



**Tenth Anniversary  
Report on the University System of Maryland  
Effectiveness and Efficiency Initiatives**

**January 2013**

# Tenth Anniversary Report on the University System of Maryland Effectiveness and Efficiency Initiatives

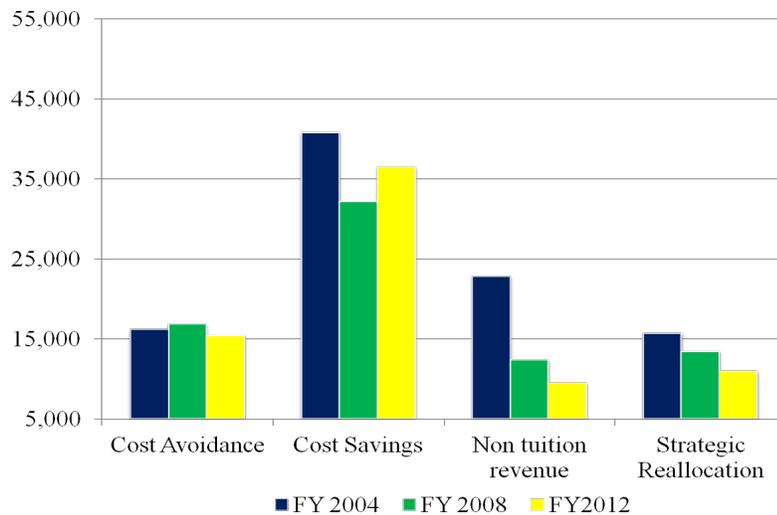
## OVERVIEW

The University System of Maryland has worked to enhance the effectiveness and efficiency of the higher education model. In order to build upon the most effective practices and to continuously improve the efficiency of the System's efforts, as well as to address and manage a number of unprecedented challenges prevalent at that time, the Board of Regents established a work group on Effectiveness and Efficiency and held its first official organizational meeting on July 23, 2003. In 2012, the Board of Regents further promoted the importance of these initiatives by making the Work Group the Standing Committee on Efficiency and Effectiveness.

The driving force behind the E&E Initiative was the need, in such challenging economic times, to optimize USM resources to yield savings and cost avoidance. The original goals of the E&E Work Group remain the same: promote enhancements in effectiveness and efficiencies in the USM operating model, increase quality, serve more students, and reduce the pressure on tuition. *The past decade's efforts have yielded \$356 million in cumulative savings.*

The USM Effectiveness and Efficiency initiative continues to be held up as a model and has attracted national attention, including a special mention by President Obama. This recognition has enabled the System to attract external funding to leverage our resources and to disseminate the most promising practices in collaboration with the State.

**Effectiveness & Efficiency Initiatives by Financial Class**  
FY 2004 – FY 2012  
Shown as \$'s in (\$000)



## ***Disseminating Most Promising Practices***

### *Course Redesign*

Perhaps the most visible of the academic innovation and transformation efforts is the Course Redesign initiative begun in 2006. Having completed its first phase course redesign initiative from 2006-2009, with results that showed an improvement in the successful completion rate of “gateway” courses, and at a cost savings<sup>1</sup>, the Chancellor directed funds from an award from the Carnegie Foundation to expand the number of courses that USM will have redesigned. To date, thirty-seven courses across the USM have been redesigned. For those institutions that have fully implemented redesigned courses, the reported average savings is 34%. USM continues to develop models and designs of study that have been funded from extramural sources, including a project with Ithaca S+R funded by the Gates Foundation.

With the documented evidence of improved effectiveness and efficiency, the success of the initiative led to receiving funding from the Lumina Foundation to disseminate findings, and to facilitate implementation of successful strategies to all segments of higher education in Maryland. Under the umbrella of the State’s “Growing by Degrees” college completion agenda, higher education institutions are focusing their efforts on the redesign of developmental education courses in mathematics and other “bottleneck” courses that institutions have identified as posing significant challenges to student retention and progression. Through funding from Complete College America and the Lumina Foundations, 23 grants have been awarded to Maryland community colleges, 1 to St. Mary’s College of Maryland, 2 to Morgan State University, and 5 to MICUA institutions. Sixteen additional grants have been awarded to the third cohort.

### ***Continuing Effective and Efficient Practices – Building on Success***

#### **EFFECTIVENESS & EFFICIENCY – ACADEMIC INITIATIVES**

In 2005, the Board of Regents established three academic policies contributing to degree completion – faculty instructional workload, increasing the number of credits taken outside the classroom, and limiting the number of credits required to complete the degree.

#### *Faculty Instructional Workload*

Early in the E&E process, the E&E Work Group identified faculty instructional workload as an area with potential for improved efficiency. Following a review and analysis of faculty instructional workload by institution, the E&E Work Group established a goal, to be implemented in the fall of 2005 (FY 2006), that the faculty workload reach the mid-point of the workload ranges established in Board policy. Analysis of the faculty workload data for AY 2010-2011 indicates that the System as a whole once again reached these targets. While enrollment rose by 1,100 or 1.3 %, the faculty complement rose by only 11 or 0.3%<sup>2</sup> and although current economic conditions have not yet fully recovered, faculty were able to attract over \$1.2 billion in grants and other research awards.

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<sup>1</sup> See Appendix for a summary chart of cost savings and <http://www.usmd.edu/usm/academicaffairs/cr2/reports.html> for detailed course assessment results.

<sup>2</sup> *Nineteenth Annual Report on the Instructional Workload of the USM Faculty* (November 19, 2012)

## *Time to Degree*

Total bachelor's degrees awarded continues to rise rapidly with 1,100 more degrees awarded in the most recent year than in the prior year and nearly 2,300 more than 5 years earlier. Therefore, in spite of flat budgets and no increases in pay for faculty, the productivity has increased measurably across the USM.

In 2005, the Board of Regents passed a policy that would limit the number of credits required for a bachelor's degree to 120 credits unless: a) the program is defined as a five-year baccalaureate program, b) professional accreditation requirements stipulate a higher number of credits or require coursework that cannot be realistically completed within 120 credits, or c) a program is governed by certification requirements that result in a need for credits in excess of 120 over four years. Time to degree and completion of degrees in 4 years remain at impressive levels, with time to degree remaining at among the lowest level – 8.7 semesters - since at least the mid-1980s.

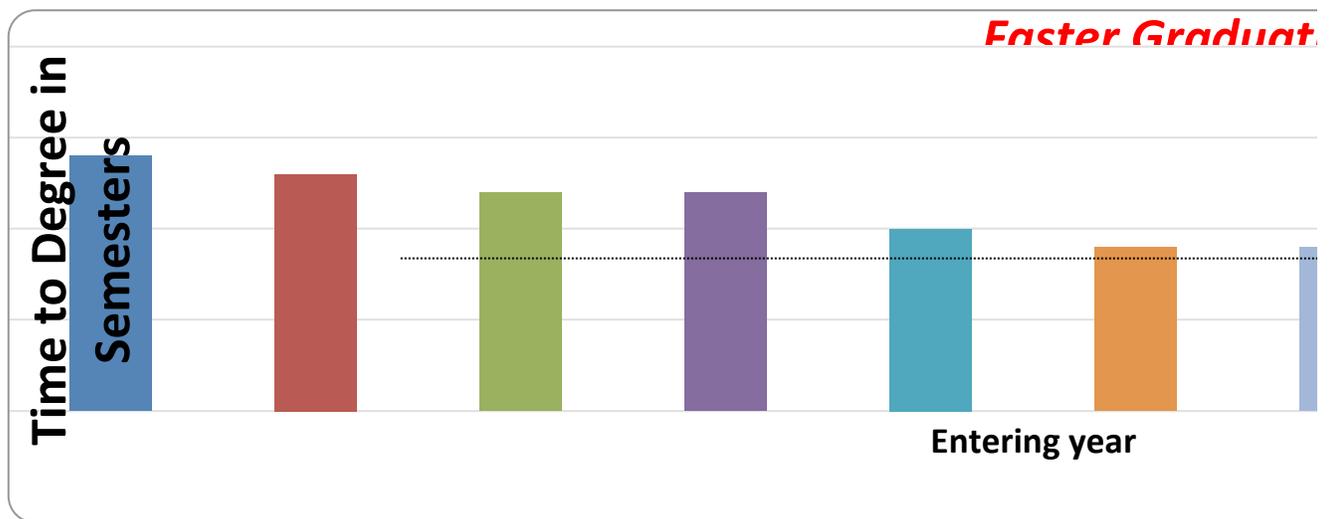
The implementation of the 120-credit policy has brought into focus some of the challenges found in academic advising. Campuses have initiated several new programs in advising, including “intrusive” advising, programs for transfer students, and the implementation of information systems that flag students who are off course for a degree in four years, requiring advising before registering for the next semester. The impact of these new initiatives will become apparent in the next few years.

The Board's policy on alternative credits requires that on average students complete at least 12 credits (or 10%) outside of the traditional classroom experience. Overall, the USM has met the desired targets for the last three years. Five of eight institutions<sup>3</sup> for which the policy is applicable, met the benchmark and all have made progress towards the goal. On the whole, the policy has been successfully implemented and has provided the additional physical capacity to accommodate between 2000-3000 students system-wide in traditional classroom settings. By 2010, 12.3% of total credits were completed by alternative means. This requirement also brings focus to the need for programs and campuses to enhance their relationships with the private and public sector employers that can provide internships. These experiences also provide students with the opportunity to appreciate the “soft skills” required to function smoothly in a workforce setting.

Demonstration of these skills has been a challenge for some students and brought some criticism from the business community in the past. Involvement on these off-campus experiences will provide efficiencies for the campus as well as better-prepared graduates.

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<sup>3</sup> The policy does not apply to UB, UMB or UMUC.



### *Policy on Appointment, Rank, and Tenure of Faculty*

In March of 2012, the Board of Regents revised its appointment, promotion, and tenure policy to incentivize faculty to help advance the competitiveness of the Maryland economy through innovation and entrepreneurship. This would include faculty engagement in economic development including pursuit of translational research designed to commercialize marketable research findings into the private sector. The inclusion of these activities as notable accomplishments in the promotion process sends the clear message that such activities are highly valued.

### **EFFECTIVENESS & EFFICIENCY- ENROLLMENT MANAGEMENT STRATEGIES**

The USM’s E&E strategy for enrollment management has been intentionally aggressive and has sought to encompass both System-wide initiatives and individual campus initiatives, where such a division of activity was appropriate and beneficial. In the case of the former, the System-wide activities have included:

- The Board’s support for targeted growth at designated “growth institutions” as part of the Enrollment Funding Initiative (EFI), and additional programs and facilities at the regional centers as part of EFI, E&E, and the 10-year strategic plan strategies,
- The Board’s recognition of the need for, and support of, expanded access for transfer students, particularly those from Maryland community colleges, in its plans and policies. This goal has included a commitment to more financial aid for these students (*the number of community college transfers to USM institutions has increased by 58% over the past ten years*),
- The expansion of the System’s On-line Transfer Articulation Program (ARTSYS©), which is the centrally run by the USM Office of Articulation and is now up to three million hits per year on the website, and

- The further development and promulgation of the Electronic Transcript platform which, thanks to the USM’s leadership and infrastructure support, is now processing over 118,000 electronic transcript requests per year *at an estimated cost savings of \$1.75 million*, in addition to providing improved accuracy and security of student data.

At the individual institution level, examples of E&E-driven initiatives associated with enrollment management include:

- UMCP’s Freshman Connection Program and its Maryland Transfer Advantage Program (MTAP),
- Salisbury’s Board-approved pilot of an SAT/ACT optional admission strategy,
- Towson’s Trimester experiment and its collaboration with Harford Community College to locate a TU facility on the HCC campus,
- UB’s Board-approved enrollment expansion to include freshman and sophomore students, and
- For all the USM institutions, the expansion of formal articulation agreements with Maryland community colleges and the development of partnerships for “reverse” transfer credits.

All of these policies, initiatives, and experimental/pilot projects, when considered as a whole, demonstrate USM’s commitment to aggressive and wide-ranging E&E effort in enrollment management.

## **EFFECTIVENESS & EFFICIENCY - COMPETITIVE CONTRACTING**

The USM has found significant efficiencies through the application of strategic sourcing strategies; and greater effectiveness have resulted from the implementation of institution centric competitive contracting policies and procedures that provide greater response time to constituent needs over a more centralized and monolithic process.

Institutions within the USM have been encouraged to develop strategic sourcing policy and strategies in the context of Board of Regents policy that are tailored to the way individual institutions manage their day-to-day operations. This has resulted in a culture by which effectiveness and efficiencies in the procurement process are no longer viewed as separate initiatives but instead have become part of the strategic sourcing process itself. Not only are strategic sourcing opportunities found through the participation in various consortia such as U.S. Communities and the Educational and Institutional Cooperative, it is common place for USM institutions to seek out collaborations with their sister institutions to engage in collective procurements that not only result in reduced costs for the acquisition of goods and services, but create efficiencies by minimizing overhead and process costs. These permit more effective use of procurement staff to focus on contract management and meeting the needs of their respective constituencies. The USM and its institutions have not only focused on the strategic sources of commodities, but have engaged in strategic and collective procurements for energy, software licenses, computer hardware and equipment, services for the implementation of financial management systems, research materials and supplies, anti-virus software, learning management systems, and indefinite delivery contracts for design, construction, and maintenance services. The Maryland Educational

Enterprise Consortium, managed by the USM, conducted a procurement that will realize up to 55% discounts on computer hardware and associated services for the life of the contract for its members.

Effectiveness and efficiencies are not restricted to only strategic sourcing but also in the structural approach to procurement of certain services. The Board of Regents creation of two design and construction service centers has resulted in cost savings and avoidance associated with the solicitation and management of design and construction contracts. Although established more than 10 years ago, these service centers continue to provide a vital source of procurement expertise that would otherwise have to be duplicated at all System institutions. It is a strategic approach to effectively and efficiently managing more than \$321 million in construction and construction-related contracts in FY 2012.

In 2010, the USM conducted a survey among all its institutions to determine what within the procurement process worked and what could be improved. The findings resulted in new legislation (HB 442) in the 2012 legislative session that provided additional procurement authority to the System and its institutions and provided a mechanism by which the USM can enter into contractual relationships with the private sector for the purpose of technology transfer and economic development that will not only benefit the USM, but the citizens of the State of Maryland.

#### **EFFECTIVENESS & EFFICIENCY – ENERGY STRATEGIES**

One of the target areas of the Effectiveness and Efficiency Initiative is energy costs, which includes steps to strategically leverage USM buying power through pooled purchasing of energy as well as the implementation of cost-effective energy management strategies.

Over the last ten years, the institutions have seen 10-15% energy price reductions from the aggregation of energy and natural gas accounts because of the competition the larger quantities attract in the supply market. Additionally, for the last six years, we have further driven down costs by aggregating with the Department of General Services (DGS) thereby tripling our purchasing power in the energy market and almost doubling in the natural gas market. Recent purchases for long-term renewable energy were also only made possible through the USM/DGS collaboration, and contributed to savings approaching 20% compared to purchases Institutions would have made if procuring renewable energy independently.

In addition to savings from energy procurement, there have also been savings associated with the implementation of energy management and conservation strategies. Participation in demand response programs that require customers to reduce energy when supply is critically short has resulted in revenues for a number of institutions since 2007. In total, this program contributes an additional energy savings of 2-4% for those participating institutions. Another energy management program is the implementation of energy performance contracts (EPCs.) EPCs allow the institutions to implement a large amount of building and system enhancements that have a resulting energy savings of approximately

20%. Originally, the contracts were financed through loans with the State Treasurer's office, but going forward, USM will be using a shared savings contract with the Maryland Clean Energy Center that allows the annual payments to be funded from avoided operating expenses and will have no impact on debt at the USM level.

With the continued focus on aggregated procurements, USM should continue to see substantial energy savings in supply costs. While it has been advantageous to also aggregate with DGS, there may be opportunities in the future that USM will choose to pursue independent of DGS. USM has a Climate Commitment signed by each of the institutions' presidents that require us to be more aggressive in our pursuit of low and no-carbon energy supplies, as well as leaders in the areas of research and implementation. Over the next decade, there will most likely be more collaborative research across USM in the areas of energy conservation and renewable energy supply, and the campuses will serve as perfect demonstration sites for these efforts.

### ***Looking Ahead: "Disruptive Innovation"***

As universities explore the potential of online education and other new technologies to improve student learning and graduation rates while lowering costs, the University System of Maryland is partnering with Ithaka S+R on a project to measure how well online learning platforms are working. Ithaka S+R, the recipient of a \$1.4 million grant from the Gates Foundation, is a nationally known higher education research and consulting group. The partnership will seek to accelerate the use of new learning technologies across higher education. The USM will serve as a test bed for online or hybrid courses (those that blend face-to-face instruction with online instruction) in a range of subjects at campuses throughout the System. These new teaching technologies can deliver tangible cost savings, from engaging faculty in the most efficient manner to ensuring more students are able to graduate and complete their degree in less time.

The main focus of USM's partnership with Ithaka S+R will be a series of tests of online learning methods. Approximately 5-7 tests will be conducted during the 2013 spring, summer and fall terms. They will mostly be side-by-side evaluations of learning outcomes, comparing traditionally taught sections with hybrid or online-only sections in courses offered for credit. Students of traditionally taught sections and hybrid sections using Coursera and possibly other massive online open courses, or MOOCs, will take common final exams. This methodology will allow the partnership to assess the effectiveness of the different course delivery models. Students also will take surveys at the end of a term to give feedback about their experience in the courses.

Among its 11 campuses, USM includes the full range of institutional types that comprise American higher education. This breadth of institutions includes historically black universities, research universities, and the University of Maryland University College, the nation's largest non-profit online university. Given the System's strong record of experimenting with new teaching and learning technologies, the USM provides an ideal testing platform for how an individual campus can adopt advances in online learning. Furthermore, the USM was the first university system in the nation to embrace the use of technology and innovative educational techniques to redesign entire courses, resulting in better learning outcomes and lower costs.

The Ithaka/Gates project will not only examine the effectiveness of MOOCs. Included in the funded experiment will be online, blended, and highly interactive instructional models from Carnegie Mellon's OLI (On-Line-Learning) project, as well. In addition, we have applied for additional funding to test Pearson's LearningLab products.

That future will be built on careful consideration, analysis and evaluation of how MOOCs work, how effective they are (compared to traditional courses), and how well they contribute to the larger goal of student learning, college completion, and degree production.

## **SUMMARY**

Many initiatives have been introduced in the last decade to gain efficiencies and effectiveness across the University System of Maryland, in the activities of Academic Affairs as well as many types of administrative procedures both individual and collective. While not articulated as a specific goal of these initiatives, the culture of the entire USM has been changed, with efficiency and effectiveness being included as a part of policies and procedures as they are developed. As technology development changes the manner in which all aspects of the institutions are administered, the balance of investment in these new technologies and the longer-term gains will have to be monitored closely. The definitions, evaluation, and measurement of investments and outcomes will need to be carefully addressed in order to capture the improvements, efficiencies, and effectiveness gained by new and evolving strategies.

**Appendix A**  
**University System of Maryland**  
**Effectiveness and Efficiency Work Group/Committee**  
**Chronology**

July 23, 2003	First official organizational meeting of the E & E Work Group Review the charge, set expectations, discuss organizational issues, create comprehensive list of ideas, review of annual efficiency/accountability process
September 12, 2003	Review draft letter to faculty and staff Begin discussion of work plan items
October 3, 2003	Discussion of hiring a consultant to assist in the analysis of proposed E & E process.
October 16, 2003	Accenture information meeting
October 31, 2003	Identification and discussion of 38 E & E prospective initiatives
November 20, 2003	Deloitte Consulting information meeting
December 19, 2003	Presentations on Funding Guidelines, Managing for Results, and Peer Performance. Review of draft RFP scope statement for consultant.
January 4, 2004	Preparation for E & E Retreat Presentation to Legislative Ad Hoc Committee on Higher Education chaired by Delegate Busch RFP to procure E & E Consulting Services issued
February 13, 2004	Discussion of issue papers on <u>Reducing the Cost Structure</u> Questions related to the E & E presentation to the Legislative Ad Hoc Committee on Higher Education chaired by Delegate Busch Consultant Selection Committee formed
March 18, 2004	Presentation on faculty workload issues, measures of institutional strength and the enrollment reallocation model. Update on the status of the RFP for a consultant and presidential work groups Awarded consultant contract to Accenture and established E & E Steering Committee to manage the contract. Identified the institutional representatives to work with the Steering Committee and staff.
April 16, 2004	Update on E & E initiatives including the enrollment model, status of the online education initiative and academic re-engineering and Annual E & E Report.
May - August 2004	Accenture process of data collection and analysis, institutional focus group interviews.
June 9, 2004	Accenture proposal and preliminary observations based on the limited data they had reviewed.
July 15, 2004	Chancellor's E & E Update and proposed Initiative paper review and discussion
August 25, 2004	Final Accenture Report to E & E Work Group
October 6, 2004	E & E report to the legislature including 16 Action Items that will save \$26 million to be completed by June 2006 approved
November 23, 2004	Preparation for the 2005 legislative session
January 5, 2005	Continued discussion of the legislative session, dashboard indicators and update on initiatives
March 18, 2005	Continued discussion of initiatives including organizational reviews and dashboard indicators. Addition of a new initiative on police forces. E & E sub-committee formed to study indicators and recommend appropriate dashboard indicators for the Board of Regent.
June 1, 2005	Discussion of several initiatives including the draft Enrollment Management and Organizational Review reports.
July 1, 2005	Beginning of E & E Phase II Initiative, continuing Phase I completion and implementation
October 11, 2005	Conceptual discussion of Phase II. Focus on effectiveness of core activities of institutions, alignment of projects with System and campus strategic plans Planning of joint meeting of VP's for administration and Finance/Academic Affairs Discussion with Presidents Ongoing initiative review – Dashboard indicators, faculty online training, Police Force Consolidation

<b>University System of Maryland Effectiveness and Efficiency Work Group/Committee Chronology</b>	
November 17, 2005	Discussion of outcomes from Joint VP's meeting Retreat Planning
December 8, 2005	BOR Retreat on E & E with the Chancellor, Vice Chancellors and Presidents to discuss institutional E&E initiative proposals.
December 9, 2005	Discussion of outcomes from Retreat including the systematic review of E&E Phase II, institutional proposals.
December 9, 2005	BOR meeting --Dashboard Indicator Report
February 10, 2006	Further discussion of Institutional project recommendations Presentation by Carol Twigg and Online education.
May 18, 2006	Carol Twigg Presentation, Course Redesign.
October 17, 2006	Maryland Course Redesign Initiative Kick-off Workshop <a href="http://www.usmd.edu/usm/academicaffairs/courseredesign/mdcourseredesign.html">http://www.usmd.edu/usm/academicaffairs/courseredesign/mdcourseredesign.html</a>
October 27, 2006	Discussion of the status of "Phase II" initiatives
January 24, 2007	Discussion of Applicant Referral System, Dashboard Indicators, Funding Guidelines
June 5, 2007	Reports on Phase II Initiatives: Maryland Course Redesign, UM Freshman Connections, application referral system, and room utilization. Discussion on foundation funding for residence halls.
November 13, 2007	Reports on Phase II Initiatives: Transfer Information Portal demonstration, application referral system, dashboard indicators, and trimester pilot.
February 18, 2008	Maryland Course Redesign Initiative Undergraduate Student Cognitive Development and Learning Styles and Student Learning Outcomes Assessments Workshop <a href="http://www.usmd.edu/usm/academicaffairs/courseredesign/021808ws.html">http://www.usmd.edu/usm/academicaffairs/courseredesign/021808ws.html</a>
March 12, 2008	Review of the Phase I and Phase II E and E projects. Detailed report on Course Redesign Initiative. Discussion on application referral system, collaboration with state agencies as it relates to workforce development.
May 30, 2008	Maryland Course Redesign Mid-Initiative Workshop <a href="http://www.usmd.edu/usm/academicaffairs/courseredesign/053008ws.html">http://www.usmd.edu/usm/academicaffairs/courseredesign/053008ws.html</a>
January 21, 2009	Review of the draft Textbook Policy
March 26, 2009	Dashboard Indicators: A President's Perspective (UB) Reports on Shared Library Services, "10%" policy and Study Abroad
May 26, 2009	Dashboard Indicators: Presidents' Perspectives (TU, UMCP) Report on Alternative Credits: Internships
November 11, 2009	Future Directions: Phase II
January 27, 2010	Discussion of relationship of new Strategic Plan and the Dashboard Indicators, solicitation of ideas for new E & E initiatives, survey of administrative vice presidents as it relates to policy barriers.
March 24, 2010	Presidents perspectives on Dashboard Indicators, discussion of: administrative vp "policy barriers" survey results, proposal for the establishment of an "E & E Innovation Award."
June 2, 2010	USMAI Consortium presentation, briefing on course redesign phase 2, discussion of next steps resulting from "policy barriers" survey results.
December 2, 2010	Review and discussion of the inventory of recommendations from the policy barriers survey and how to proceed, direction regarding priorities for the selection of recommendations and implementation, and how best to integrate the recommendations into implementation of the proposed 2010 Strategic Plan. Discussion of how best to align the Dashboard Indicators with the Strategic Plan, status of the implementation of the Textbook legislation, review of the status of ongoing initiatives and discussion of next steps.
February 11, 2011	Board of Regents voted to establish the Effectiveness and Efficiency Work Group as a Standing Committee.

**University System of Maryland  
Effectiveness and Efficiency Work Group/Committee  
Chronology**

March 26, 2011	Discussion of the need to revise Article IX of the Bylaws of the Board of Regents of the University System of Maryland. Section I requires revision to include the Committee on Effectiveness and Efficiency and a new Section 6 establishing the responsibilities of the Committee, process for review and revision of the Dashboard Indicators, status report on the steps taken in moving forward on the recommendations that resulted from a 2010 survey of the Vice Presidents for Administration and Finance on removing legal and policy obstacles to efficient and effective institution operation.
April 15, 2011	Approval of revisions to the Bylaws establishing the work group as a Standing Committee of the Board.
November 14, 2011	Presentation and discussion of the revision of the USM Dashboard Indicators 2011, and the proposed Policy on the Role of the USM as a Public Corporation.
December 2, 2011	Policy on the Role of the USM as a Public Corporation approved by the Board.
January 25, 2012	Presentation and discussion of the 2010 – 2011 Dashboard Indicators, report on Alternative Means of Earning Academic Degree Credit (BOR III-8.01), USM Course Redesign 2, and strategies for implementation of the Policy on the Role of the USM as a Public Corporation (BOR I – 8.00).
October 17, 2012	Review and discussion of the Role and Function of the Committee, Chapter 450 (HB442/SB239) – next steps, Academic Transformation Initiative, E & E annual reports, and future agenda items.

**Appendix B: Course Redesign**

Institution	Course	Cost Savings Information
BSU	PSYC 101	The redesign was fully implemented in Spring 2012. As planned, the number of sections was reduced for the redesign resulting in the elimination of adjunct instructors needed to teach the course. The cost-per-student was reduced from \$ 274 to \$164, a 40% decrease which was a little more than was anticipated by the university.
FSU	CMST 102	The redesign decreased cost for institution per credit hour through a 12% increase in enrollment without increase in salaries or reassigned time. For example, if 20 total traditional sections (6 taught by tenure-track, 8 by non-tenure-track, 6 by adjuncts) were taught in one academic year, the total cost per student would be \$276.55. However, if 20 total redesign sections (6 taught by tenure-track, 8 by non-tenure-track, 6 by adjuncts) were taught in one academic year, the total cost per student would be \$246.92. This demonstrates \$29.63 in cost savings per student for the institution without increasing salaries or reassigned time. In addition, out of class tutorial and assignment interaction days lowered facility maintenance and energy costs.
SU	PSYC 101	Cost reduction worked out as originally planned. As predicted in the original course planning tool, the number of lecture sections was reduced from 19 to 6 sections annually. Class enrollment increased from 36 in traditional sections to 120 students in the redesigned sections. As reconfigured, each redesigned 101 class counted as 2 of the 3 courses in a faculty members teaching workload. Under this arrangement, in the future each 101 instructor will also be able to lead another high-demand program course (e.g., Abnormal Psyc, Lifespan Development, etc.). As planned, the cost-per-student has decreased from \$241 in the traditional to \$145 in the redesign, a 60% decrease. Since the course serves approximately 720 students per year, a savings of \$96 produces a total savings of nearly \$70,000 per year.
	PHEC 106	The cost per student was impacted by the redesign. Prior to the pilot in the spring semester 2011, the cost per student was \$229.15. One year later (Spring 2012) during full implementation the cost per student was \$184.82. It is important to point out that the cost per student in the spring semesters is substantially higher due to the reduced number of students taking the course and the need to accommodate higher teaching loads for full-time coaches. The majority of coaches teach heavier loads in the Spring due to Fall coaching responsibilities. During the Fall 2012 semester, the cost per student was \$165.92. This number reflects fuller classes and the utilization of adjunct instructors instead of full-time coaches. The Department experienced an overall decrease in cost per student in spite of transitioning a full-time tenured faculty member into the role of coordinator and instructor for multiple sections of the course. Although the Department took a hit financially, appointing this person as coordinator was essential for the initial success and maintenance of the course redesign. Faculty had been involved in course instruction before, but the majority of the class was taught by adjunct faculty and the University's coaching staff (who are contractually required to teach). If the transition of this tenured faculty member to the position of Coordinator did not take place, then there would have been more of a cost savings. Currently, the Department can accommodate 960 students a semester with 78 credits of instructional load versus the same number of students with 108 credits of instructional load. Prior to the course redesign, the department utilized 36 3-credit sections of the class. Currently, we utilize 12 lectures, 24 group

Institution	Course	Cost Savings Information
UB	IDIS 302	<p>We are pleased to report that we have implemented our cost savings plan. Although the pilot section demonstrated clearly that sixty students are too many for a course of this nature, we have determined that the course can be successfully taught with one instructor with an enrollment of forty students. As we have offered ten to eleven sections of the traditional offering of this course with a maximum enrollment of thirty each, expanding the enrollment to forty represents a <u>thirty percent (30%)</u> reduction in the cost of offering the course each semester.</p>
UMCP	MATH 115	<p>As suggested in the redesign plan, there was no expectation of direct cost savings. For Math 115 the following were in effect for each of spring semesters: 2012, 2011, and 2010:</p> <ul style="list-style-type: none"> <li>• One faculty member, with a one-unit teaching load for Math 115</li> <li>• Three full-time teaching assistants, each assigned to 2 sections</li> </ul> <p>There are some modest on-going costs for the Math 115 redesign not appearing with the earlier Math 115 course: electricity, upkeep for computers, etc. The department is not charged for electricity. The upkeep for computers will involve new purchases every few years. Also, upstart costs were considerable, and included furniture, laptop computers, white boards, security system. However, if retention continues to increase with the redesigned Math 115, then there will be a nominal indirect cost savings to the campus, as well as student good will. Also, we are initiating use of this computer laboratory off-hours for calculus students who need remediation.</p>
UMES	CHEM 112	<p>The Chemistry Computer Laboratory was staffed by numerous undergraduate learning assistants (ULAs) and one graduate learning assistant (GLA): one GLA and two ULAs were dedicated to this course.</p> <ul style="list-style-type: none"> <li>• The GLA and ULAs offered students individualized assistance as needed and monitored student time-on-task.</li> <li>• The GLA served as a liaison between the faculty and students enrolled in Chemistry 112E, provided insight into strategies for high levels of achievement through informal settings in which students can ask questions, aided students in the review course materials and the development of skills needed to be successful in Chemistry 112E, and assist with grading in class assignments and exams.</li> <li>• The ULAs functioned in a tutoring capacity in the absence of the GLA. These individuals were compensated by the UMES MBRS RISE Program.</li> <li>• <i>In addition to an upgraded interface associated with the use of SmartWork, the costs associated with the text and web-based program are estimated to be \$125, providing a savings to the student. This cost is inclusive of the materials necessary for Principles of Chemistry I E and II E.</i></li> </ul>
	ARTS 101	<p>Full time tenured and full time tenure track faculty members were assigned to teach Arts 101; Exploration of the Visual Arts, during the period of full implementation. This was a deviation from our original proposal due to the lack of success in recruitment of desired adjunct faculty. The alteration from the original intent created several roadblocks to our proposed cost saving rate. Future plans will address the difficulty of recruiting qualified faculty for classes at the originally proposed size. A compromise of class size can still move forward cost savings. Working within the deviation of original delivery of material, a cost savings of approximately \$6,048 was realized.</p>

Institution	Course	Cost Savings Information
	PSYC 200	<p>The full implementation of the course redesign of the PSCY 200 Introduction to Psychology produced cost savings in numerous ways. For example, in accordance with the redesign proposal, cutting the number of sections from 14 to 7 reduced costs. Consequently, at least six (30 – 35 occupant) classrooms were freed up every semester and allowed for a reduction in adjunct faculty that saved up to \$28,512 a year in salaries. Also, student in-class time was reallocated in the redesign towards more online and interactive learning activities. These changes can potentially decrease the direct instruction cost-per-student from \$768.35 to \$272.53, a 28% reduction. Finally, another benefit of the redesign was fewer repeat students and the inherent costs that would follow.</p>
	BIOL 111	<p><b>Objective:</b> Employ four cost reduction strategies in the redesign of Principles of Biology I to decrease the cost per student by 41%:</p> <p><b>Strategy #1:</b> Decrease the number of sections offered from four to two and increase the class population from 55 to 120. In the spring of 2012, the student enrollment in the redesign was increase to 157 students. We were able to eliminate one section of the course, which resulted in the ability of Dr. Pitula to institute a new graduate level genetics course in support of the UMES Toxicology program.</p> <p><b>Strategy #2:</b> Change the mix of personnel to include ULAs, GLAs and adjunct faculty. In the spring semester, we hired one full time adjunct faculty to monitor the learning center. This faculty member also taught lectures in the Genetics 222 course, and this summer will be teaching Bio 111 to students in Summer Session 1.</p> <p><b>Strategy #3:</b> Substitution of Mastering Biology for monitoring and automated grading software for professors' manual work. Lecture was held once per week instead of twice per week with the addition of one mandatory hour spent in the Biology Computer Lab.</p> <p><b>Strategy #4:</b> Substitution of Mastering Biology for face-to-face lectures and substitution of peer interaction for one-on-one faculty/student time. Implemented without difficulty.</p>

**Appendix C**  
**University System of Maryland**  
**Efficiency Initiatives by General Category**  
**Shown as \$'s in (\$000)**

<b><u>General Category</u></b>	<b><u>FY 2004</u></b>	<b><u>FY 2005</u></b>	<b><u>FY 2006</u></b>	<b><u>FY 2007</u></b>	<b><u>FY 2008</u></b>	<b><u>FY 2009</u></b>	<b><u>FY 2010</u></b>	<b><u>FY 2011</u></b>	<b><u>FY 2012</u></b>	<b><u>Total</u></b>
Budget Reductions	30,056	6,643						0		36,699
Business Process Reengineering	1,088	4,477	2,632	2,639	3,346	3,413	5,907	8,262	3,804	35,568
Collaboration with Academic Institutions	1,022	1,039	637	408	641	914	1,272	1,269	1,380	8,582
Competitive Contracting	3,328	6,771	7,062	11,308	11,058	12,090	11,361	13,874	6,139	82,991
Credit Card Availability	125	143	230	142	172	159	152	26	152	1,301
Distance Education	5,189	0								5,189
E & E Work Group Initiatives	1,302	4,402	8,375	2,343	2,585	3,180	404	1,801	2,849	27,241
Energy Conservation Program	4,299	4,274	4,371	11,012	8,263	8,347	8,098	4,419	8,904	61,987
Entrepreneurial Initiative	5,626	4,806	6,766	4,468	3,975	4,705	4,333	3,782	2,963	41,424
Equipment & Land Acquisitions/Donation	2,627	1,166	2,212	1,035	1,671	1,667	1,290	150		11,818
Indirect Cost	6,882	3,409	7,451	9,062	2,575	5,816	7,300	5,794	4,032	52,321
In-sourcing/outsourcing	1,940	2,668	3,432	4,127	3,121	2,970	2,768	2,156	2,734	25,916
Meeting Federal Requirements	215	0								215
Partnership with External Entities	15,142	25,541	11,779	10,451	12,773	15,120	14,085	18,512	16,067	139,470
Reallocation Process	7,106	8,976	5,828	5,239	10,415	8,540	10,671	20,965	11,547	89,287
Redefinition of Work	2,357	5,684	5,856	7,068	6,239	5,143	5,177	4,511	3,621	45,656
Space & Building Efficiencies	5,797	755	305	373	419	1,513	2,399	1,291	541	13,393
Technology Improvements	1,466	2,267	5,412	8,235	7,644	5,578	6,289	7,889	7,732	52,512
<b>Total</b>	<b>95,567</b>	<b>83,021</b>	<b>72,348</b>	<b>77,910</b>	<b>74,897</b>	<b>79,155</b>	<b>81,506</b>	<b>94,701</b>	<b>72,465</b>	<b>731,570</b>

**University System of Maryland**  
**Efficiency Initiatives by Financial Class**  
**Shown as \$'s in (\$000)**

<b><u>Financial Classes</u></b>	<b><u>FY 2004</u></b>	<b><u>FY 2005</u></b>	<b><u>FY 2006</u></b>	<b><u>FY 2007</u></b>	<b><u>FY 2008</u></b>	<b><u>FY 2009</u></b>	<b><u>FY 2010</u></b>	<b><u>FY 2011</u></b>	<b><u>FY 2012</u></b>	<b><u>Total</u></b>
Cost Avoidance	16,179	8,705	4,346	13,176	16,841	11,670	16,346	18,326	15,404	120,993
Cost Savings	40,805	37,093	38,619	37,866	32,209	38,071	38,711	41,740	36,542	341,656
Revenue	22,855	28,332	23022	19,147	12,394	19,763	16,297	13,866	9,540	165,216
Strategic reallocation	15,728	8,891	6361	7,721	13,453	9,650	10,152	20,769	10,979	103,704
<b>Total</b>	<b>95,567</b>	<b>83,021</b>	<b>72,348</b>	<b>77,910</b>	<b>74,897</b>	<b>79,155</b>	<b>81,506</b>	<b>94,701</b>	<b>72,465</b>	<b>731,570</b>
<b>% change*</b>		<b>-13.1%</b>	<b>-12.9%</b>	<b>7.7%</b>	<b>-3.9%</b>	<b>5.7%</b>	<b>3.0%</b>	<b>16.2%</b>	<b>-23.5%</b>	