



Enabling Transformation Through Technology
Board of Regents Task Force
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Table of Contents

Introduction

Background

Key Methods and Findings

Work Group Recommendations

Other Considerations

Next Steps

Conclusion

Appendices

Academic Transformation Work Group Report

Student Success and Retention Work Group Report

Analytics Work Group Report

Administrative Processes and Decision Support Work Group Report

Introduction

University System of Maryland (USM), like many colleges and universities across the nation, is being challenged to transform its systems of higher learning to ensure student success. While each institution is different, they share common problems: each university must contend with outdated teaching methods, severe budget pressures, and the need to deliver a relevant education that adequately and effectively prepares the workforce of the future. As a result, educators are being faced with the need to improve less-than-optimal systems in an environment that dictates more significant and even disruptive change. Based on our research, institutions that adapt to these imperatives will thrive, while those that are incapable of change will meet their demise.

Recognizing these factors, the Board of Regents (BOR) established a Task Force to consider the issues related to Enabling Transformation Through Technology and Innovation (ETTTI). This report is an outcome of the study.

The report focuses on four areas:

- *Academic Transformation*, which focuses on teaching and learning processes and outcomes.
- *Student Success and Retention*, which focuses on success as defined by academic achievement, engagement in educationally purposeful activities, satisfaction, acquisition of desired knowledge, skills and competencies, persistence, attainment of education objectives, and post college performance.
- *Analytics*, which focuses on the use of data, statistical analysis, as well as explanatory and predictive models to gain insights into complex issues to bring the power of data to solving critical problems and improve outcomes on a *routine basis at a granular level*.

- *Administrative Processes and Decision Support*, which focuses on effectiveness and requires technology investments, appropriate business processes and use of tools as well as people who are knowledgeable, collaborative, and fully capable to take advantage of new approaches.

The thrust of the report indicates that there are specific opportunities and process improvements that the USM should undertake to build for the future. It provides background along with the methods and findings and contains specific recommendations in each of the four areas as well as general observations of the Task Force as a whole. It concludes with a set of actionable next steps that focus on three areas:

1. Building for the future of the USM from a position of strength through collaboration, sharing best practices, and silo busting;
2. Focusing on the tools, analytics and techniques needed to enhance and accelerate student success; and
3. Establishing policies and practices to encourage greater standardization and sharing across the System.

Implementation of these recommendations will require both resource and fortitude along with full System support. The report also discusses a number of recommendations that require minimal resources and can be easily implemented.

The Task Force found effective use of technology, establishing strong data and cyber security policies and practices and being mindful of ethics throughout allows USM institutions to respond proactively to a spectrum of factors affecting higher education. While the timeframe of this study did not allow for detailed implementation plans, it is suggested that the BOR follow up with a more detailed, and broader, investigation of just how the USM should respond to the opportunities and challenges it faces and discuss actions it can take to incentivize a culture of innovation, which is increasingly necessary.

Background

In a period of disruption, higher education largely persists with traditional models because it is heavily invested in long-term commitments: physical plants; tenured faculty; and broad multi-faceted missions based on teaching, research, and service. The iron triangle that suggests access, cost, and quality cannot be manipulated without affecting all three elements remains an inflexible linkage at most institutions. In other industries, competitors that were willing to innovate and who view technology driven change as an opportunity rather than a threat thrived, while others that stayed the traditional course faded or failed altogether.

The BOR has established a Task Force to investigate and discuss the interplay between technology and innovation and the issues raised by the current disruptive trends. Not only did the Board expect to gain insights, but they also requested specific high-level recommendations regarding actions that they, the USM as a whole, multiple institutions, or individual institutions may take to proactively respond to identified opportunities or problem areas. This was intended to be a high-level scan of the identified areas of study: Academic Transformation (focused on the evolution of teaching and learning); Analytics (focused on the effective use of data in many areas); Administrative Processes and Decision Support (focused on making administrative processes more effective and efficient to free up resources for mission related activity support); and Student Success and Retention (focused on the ultimate mission of improving student success). Each of these areas appears amenable to improvement through appropriate use of technology and application of innovations. Additionally, there is considerable interdependence among them, and the intent of the study commissioned by the BOR is to seek opportunities and improvements in each area and to identify the interdependencies.

A further goal of this study is to delineate the challenges institutions and the USM as a whole face in moving forward with proposed changes. As alluded to above, higher education evolves very slowly--lectures are still the basic modality of content

transmission; books are largely plain text in an era of dynamic multi-media; the faculty rewards structure does not align well with the need for innovation; and finally, while significant investments have been made in information technology, these systems are often underutilized and rarely have provided appropriate return on investment in academic as well as administrative activities.

In sum, innovation generally does not occur spontaneously in a large organization such as a university. There might be pioneers or earlier adopters of innovative approaches, but the sort of change necessary for contemporary society requires the ability to sustain and scale an innovation. Large-scale change often transcends the traditional structures and requires high-level support in order to succeed.

Key Methods and Findings

Methods

The Task Force was organized into four Work Groups paralleling the four main themes described in the Introduction. Each group worked somewhat independently. However, they each did a literature search, established conversations with campuses, and looked at models outside of the USM. Academic Transformation was underway before this study was initiated and has had numerous outside speakers in recent years. The other three Work Groups took the opportunity of this Task Force study to bring in outside expertise, as well.

Findings

The broad findings of the Task Force are:

- Disruptive change is inevitable given the current social and technological conditions;
- Charting a course for the future in an environment of change is a critical, on-going issue for the USM and needs to be sustained as an agenda item for the BOR and the USM at all levels;

- Since disruption is occurring in many industries and higher education is only recently feeling the effects, we should examine models outside of the USM and especially from outside of higher education;
- Improving student success was seen as the area that would likely yield the greatest returns by applying the recommendations of the Task Force. Student Success is a direct focal area of three of the four Work Groups.
- Improved use of Analytics is a common finding in all Work Group reports;
- Establishing “frameworks of expectations,” rather than mandates, respects the diversity across USM institutions, but creates vehicles for sharing best practices, setting common metrics, and common data standards. Frameworks should be flexible, should be standards based where possible, and the means of implementation should be a local prerogative. There are several examples of “frameworks” below and in the Work Group reports.
- Many of the Work Group recommendations require a change in culture within the USM. This is perhaps the biggest challenge in responding to foreseeable disruptions.

Work Group Recommendations

Each of the Work Groups provided recommendations based on their findings. Those recommendations are summarized here.

Academic Transformation

- Broaden the definition of Academic Transformation from the narrow focus on teaching and learning that it has had in the USM to one of transforming the larger educational experience.
- Define assessment metrics from the current, simple “improving learning outcomes at lower cost” to a finer granularity.
- Become more disciplined in the use of Analytics to develop a System-wide longitudinal analysis of “success factors.”

- Establish System-wide priorities for Academic Transformation work by using the above analysis of metrics to identify the top priorities.

Analytics

- Improve data and its use, at the institutional level, form leadership groups and establish cross-functional teams.
- Enhance usability of data by first prioritizing institutional data and then improving quality of the highest priority data. Also, integrate data systems by regularizing and reorganizing data with the goal of developing an integrated analytical system.
- Establish a partner plan for staffing and system development in areas where Analytics implementation is a challenge for smaller institutions.
- Ensure the greater use of data does not create new privacy and/or security issues.

Student Success and Retention

- Encourage each USM institution to adopt a retention framework such as Assessing Student Retention Success or another model that is replicable.
- Undertake better institutional collaboration across academic, student service, and administrative units to focus on student success.
- Recognize that student demographics are in flux and student success requires continuous process readjustment to meet needs of current students.
- Develop processes to evaluate reasons for student non-persistence and develop models to respond to findings
- Adopt some of the recommendations of the Analytics and Academic Transformation Work Groups that are specific to student success and retention.

Administrative Processes and Decision Support

- Expand the services of UM Ventures to all USM institutions as appropriate in order to avoid duplication of costs and support while leveraging available expertise.
- Exercise the autonomy afforded USM institutions through legislation enacted in 1999 in the area of procurement. In addition, USM should investigate an on-line procurement “marketplace” solution, like SciQuest or another application as a means to maximize purchasing power while improving compliance.
- Evaluate shared services guidelines for USM institutions within each institution in the areas of general administrative and business services such as payment processing, purchasing, travel, human resources and payroll, and research administration --pre and post award.
- Develop guidelines for greater centralization or standardization of key information technology and services and support within each USM institution.

Other Considerations

In addition to the specific work group recommendations, the task force as a whole developed a list of general observations that may impede transformation.

General Observations

- Organizations tend to be fragmented internally with separate units having sole or primary authority over areas that should be effectively integrated. This is true in terms of both functional operations and stewardship of data. These operational and data “silos” constitute a substantial obstacle to improved processes on campus and limit the organization’s ability to respond to either incremental change or more severe disruption. One strong suggestion is to develop consensual “silo buster” programs. While leadership is key, changing culture cannot be solved by fiat.

- There is a need to establish a common vision and strategy for the changes needed to move the USM forward. To do this, the BOR should ensure topics related to academic transformation, student success, effective use of analytics, business process improvement, and other similar areas are part of a proactive discussion at each of the regular meetings in the USM --Council of University System Presidents, Vice Presidents for Administration and Finance, Academic Affairs Advisory Council, CIOs, Council of University System Faculty, and the like. Since many issues involve multiple functional units, a series of issue-focused, System-wide workshops should be held to build bridges and common understanding of the issues and to develop a common response.
- Resources are needed to effect change. Grant funds are useful for start-up but not for sustaining change. Reprioritization of resources is a necessary long-term approach.
- Change involves people, processes, and technology, with the technology usually being the simplest. A key challenge is retraining/refocusing current people and bringing in new people with needed skills when the opportunity arises.
- New elements, such as specialists in Analytics, are likely to be too expensive for most USM institutions to hire locally. Therefore consideration should be given to creating a shared pool of specialists at the USM level; sharing analytic frameworks being developed at institutions with resources to do so with smaller institutions; taking advantage of the intellectual capital of the USM faculty on a contract or fee for service basis; and contracting for specialized expertise on an as-needed basis. Since effectively using analytics is a common problem in U.S. higher education, there are consortia being formed to provide specialized analytic analyses based on consortia data sets.

Task Force Recommendations

The goal of the Task Force is to deliver recommendations that are actionable over the next three years. The Task Force concluded there are two types of actions -- improvement (tactical) and innovations (strategic). "Improvement" in this context refers to an activity that makes an existing process or activity more efficient and/or effective. "Innovation" is the application of better solutions that meet new requirements, unarticulated needs, or existing market needs. Based on research, organizations can generally improve several processes at the same time, but typically only have the capacity for one or two innovations simultaneously.

In charting next steps, the Task Force is recommending three areas of innovation that are foundational to future success of transformation and four improvement areas that require low overhead investment, but yield immediate benefits to the System.

Actionable Recommendations

Build for the future of the USM from a position of strength through collaboration, sharing best practices, and silo busting.

The System has achieved success in many areas such as course redesign and analytics. However, the progress is uneven across the System. The first recommendation is to establish a clearing-house for best practices and, through sharing and collaboration, ensure all universities have access to these proven strategies.

This approach provides the tools to enhance the quality of education, accelerates timelines for implementation and reduces cost, as well as increases satisfaction for the stakeholders – students, staff, faculty, USM, employers.

Measure of Success:

- Stakeholder satisfaction
- Project cost reduction
- Enrollment growth

Focus on the tools, analytics and techniques needed to enhance and accelerate student success

The USM's primary objective is utilizing the System's capacity to leverage the power of technology and innovation to optimize access, quality, and success rate for its students. To do this, actionable intelligence using analytics and other teaching tools and techniques are needed, as well as a shift in faculty mindset. Through the use of analytics more personalized teaching can be provided to ensure greater opportunity for student success. However, there is a caution to ensure the data is protected and used ethically.

Implementation of this recommendation will improve student success, which in turn, reduces cost and increases satisfaction for the stakeholders – parents, students, staff, faculty, USM, and potential employers.

Measure of Success:

- Stakeholder satisfaction
- Course pass success rate
- Student retention
- Graduation rates

Establish policies and practices to encourage greater standardization and sharing across the System.

The USM's structure provides an opportunity to standardize across the System and leverage economies of scale. The Maryland Education Enterprise Consortium, Maryland Research and Education Network, and the USMAI Library Consortium are working examples of leveraging the size and collaboration of the USM institutions. They have saved the USM institutions, and education in Maryland more broadly, tens of millions of dollars a year. This recommendation suggests that policies be put in place in a number of areas to afford similar benefits including cyber security, Information Technology, Human Resources, procurement, and research administration.

Identifying and standardizing key areas allows the USM to leverage transformation more evenly across the System, provides a forum for knowledge exchange, deploys the best of breed solutions, and reduces the time and cost associated with one-off implementations –all of which ultimately increases satisfaction for the students, staff, faculty, researchers, USM, and potential employers.

Measure of Success:

- Stakeholder satisfaction
- Cost reductions
- Increased efficiency
- Better outcomes – e.g. licenses, patents, less cyber attacks

Improvements

- Sustain the conversation regarding transformation within the USM by organizing several System-wide workshops, especially around the topics of academic transformation, analytics, and student success.
- Continue supporting the Academic Transformation activities that are in progress by the USM's new Center for Academic Innovation.

- Align to Educause Center for Analytics Research (ECAR) Maturity Indices because indices are flexible enough to modify for individual institutions. Results using this model are easily reported in a variety of understandable formats and can be used to establish frameworks that could be the basis of internal conversations regarding institutional aspirations in a variety of areas related to the Task Force recommendations and as tools for national peer comparison of aspirations and progress.
- Create flexible frameworks that identify key parameters and actions together with metrics but leaves implementation to local decisions based on local circumstances. Develop multi-institutional approaches to transformation in various areas where best practices, data sharing, development sharing, and the like could take place.

Next Steps

The task force recommends the BOR consider implementing the improvement recommendations immediately. It also recommends the BOR identify a lead institution to begin implementing each of the recommended activities. The BOR should review the planned implementation process and approve the measures of success before implementation. To encourage acceptance/implementation of transformation initiatives throughout the System, the task force also recommends the following approaches:

- Establish policies, expectations, and rewards established and approved by the BOR, Chancellor, and individual institution Presidents to affect and incentivize innovation and change.
- Include transformation initiatives in the Presidents' annual evaluations;
- Leverage System-level resources to jump start transformation projects and fund incentives;

- Launch focused competitions and awards for disruptive ideas and successful project implementations.

The general principle of starting small, gaining insight and achieving initial success especially applies to innovation initiatives. However, to be useful, such initiatives must scale, as lack of the ability to scale is a common failing in innovations.

Conclusion

In 2011, Clay Christensen wrote in the book *The Innovative University*:

Neither American students, nor our universities, nor the nation itself can afford to take for granted the quality of higher education and the teaching and learning it provides. To be sure, professors and academic leaders must keep proper perspective. It is especially important to bear in mind all of the purposes universities serve and resist efforts to turn them into instruments preoccupied primarily with helping the economy grow. But resisting technology and commercialization cannot become an excuse for resisting change. Rather universities need to recognize the risk of complacency and use the emerging worldwide challenge as an occasion for a candid reappraisal to discover whether there are ways to lift the performance of our institutions of higher learning to higher levels.

The USM Board recognizes that these are times of both challenge and opportunity for higher education. This Task Force study outlines how the USM may proactively address these in several areas. The changes that technology is enabling are only going to grow in the foreseeable future. This report is a first pass at identifying both the beginning of a strategy and of tactics going forward. Perforce, this is only the start of an important conversation in which all stakeholders in the USM will need to engage.

Appendices (separate attachments)

- A. Academic Transformation Work Group Report
- B. Student Success and Retention Work Group Report
- C. Analytics Work Group Report
- D. Administrative Processes and Decision Support Work Group Report