

BOARD OF HIGHER EDUCATION
REQUEST FOR COMMITTEE AND BOARD ACTION

COMMITTEE: Fiscal Affairs and Administrative Policy **NO.:** FAAP 15-34

COMMITTEE DATE: June 9, 2015

BOARD DATE: June 16, 2015

APPROVAL OF THE STATE UNIVERSITY FUNDING FORMULA

MOVED: The BHE hereby approves the State University funding formula (Attachment A) as developed in collaboration with the State University funding formula planning committee and as recommended by the Commissioner.

Authority: M.G.L. c. 15A, § 9(dd); M.G.L. c. 15A, §15B; Section 2 of Chapter 165 of the Acts of 2014, Line Item 7066-1400.

Contact: Sean P. Nelson, Deputy Commissioner of Administration and Finance,

BACKGROUND

Under Massachusetts General Law, the Board of Higher Education is charged with developing funding formulas for the community colleges and state universities. M.G.L. c. 15A, § 9(dd). In support of that charge, the FY2015 budget appropriated \$100K to the Department of Higher Education (DHE) to fund costs associated with formula development. Section 2 of Chapter 165 of the Acts of 2014, Line Item 7066-1400.

In collaboration with State University stakeholders from every institution (including three presidents), legislative representation from the respective Senate and House Ways and Means Committees, the DHE led an iterative process which included several working sessions with a formula planning committee over three months.

The work of the formula planning committee is memorialized in the attached "Summary Report" prepared by National Center for Higher Education Management Systems (NCHEMS), the consultant retained by the DHE to facilitate the work of the formula planning committee. (Attachment A, hereinafter the "Funding Formula") The performance metrics included in the attached Funding Formula were discussed, modified in some cases, and ultimately agreed-upon by the planning committee. It is the understanding of the formula planning committee that the Funding Formula performance metrics will be reviewed annually and that further refinement may be necessary.

FAAP 15-34: Attachment A-
State University Funding Formula, as approved by the BHE on 6/15/2015



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Summary Report

RFP RGT01-00000002689
State University Funding Formula

Executive Summary

The contract from the Massachusetts Department of Higher Education to the National Center for Higher Education Management Systems (NCHEMS) was for the development of a funding formula for the State Colleges and University system. As a result, NCHEMS advised on and built a model which allocated a fixed amount of funding to be allocated along performance and outcome measures which:

- Align with stated Vision Project goals, including assessment of key metrics and outcomes pursuant to the department's plan.
- Makes provision for different weights to be assigned to both mission and outcome variables for different types of institutions and allow these to be changed on an interactive basis for purposes of investigating the funding distribution impacts of different weighting schemes.
- Allow investigating the allocation consequences of adding additional resources to the higher education appropriation.

Though the original scope of the model was designed to allocate all funds appropriated by the state for general operations of the nine institutions to which this procurement applies, decisions by the DHE and the working group for the model altered the model and work toward one that would be appropriate for outcome metrics only, drawing upon a defined amount of available funding. Accordingly, the final deliverable was adjusted to reflect these needs. A companion piece to the model was additionally generated for all institutions, which can be used to highlight an individual institution's performance in the model and explore the data underneath in an interactive format.

All of these activities were carried out closely with DHE and institutional representatives to identify:

- The outcome variables to be incorporated into the funding model.
- The assignment of weights to both mission and outcomes variables for different institutions or groups of institutions.
- The distribution of credit hour production by field and level, which will allow calculation of funding per weighted student credit hour (or weighted FTE student).

- Trends and analysis of institutional performance within the model, such that a user might identify the relative strengths and potential areas for improvement for any single institution's performance within the outcomes-based funding model.

I. Data Collection

Data across various dimensions and measures were supplied by DHE staff from the HEIRS database, including data on the following measures:

- Five-year graduation rates
- Annual headcount
- Numbers of students reaching 30 and 60 credit hours, with breakouts for students who had received a Pell grant.
- Numbers of degrees produced, broken out by degree level, priority field indicator*, and Pell status
 - *Priority fields, as defined in the Vision Project, include those relating to STEM, Health, Business, and Education.
- Numbers of FTE students, by degree level
- Total revenues for each institution, including total tuition revenue, state and local appropriation, and other forms of revenue.

All data used in the model come directly from DHE staff, as reported to them by each State College and University institution.

II. Metrics

In the design of the model, information was used directly from the Vision Project to inform the metrics to be used in the outcomes-based allocation model. Within subsequent meetings (and on NCHEMS' deep experience in designing funding models that reflect different priorities), the working group and DHE recommended a final set of metrics to be used in assessing outcomes for these institutions. They include:

- **College Participation.**
 - Closing the URM Gap.
 - Students retained with 30 credit hours (SCH).
 - Students retained with 60 credit hours.
- **College Completion.**
 - Graduation rate improvement.
 - Degrees per 100 undergraduate full-time equivalent (FTE) students.
 - Degrees per 100 graduate full-time equivalent (FTE) students.
 - Year-over-year increases in the total number of degrees.
- **Workforce Alignment**
 - Increases in the numbers of priority-defined degrees.
- **Productivity**
 - Degrees per \$100,000 of total revenue

A fifth dimension was later defined for “**special mission institutions**” only. Recognizing their difference and distinct missions, funds in the outcome model can be allocated to offset some of the additional costs for delivery and instruction related to these defined institutions. Where applicable, bonuses were added for counts including “at-risk students,” defined as

those receiving a Pell grant during the eligible year. Overall, all metrics incorporated in the outcomes component of the model were aligned to the priorities established in the Vision Project.

III. Methodology

Using the above listed metrics, measures were divided into main-level and sub-level metrics. The five main-level metrics are given weights, which correspond to the amount of the available funds going toward each main-level metric:

- College Participation (default: 20%)
- College Completion (default: 30%)
- Workforce Alignment (default: 17.5%)
- Productivity (default: 17.5%)
- Special Mission Institutions (default: 15%)

For example, if the available outcome funding totals \$10 million, performance on “College Completion” would net a total \$3 million in available funding for this metric.

Within each main-level metric, each of the sub-level metrics receives a weighting structure as well. This allows for fine-tuning of the sub-level metrics within each main-level metric. By default, each of the sub-level metrics listed in the bullet points on page two are weighted equally.

The appendix at the end of this document details each of the metrics and the data used to calculate them. Three-year averages were used to smooth out any anomalies in the data. However, in some cases, other time horizons were more appropriate – such as metrics involving year-to-year change or a five-year graduation rate.

Institutions then receive a percentage share calculation for each metric. For example within the “College Participation” metric, if Institution A had 2,000 students in 2014 reach 30 credit hours, and the system total was 10,000 students reaching 30 credit hours, Institution A’s percentage share for that metric is calculated as 20%. An example of how the percentage share translates into a dollar amount is shown in the table below:

Metric	Share	Dollar Amount
Total Outcome Funding	-	\$5,000,000
College Participation Metric	20% of Total	\$1,500,000
Students Reaching 30 SCH	33% of Participation	\$495,000

Institution A's Share

20% of total of measure

\$99,000

Across each main-level metric, dollar amounts for each sub-level measure are sum totaled and become an institution's appropriation in the outcome model. For special mission institutions, a fixed share of available funds dedicated to special mission institutions is distributed. This is the only non-data driven measure in the outcome model, but one that arguably serves an important role and mission component within the outcome-based model.

IV. Conclusion

This dashboard and model allows for user-friendly visualization of the allocation consequences of changes in basic data and weights, while reflecting Vision Project stated goals and outcomes. While the model does not handle the full allocation and distribution of all funds for State Colleges and Universities, the decision of the group was to construct an outcomes-only portion by design which would handle a carved-out amount of money for distribution in the first-year. Accordingly, the model allows for the investigation of allocation consequences and results based on an outcomes-based approach with measures consonant with Vision Project goals.

A. Data Appendix

a. URM Target Enrollment

i. URM Gap Calculation: (Previous URM gap – Current URM gap)

1. (Target URM as a % of Young Adults) – (Prior URM as a % of Enrollment) = Previous URM gap
2. (Target URM as a % of Young Adults) – (Current) URM as a % of Enrollment) = Current URM gap

ii. Improvement Gap Calculation: (% Improvement / % Gap)

iii. Data Used:

1. Regional Young Adult Profile (Age 20-24)
2. Enrollment percentages by race/ethnicity by institution

b. Retention Efforts

i. Numbers of students flagged as reaching 30 or more credit hours

ii. Numbers of students flagged as reaching 60 or more credit hours

iii. Pell multiplier for Pell-recipient students

iv. Data used:

1. HEIRS: three year average (AY 2012- AY 2014)
- c. Five-Year Graduation Rate Improvements
- i. **Improvement Calculation: (2007 Cohort Year Graduation Rate – 2006 Cohort Year Graduation Rate)**
 - ii. Data used
 1. HEIRS: AY 2006 and AY 2007 cohort graduation rates
- d. Degrees per 100 Undergraduate FTE
- i. $(\text{Undergraduate degrees} / \text{Undergraduate FTE}) * 100$
 - ii. $(\text{Undergraduate Pell degrees} / \text{Undergraduate Pell FTE}) * 100$
 - iii. **Metric: (Degrees per 100 Undergraduate FTE + Degrees per 100 Pell UG FTE)**
 - iv. Data used
 1. HEIRS: AY 2014 FTE and degree counts
- e. Degrees per 100 Graduate FTE
- i. Metric: **(Graduate degrees / Graduate FTE) * 100**
 - ii. Data used
 1. HEIRS: AY 2014 FTE and degree counts
- f. Year-over-Year Increases in Total Numbers of Degrees Produced
- i. $(\text{Total degrees produced in 2013} + \text{Total Pell degrees produced in 2013}) = \text{Total Weighted 2013 Degrees}$
 - ii. $(\text{Total degrees produced in 2014} + \text{Total Pell degrees produced in 2014}) = \text{Total Weighted 2014 Degrees}$
 - iii. **Metric: (Total Weighted 2014 Degrees – Total Weighted 2013 Degrees)**
 1. Note: negative numbers are simply zeroed out; negative production does not adversely affect an institution.
 - iv. Data used
 1. HEIRS: degree counts, AY 2013 and AY 2014
- g. Year-over-Year Increases in Total Numbers of Priority Degrees Produced

- i. $(\text{Total priority-flagged degrees produced in 2013} + \text{Total priority-flagged Pell degrees produced in 2013}) = \text{Total Weighted 2013 Degrees}$
 - ii. $(\text{Total priority-flagged degrees produced in 2014} + \text{Total priority-flagged Pell degrees produced in 2014}) = \text{Total Weighted 2014 Degrees}$
 - iii. **Metric: (Total Weighted Priority-Flagged 2014 Degrees – Total Weighted Priority-Flagged 2013 Degrees)**
 - 1. Note: negative numbers are simply zeroed out; negative production does not adversely affect an institution.
 - iv. Data used
 - 1. HEIRS: degree counts, AY 2013 and AY 2014
- h. Degrees per \$100k of revenue
- i. $((\text{Total degrees in 2014} / \text{Total Tuition and State/Local Appropriation Revenue in 2014}) * 100000) = \text{Total degrees per } \100k
 - ii. $((\text{Total Pell degrees in 2014} / \text{Total Tuition and State/Local Appropriation Revenue in 2014}) * 100000) = \text{Total Pell degrees per } \100k
 - iii. **Metric: (Total degrees per \$100k + Total Pell degrees per \$100k)**
 - iv. Data used
 - 1. Campus revenues, 2014: State Colleges and Universities
 - 2. HEIRS: degree counts (2014)