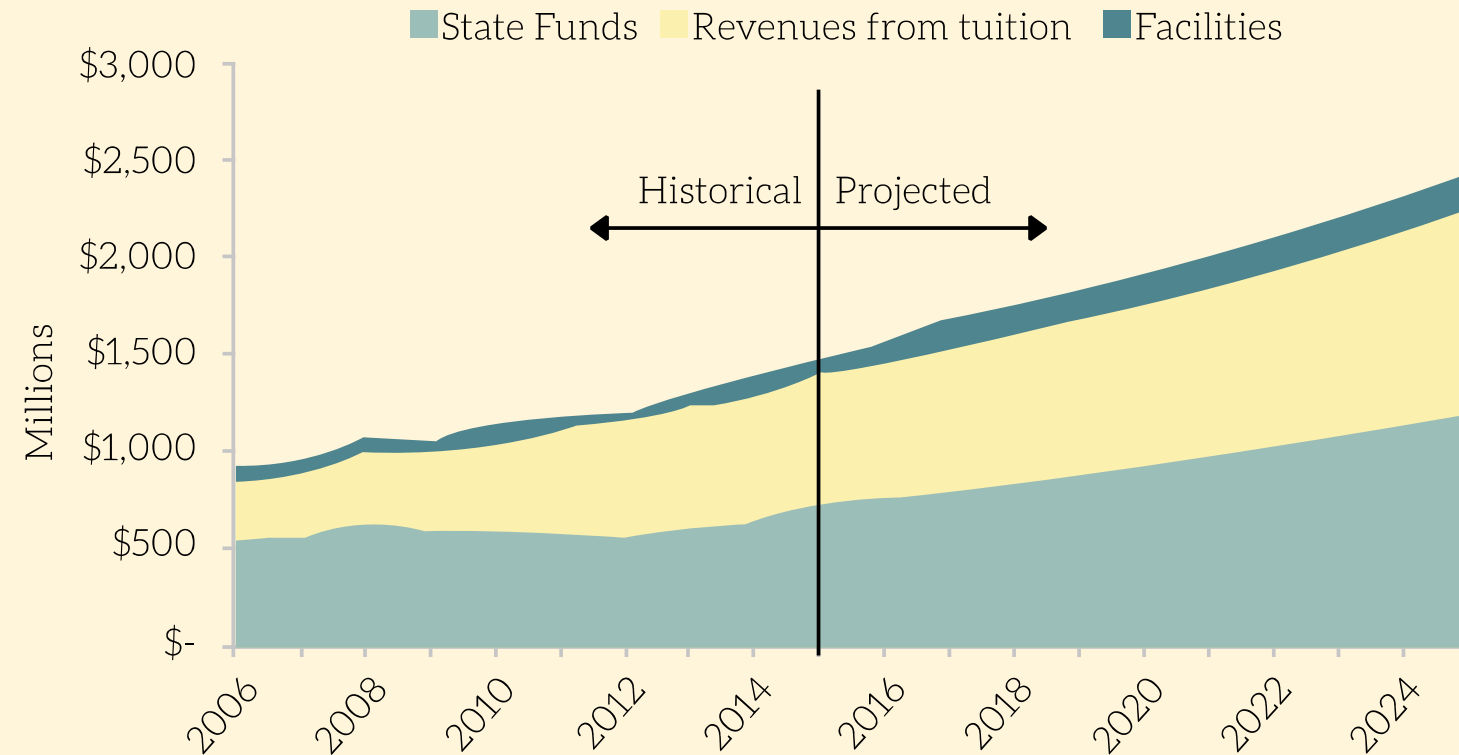• Analytics to optimize courses and compare across sections

Embracing technological opportunities to improve learning

• Faculty and advisors alerted to at-risk students can course-correct before students fail

(USHE strategic plan Page 8)

Investing in USHE strategic objectives

Historical & Projected Required Budget Increase, 2000–2025

Legend: State Funds · Revenues from tuition · Facilities

Historical | Projected

Y-axis (Millions): $3,000 / $2,500 / $2,000 / $1,500 / $1,000 / $500 / $-

X-axis: 2006, 2008, 2010, 2012, 2014, 2016, 2018, 2020, 2022, 2024

"The following chart shows the required annual budgetary increases to sustain projected growth after factoring in a **5% overall cost reduction due to efficiencies achieved through areas such as enhanced use of technology**, improved program delivery, and increased rates of students completing a degree or certificate." (page 16)

Investing in USHE strategic objectives

Yes, we can realize 5% or more savings, **if** institutions:

- **Involve central IT as a strategic partner** from the start

- **Avoid duplication** of IT resources

- **Minimize customization** in non-strategic areas (HR, Finance, etc.)

- **Plan for ongoing maintenance and replacement** of core and edge networking equipment, classroom technology, and software

- **Invest in technology** when the business case proves the value

Spend vs. invest in technology terms

100-watt incandescent

- Bulb: $2.82

- Lifespan: 1,533 hours

- Cost per year: $10.95

- Bulbs needed for 15,000 hours: 10

- Total cost of ownership:

$178.20

100-watt equivalent LED

- Bulb: $5 (75% more)

- Lifespan: 15,000 hours

- Cost per year: $1.59

- Bulbs needed for 15,000 hours: 1

- Total cost of ownership:

$27.50

If you replace 1,000 lightbulbs, you'll pay an extra $2,180, or 75%, up front for LED. But you'll save over $150,000, 650%, over the life of the LED bulb. That's a strategic investment in technology.

A strategic IT plan to meet USHE's goals

Strengthen security of institutional systems	Align and strengthen core IT services	Transform student access and completion
☐ Adopt and adhere to systemwide minimum security standards ☐ Purchase tools jointly to provide better security throughout the system ☐ Purchase and enable two-factor authentication for critical systems ☐ Obtain breach insurance for every campus ☐ Investigate collaboration through a joint security operations center	☐ Fund ongoing costs for core technology (network) ☐ Require technology assessments for all strategic projects ☐ Continue the joint purchase of IT software and hardware with a USHE standard architecture ☐ Avoid duplication of IT resources — people, software, or hardware ☐ Minimize customization and expenditure in administrative areas that do not add strategic value to the institution	☐ Appoint a taskforce of administrative, academic and technology leaders to further develop a USHE strategic technology plan aligned with the goals and objectives outlined in the USHE Strategic Plan ☐ Improve business, student and academic analytic to make informed decisions on all technology initiatives ☐ Provide affordable online education that meets the needs of students who can't get a higher education another way

By working together, the USHE schools increase efficiency, trim costs and reduce complexity. This promotes a culture that aims to reduce expenses.