

A Framework to Guide Revisions to Missouri's Public Higher Education Funding Model and to Incorporate a Performance Component

Study on Higher Education Performance Funding and
Efficiency/Reform (RFPS30034902300023)



Prepared for the Missouri Department of Higher Education and Workforce Development

December 2, 2022

Executive Summary

In response to the requirements of HB3003, passed by the Missouri General Assembly in its 2022 session, the Missouri Department of Higher Education and Workforce Development (MDHEWD) issued a request for proposals (RFP) to commission a “study which provides recommendations...on public higher education performance funding models” and “regarding higher education efficiency and possible reforms.” Both sets of recommendations were expected to consider the state fiscal climate and current institutional missions. MDHEWD subsequently selected the National Center for Higher Education Management Systems (NCHEMS) to conduct these studies, with work beginning in late August 2022.

The study on performance funding models was expected to be completed by December 15, 2022. However, a review of Missouri’s history with performance funding, discussions with MDHEWD staff and policymakers, the results of a funding equity study conducted for MDHEWD in 2018, and NCHEMS experience in creating funding models in other states has led to the conclusion that Missouri’s needs would not be well served by either this narrow focus or the rush to a conclusion. Performance funding models have little chance of being successfully implemented or achieving state goals if they are layered on top of a base funding model that is fundamentally flawed—the funds institutions receive from the state in recurring allocations are either inadequate or inequitably distributed (or both).

As a result, NCHEMS recommends and will develop an approach that proposes that performance funding be a component in an integrated framework that includes operating requirements which vary among institutions according to their mission. More specifically, NCHEMS will approach its charge or providing recommendations on public higher education funding models by designing an approach that accounts for the entirety of state appropriations, performance as well as base funding. Consistent with the mandate in the RFP, NCHEMS will also provide recommendations regarding allocation of resources on the basis of institutions’ production of student outcomes and other outcomes that tie to state priorities and contribute to state needs. To achieve the state’s goals, including those for the efficient and effective operation of public institutions, components in an appropriate framework will consider the funding requirements for a) fixed and b) variable costs, c) performance, d) unique features of institutional missions, e) investments in capacity, f) services the state purchases from institutions, and g) specifications of the appropriate balance between state funding and tuition in supporting institutions. Ensuring that all of these important elements of institutional operations are accounted for in the design of a funding model that includes incentives for performance stands the best chance for creating a funding model that address state needs effectively. Specific recommendations regarding the way these components—including performance incentives—should comprise a well-designed funding model are expected to be addressed in the project’s final report after more input is deliberately sought from stakeholders. It should be noted that this approach is consistent with feedback received from COPHE and MCCA in response to their review of an initial draft of this report.

After consultation with key legislators, NCHEMS and MDHEWD developed a revised timeline and work plan that incorporates the work necessary to develop a comprehensive funding model as background to submission of project recommendations by July 1, 2023, as required by the RFP. The report will also include findings and recommendations derived from the efficiency study component of the project. This timeline and related activities are included in the project work plan, which is included in the appendix. The extended period will permit MDHEWD and NCHEMS to gather feedback from institutions during the development of the performance funding model via selected on-campus visits and through interaction with an advisory body that is being organized by MDHEWD.

Accordingly, the detailed recommendations necessary to enact legislation that changes Missouri's approach to funding higher education institutions await the more thorough analyses and stakeholder engagement that will take place through July 1, 2023. Nevertheless, this report does offer recommendations that will be helpful in guiding the development of that report. These recommendations for legislative action in the 2023 session include:

1. Allow MDHEWD to recommend a funding model that allocates all state appropriations to higher education, not just funds tied to performance.
2. Require MDHEWD, in consultation with public institutions, to determine the parameters to be used to calculate amounts related to each of the factors incorporated into the recommended model.
3. Require MDHEWD to recommend procedures for the implementation of the new funding model for the fiscal year beginning on July 1, 2024 (i.e., FY 2025). These recommendations should address issues relating to a) eliminating funding imbalance among institutions, b) the process for transitioning into full implementation of the funding model over 3-4 fiscal years in a manner designed to allow institutions to plan effectively and with minimal disruption, c) the periodicity of subsequent reviews of the funding model, d) procedures for dealing with insufficient state funding in times of budgetary stress, and e) incentives to support collaborative activity among institutions in ways that promote broader access to educational opportunities and improve operational efficiencies.

Notwithstanding these foregoing recommendations, if the General Assembly wishes to consider performance funding more narrowly, without a full review of the state's current approach, this report details effective practices and examples from other states that operate performance models. Those states that have more successful performance models operate a more structured funding approach than is the case in Missouri. The report also details shortcomings associated with Missouri's current funding approach, which lacks an overriding rationale and strategy for allocating resources necessary for a performance funding component to be adopted effectively.

Background

The Missouri Department of Higher Education and Workforce Development (MDHEWD) issued an RFP to respond to the mandates of HB3003. This legislation provided funding for *“commissioning a study which provides recommendations to the Governor and General Assembly on public higher education performance funding models, considering state fiscal climate and institutional mission, to be completed by December 15, 2022; and for commissioning a study that makes recommendations to the Governor and General Assembly regarding higher education efficiency and possible reforms, considering current institutional missions and state fiscal resources, to be completed by July 1, 2023.”* In addition to the two studies/reports specifically mentioned in the legislation, the RFP also called for the development of a comprehensive work plan to be submitted and approved early in the project.

NCHEMS was selected as the contractor for the project. As required by the Request for Proposals (RFP) and proposed in NCHEMS’ response to the RFP, MDHEWD and NCHEMS held an initial planning meeting on September 21, 2022, in Jefferson City Missouri. Attending were Dennis Jones, Brian Prescott, and Sarah Torres Lugo of NCHEMS and Leroy Wade, Jeremy Kintzel, and Gerren McHam of MDHEWD. Representative John Black also met with the project team to hear an overview of the project and to address questions about the nature and timing of the final products. Because of the timelines prescribed in the legislation, the discussions at the meeting focused primarily on the first of the two studies, the Performance Funding Model Review and Recommendations (which was the title used in the RFP).

An important outcome of the meeting was understanding the scope of this first study. The RFP was written with the narrow focus on performance funding, but it was ambiguous as to specific intent, namely whether the study was intended to:

- a. develop a new model to allocate 100 percent of the total state appropriation to public institutions, in which all or some portion would be based on performance, or
- b. develop a performance funding model that allocates some portion of state appropriations but otherwise does not address the allocation of funding not based on performance.

This former approach is preferable. NCHEMS’ experience is that it is very difficult to successfully implement performance funding when the underlying base funding allocation cannot be demonstrated as being “fair.” Institutions that are disadvantaged in base funding will argue (probably legitimately) that they are disadvantaged in producing the outcomes that are rewarded in the model. Inequities in the resources institutions have to support outcomes will increase over time if historical disadvantages in base funding are not addressed. For example, Illinois allocates a meager level of funding for performance in part because institutions with relatively less funding per student believed that existing inequity in their base allocations needed to be addressed first. By contrast, Tennessee was able to adopt its far-ranging performance funding model in part because it operated a base funding approach that was less imbalanced before the changes were implemented, and it continues to maintain a commitment to supporting base funding within its

current policy. After discussions with MDHEWD staff and members of the legislature, it became clear that a study of the allocation of all state appropriations to institutions is necessary, and that the resulting model should be rational and strategic, include provisions that incentivize institutional performance, and be implemented over a period of time long enough to make a smooth transition possible.

On October 4, 2022, NCHEMS met virtually with MDHEWD staff, members of the legislature, and legislative staff. Concerns raised previously about getting adequate stakeholder input in the project's initial timeline were repeated in this meeting, and DHEWD and NCHEMS determined that a change in the timeline for the project is warranted in the interests of producing a final product that the MDHEWD can support, has been reviewed by the affected institutions, and can be implemented. The work plan developed as a consequence of the September in-person meeting and October virtual meeting is included as an appendix.¹ The discussion also clarified that the funding model to be proposed would address operational support only, not capital funding, although it should be capable of accounting for the recurring costs of operating and maintaining capitalized assets.

NCHEMS and MDHEWD subsequently hosted a virtual meeting on October 21, 2022, for institutional leaders, legislators, and members of the Missouri Coordinating Board for Higher Education. NCHEMS delivered an overview of the project, including both the development of a new funding model that incorporates performance elements and the review of efficiency, and outlined the schedule of activities to be conducted during the coming months. Special attention was given to the broad outline of a conceptual framework that will be the focus of this initial report. NCHEMS and MDHEWD provided assurances that it would be premature in this report to make recommendations about the parameters for implementing a new funding model in the upcoming legislative session. NCHEMS and MDHEWD described the plan for the submission of this initial report and encouraged attendees to provide feedback.

Shortcomings of the Current Higher Education Funding Approach

For many years, Missouri has used a variation of a “Base-Plus” approach to funding its institutions of higher education. Base-Plus funding policies provide all institutions with the base level of funding they are receiving in the current year and typically make an across-the-board adjustment (either increase or decrease) to each institution for the upcoming fiscal year.² Often these adjustments are related to inflation in input costs, such as employee salaries and benefits,

¹ MDHEWD also created a web page to track the project's progress at <https://dhewd.mo.gov/about/legislative/HigherEducationFundingStudy.php>.

² Some states employ an approach to the “plus” part of “base-plus” funding that results in something other than across-the-board adjustments to institutions' base funding levels. These can include considerations of changing enrollment patterns or be associated with specific institutions' successful pleading for more funding. But the key point is that they make adjustments to, rather than reassess, the large majority of institutions' recurring funding levels from state appropriations.

utilities, etc. that are assumed to be similar across all institutions.³ This approach has the benefit of providing institutions with predictable and relatively stable funding, but it has numerous negative features that more than outweigh the benefits. Among the shortcomings of this approach are the following:

1. Relying on a Base-Plus approach erodes the foundation for public support that public institutions require. If there was ever a rationale for how much an institution can expect to receive in taxpayer funding, it is likely long lost to history in a Base-Plus model. Institutions themselves struggle to articulate how much state funding is necessary when experience suggests that many of them have been able to raise tuition without losing students. They are not helped in making a case for funding support by relying on a model that fails to link either the Base or the Plus components to tangible operating requirements. Similarly, policymakers struggle to sustain a convincing case for any specific level of funding when budgets are tight, nor are they guided to make investments with a compelling target in mind when budgets are less constrained.
2. It assumes that the funding levels for the individual institutions were adequate and equitable at the point in time in which the Base-Plus approach was first implemented. This set of conditions is highly unlikely.
3. Funding according to a Base-Plus approach assumes that all institutions are operating efficiently. If they are not, a Base-Plus approach “bakes in” inefficiencies without creating incentives for improvement.
4. Similar percentage increases for all institutions mask the reality that institutional circumstances evolve differently over time—enrollment levels change at different rates as do enrollments in high-cost versus low-cost programs. The mix of students also changes in different ways at different institutions, with some institutions serving an increasing number of high-risk students while the number of such students decreases at others. As a result, funding disparities grow larger and larger over time. In the process, some institutions can continue to fulfill their missions with available funding while others come under increasing financial strain in trying to deliver high-quality programs to the students they now serve.
5. Absence of linkages to state goals and priorities. Base-Plus funding approaches seldom contain signals to institutions about priorities to be pursued. In maintaining base-plus funding approaches, state policymakers are putting their faith that institutions’ pursuit of their own priorities will yield the outcomes the state considers to be of the highest priority.
6. A Base-Plus approach is not sensitive to institutions’ differing abilities to raise additional revenue either from philanthropy or from the enrollment of out-of-state students paying a higher tuition rate or of larger proportions of relatively wealthy in-state students. An equitable allocation mechanism would recognize that the state should cover a higher proportion of costs at some institutions and a lower proportion at others.

³ Laderman, S., McNamara, D., Prescott, B., Torres Lugo, S., & Weeden, D. (2022). *State Approaches to Base Funding for Public Colleges and Universities*. Boulder, CO: SHEEO & NCHEMS. https://sheeo.org/wp-content/uploads/2022/10/SHEEO_2022_State_Approaches_Base_Funding.pdf.

7. Maintaining a Base-Plus funding approach is likely to torpedo any statewide funding equity agenda—an effort to level the playing field and better meet the needs of historically hard-to-serve students. With no differentiation in funding accounting for variation in student characteristics, there is no pragmatic reason that keeps institutions from naturally gravitating to serving the easiest-to-serve students. This is especially likely if a performance-based funding approach is appended to a core of funding that is allocated via Base-Plus; the incentives in the PBF approach will discourage institutions from enrolling students with a lower likelihood of success, unless those incentives are properly balanced to counter that tendency.

Evidence suggests there is discomfort with the way Missouri funds its public institutions, including considerable legislative activity over the past decade and more to make significant changes. For example, even though Missouri continues to maintain a performance funding policy in statute, the General Assembly has declined to fund it during the last several years. In 2013, the legislature passed SB 437 that required a review of how the state funds institutions, though that effort apparently failed to lead to substantive changes. More recently, the legislature has introduced measures to enact performance funding in successive legislative sessions, as well as this study.

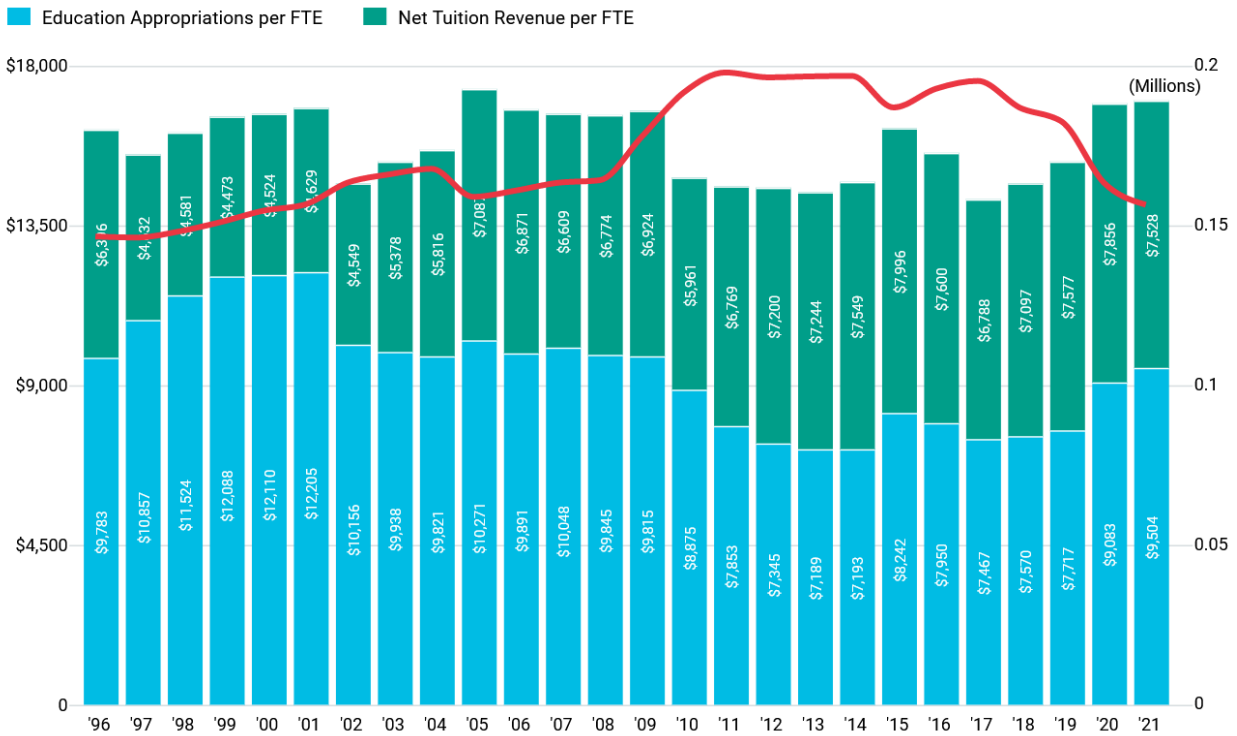
Additionally, in 2019, in collaboration with COPHE and MCCA, MDHEWD (then just the Department of Higher Education) requested that NCHEMS conduct a study of institutional funding equity in Missouri.⁴ The study revealed stark inequalities in the funding levels among Missouri’s public institutions after accounting for variation in costs due to different programs and levels, as well as meeting the different needs of different student bodies—some with greater proportions of low-income or first-generation students, adult learners, and students entering college with gaps in their academic preparation. In the four-year sector, the best-funded institution received twice as much money from the state as the least well-funded institution. Inequity was even starker in the public two-year sector and, while it was not under the scope of the study, it is also likely that variation in local funding support exacerbated that inequity.⁵ It is also not apparent exactly how the funding needs of institutions with different missions beyond instruction were to be supported.

Additionally, although Missouri sits close to the national average in state funding per student, there has been considerable volatility in funding from year to year in the state over the past 25 years, despite the supposed predictability of the Base-Plus funding approach (Figure 1). Much of this can be traced to enrollment patterns—the sharp increase in funding in recent years is due large part to declining enrollment, especially in the two-year sector.

⁴ NCHEMS (2019). *A Review of Per-Student Funding at Missouri Public Institutions*. Report produced for the Missouri Department of Higher Education. Table 5.

⁵ *Ibid.*, Table 7.

Figure 1. Educational Appropriations, Net Tuition Revenue, and FTE Enrollment in Public Institutions in Missouri



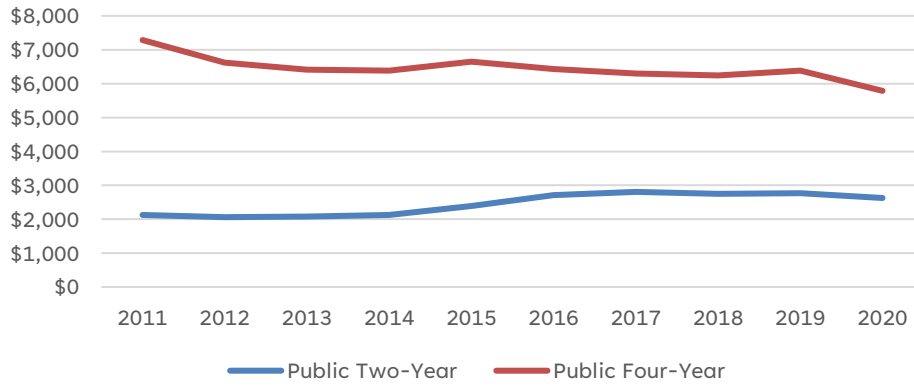
Note: Data are adjusted for inflation by CPI, enrollment mix, and cost-of-living.

Source: SHEEO SHEF.

State appropriations directed to public institutions per student fell in the first half of the last decade in the public four-year sector, and they continue to fall though at a less rapid pace. In the two-year sector, appropriations per student rose between FY 2014 and 2017 but otherwise were relatively flat (Figure 2). Potential issues with the funding approach are revealed by looking at changes in state funding compared with enrollment over the most recent decade (Figure 3). This shows a very close inverse relationship between enrollment levels and funding, suggesting that the Base-Plus approach insulates institutions from enrollment volatility. To an important degree, that is valuable as it assures institutions some predictability as their enrollment levels fluctuate. Yet the state’s funding approach should be responsive to those changes on the margin to ensure that growing institutions have support sufficient to their expanding needs, as well as the opposite circumstance. In the two-year sector, where local appropriations play a critical role in covering the costs of institutional operations, it is difficult to discern a clear pattern that explains how changes in the funding that comes from the state interacts with the availability of local funding,

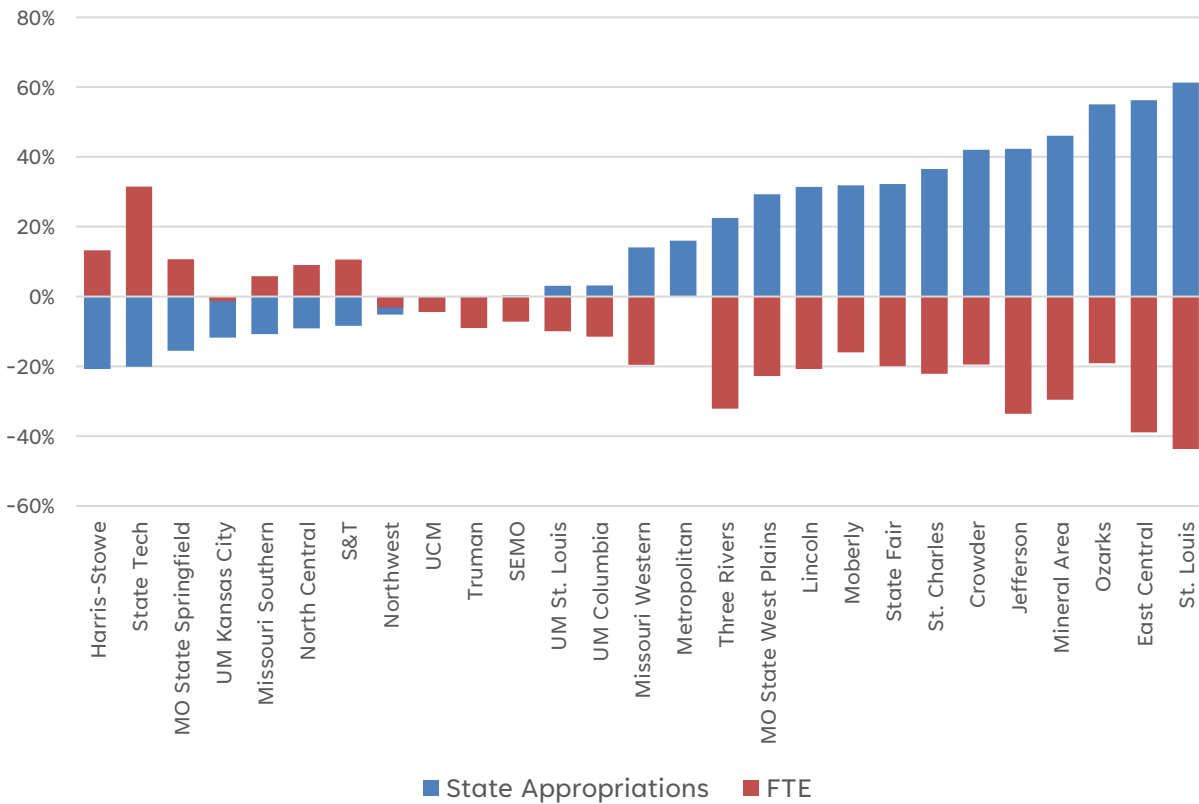
as it so often does in states like Missouri where community colleges are primarily locally owned and governed institutions (Figure 4).

Figure 2. State Appropriations per FTE by Sector in Missouri, FY 2011-2020



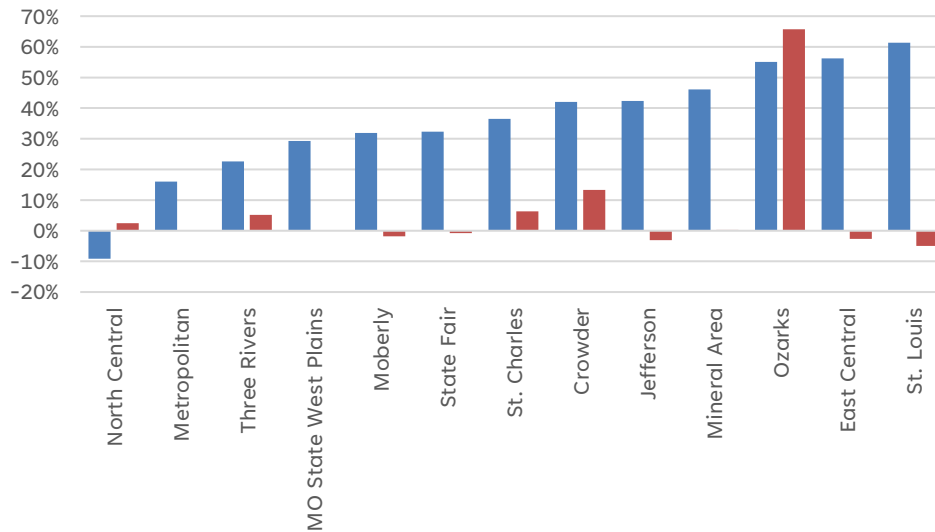
Note: Data are adjusted for inflation with the CPI.
 Source: NCES IPEDS.

Figure 3. Percent Change in State Appropriations per FTE and FTE Enrollment by Institution, FY 2012-2019



Note: Data are adjusted for inflation using the CPI.
 Source: NCES IPEDS.

Figure 4. Percent Change in State and Local Appropriations per FTE, Missouri's Community Colleges, FY 2012-2019



Note: Data are adjusted for inflation using the CPI.
 Source: NCES IPEDS.

All these shortcomings can be overcome by a well-designed allocation model, one that also addresses the needs of institutions for sufficient predictability in funding that supports rational planning while also creating clear incentives to link institutional performance to state goals.

Performance-Based Funding

As the original RFP called for recommendations for a performance-funding model suitable for Missouri, this report provides an overview of research and analysis of such models. In the process, it highlights good practices to be incorporated in any such model and discusses provisions of models in place in select states that share important characteristics with Missouri. Subsequent sections of the report will address how performance provisions that draw on effective practice and research can be integrated effectively into a comprehensive, rational approach to state funding of public institutions.

Over the last decade, interest in enacting policies that reward institutions with funding based on their performance has mounted rapidly. This approach, known as performance-based funding (PBF), has existed in the higher education sector in some form since 1979.⁶ That year, Tennessee became the first state utilizing PBF, followed by the first broad wave of PBF use in the 1990s, with 1-5 percent of state appropriations allocated as a bonus to base appropriations.⁷ By 2020, 31

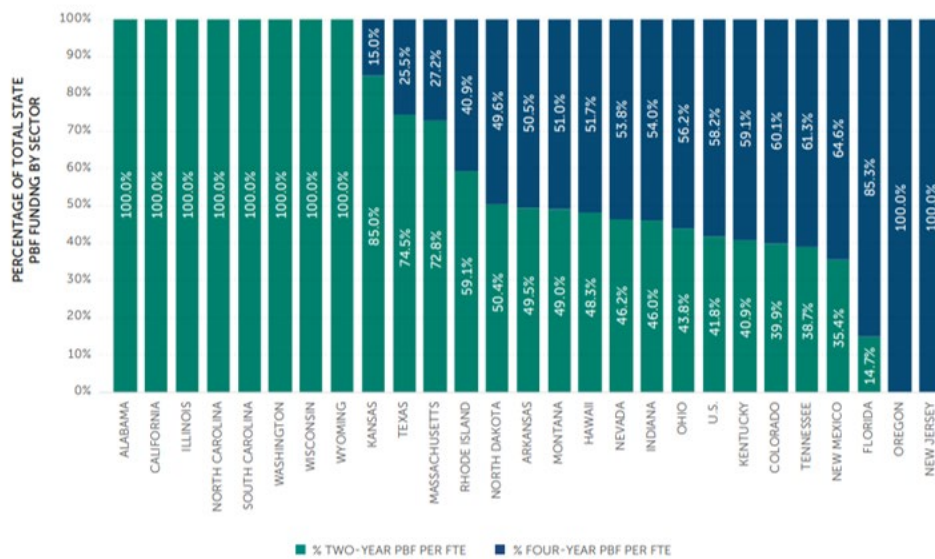
⁶ https://shef.sheeo.org/wp-content/uploads/2020/04/SHEEO_SHEF_FY17_IB_Outcomes_Based_Funding.pdf; https://www.tn.gov/content/dam/tn/thec/bureau/legal/focus/OutcomesBasedFormulaNarrative_ETSU.pdf

⁷ Dougherty, K. J., & Reddy, V. (2013). Performance funding for higher education: What are the mechanisms? What are the impacts? ASHE Higher Education Report, 39(2), 1–152.

states operated funding approaches that incorporated a PBF component.⁸ This number declined to 26 states in 2021—Louisiana, Michigan, Oklahoma, and Utah did not use their PBF formulas in 2021 due to budget reductions. Other states like Missouri may still have PBF approaches in statute but are not funding their use.

There is wide variation across states, systems, and institution types in the amount of performance-based funds provided to public institutions as well as the portion of state appropriations that are distributed based on performance measures (Figure 5). The following graph from SHEEO’s PBF report shows that in FY 2021 eight states used PBF in the two-year sector but not the four-year sector, 17 states used PBF in both sectors, and two states used PBF in the four-year sector and not two-year sector. The graph also shows wide variation in the amount of funding states allocate to institutions in the two- and four-year sectors via PBF, variation which reflects both total funding levels that differ by sector and the relative proportion of sector-level appropriations that is allocated via performance versus other approaches (such as enrollment-based formulas).

Figure 5. Performance-Based Funding per FTE by State and Sector, FY 2021



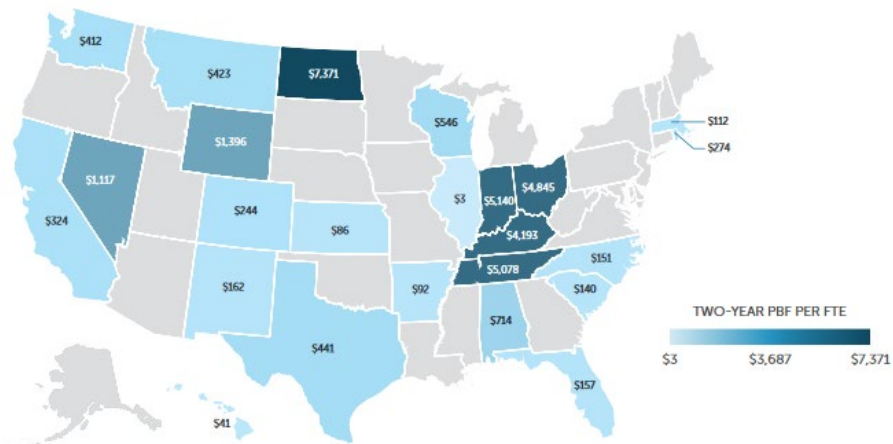
Source: SHEEO.⁹

The following maps illustrate the variation in per student PBF allocations by state for the two-year (Figure 6) and four-year (Figure 7) sector.

⁸ https://shef.sheeo.org/wp-content/uploads/2022/10/SHEEO_SHEF_FY21_PBF_Report.pdf

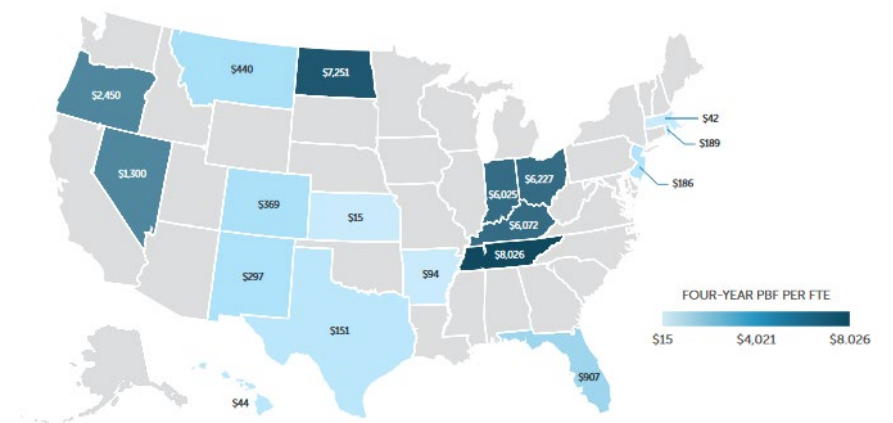
⁹ This figure and the two figures that follow are from Kunkle, K. (2022). *Performance-Based Funding Allocations for Public Higher Education Institutions, Fiscal Years 2020 and 2021*. Boulder, CO: SHEEO. https://shef.sheeo.org/wp-content/uploads/2022/10/SHEEO_SHEF_FY21_PBF_Report.pdf.

Figure 6. PBF Funding per FTE by State, Two-Year Institutions, FY 2021



Notes: Louisiana, Michigan, Oklahoma, and Utah did not utilize their PBF formulas for FY 2021 due to budget reductions. These figures are adjusted for interstate differences using the Cost-of-Living Index. Source: SHEEO.

Figure 7. PBF Funding per FTE by State, Four-Year Institutions, FY 2021



Notes: Louisiana, Michigan, Oklahoma, and Utah did not utilize their PBF formulas for FY 2021 due to budget reductions. Connecticut has a system-level PBF model that is not reported on this map. These figures are adjusted for interstate differences using the Cost of Living Index. Source: SHEEO.

Performance-based funding as a percentage of total operating budgets varies by state and sector. These variations matter because states that allocate a smaller percentage of public operating budgets based on performance may be less likely to have an effect on institutions' behavior or priorities than states that allocate most of their public operating appropriations through PBF. These variations, as well as the inconsistent use of PBF within states through the years, likely contribute to mixed findings on impacts of PBF.

A synthesis of evidence from the growing number of research studies about PBF highlights the importance of considering the broader state policy context and paying close attention to the

policy design for using PBF to bring about desired outcomes in postsecondary education. In particular, a mounting collection of rigorous studies suggest that PBF policies that fail to provide clear incentives to serve target populations such as underrepresented minorities and students from low-income families tend to exacerbate gaps in access and success among those populations.¹⁰ A common problem with PBF is metrics that focus on rates are often easily gamed by institutions who manipulate the denominator (the number of students in a cohort to be tracked to graduation, for example) rather than the numerator (the number of graduates) in order to show improvement. This occurs when institutions take steps to exclude students that tend to struggle academically—the students whose success is critical to achieving state goals in growing the number of educated members of the workforce and in closing equity gaps.

Based on NCHEMS' review of research literature on performance-based funding approaches,¹¹ approaches that seem to work best for supporting the achievement of state goals:

- Are grounded in a clear statement of state goals that have garnered broad bipartisan acceptance.
- Include a process for allocating funding to institutions based on outcomes that are transparent and predictable. Also ensure that changes to the performance metrics are made only after a rigorous process of review and are done infrequently enough that the effects of any changes can be properly evaluated.
- Use the other components of state finance policy to reinforce the outcomes being incentivized. For example, to reinforce incentives for institutions to adopt academic policies and procedures that focus on supporting student success, allocate base funds based on credits completed, not credits for which students enroll.
- Thoughtfully consider how to avoid disadvantaging institutions that disproportionately serve low-income, adult, first-generation, rural, and underrepresented students.
- Ensure that funding not distributed through a performance model has a strong rational basis that reflects mission differences.
- Allocate sufficient funding to steer institutional decisions (that are clearly linked to state goals). Minimally 10 percent of total funding should be distributed based on performance, and the more metrics are included, the higher that percentage should be.
- Allocate funds on the basis of continuous improvement from the baseline rather than creating a fixed goal. Also ensure that institutions that demonstrate improvement are able

¹⁰ Gándara, D., & Rutherford, A. (2018) Mitigating Unintended Impacts? The Effects of Premiums for Underserved Populations in Performance-Funding Policies for Higher Education. *Research in Higher Education*, 59, 681-703. <https://doi.org/10.1007/s11162-017-9483-x>; Hu, X. (2019). Efficiency for Whom? Varying Impact of Performance-Based Funding on Community Colleges in Louisiana. *Community College Review*, 47(4), 323–359; Ortagus, J. C., Kelchen, R., Rosinger, K., & Voorhees, N. (2020). Performance-Based Funding in American Higher Education: A Systematic Synthesis of the Intended and Unintended Consequences. *Educational Evaluation and Policy Analysis*, 42(4), 520–550. <https://doi.org/10.3102/0162373720953128>.

¹¹ Jones, D. (2016). Outcomes-Based Funding: Taking Stock (Indianapolis, IN: Complete College America). Retrieved October 20, 2022 from https://completecollege.org/wp-content/uploads/2017/09/OBF-Double-Sided-90-COPIES_JP.pdf

to sustain it in subsequent years. Incentives to improve should exist for all kinds of institutions, including those that boast already strong performance, although the policy should be designed with reasonable expectations.

- Limit unproductive competition among institutions, especially by reducing the likelihood that funding support will be based on factors outside of the institution’s control, especially other institutions’ relative performance.

As part of its review of PBF models, NCHEMS investigated the models being used in states with long-standing performance funding models, especially those with similar statewide goals to Missouri and (with the exception of Florida) similar governance models. Summary descriptions of the major features of these models are presented below:

Indiana

Indiana’s performance funding formula has changed several times since it was first used in 2003. Outcomes-based funding accounted for seven percent (\$86 million) of Indiana’s FY 2023 state appropriations—five percent is reallocated from the institution’s base and two percent is new funding. Outcomes metrics used in Indiana are overall degree completion, on-time degree completion, degree completion of Pell students (referred to as at-risk degree completion), STEM degree completion, and persistence. FY2023 funding outcomes are summarized in Figure 8.¹²

Figure 8. Components of Indiana’s Performance Funding Model with Funding Allocations

FY 2023 FUNDING OUTCOMES									
	Total Units	Per Unit Value	Total Unit Value	% of Total		Total Units	Per Unit Value	Total Unit Value	% of Total
Overall Degree Completion Metric					Student Persistence Metric				
18-29 Cr Cert	1082	\$ 1,539.00	\$1,665,198	1.93%	15 CH	86	\$ 205.00	\$17,630	0.02%
1 Yr Cert	3477	\$ 2,052.00	\$7,134,804	8.28%	30 CH (2 YR)	383	\$ 410.00	\$157,030	0.18%
Associate	13	\$ 4,105.00	\$53,365	0.06%	30 CH (4 YR)	180	\$ 410.00	\$73,800	0.09%
Bachelor	685	\$ 8,209.00	\$5,623,165	6.53%	45 CH	242	\$ 821.00	\$198,682	0.23%
Master	288	\$ 4,105.00	\$1,182,240	1.37%	60 CH	552	\$ 821.00	\$453,192	0.53%
Doctoral	39	\$ 2,052.00	\$80,028	0.09%	90 CH	761	\$ 1,642.00	\$1,249,562	1.45%
			\$15,738,800	18.27%				\$2,149,896	2.50%
At-Risk Degree Completion Metric					On-Time Graduation Rate Metric				
18-29 Cr Cert	143	\$ 1,924.00	\$275,132	0.32%	2 Year	363	\$ 10,262.00	\$3,725,106	4.32%
1 Yr Cert	1137	\$ 2,565.00	\$2,916,405	3.38%	4 Year	1997	\$ 20,524.00	\$40,986,428	47.57%
Associate	209	\$ 5,131.00	\$1,072,379	1.24%				\$44,711,534	51.89%
Bachelor	894	\$ 10,262.00	\$9,174,228	10.65%	TOTAL			\$86,158,829	
			\$13,438,144	15.60%					
STEM Degree Completion Metric									
18-29 Cr Cert	321	\$ 1,539.00	\$494,019	0.57%					
1 Yr Cert	725	\$ 2,052.00	\$1,487,700	1.73%					
Associate	61	\$ 4,105.00	\$250,405	0.29%					
Non-Research Institution Bachelor	115	\$ 8,209.00	\$944,035	1.10%					
Non-Research Institution Master	5	\$ 4,105.00	\$20,525	0.02%					
Non-Research Institution Doctoral	1	\$ 2,052.00	\$2,052	0.00%					
Research Institution Bachelor	319	\$ 20,524.00	\$6,547,156	7.60%					
Research Institution Master	34	\$ 10,262.00	\$348,908	0.40%					
Research Institution Doctoral	5	\$ 5,131.00	\$25,655	0.03%					
		\$7,979.00	\$10,120,455	11.75%					

The 10-year change in Indiana’s outcomes metrics is summarized in Figure 9. Overall degree completion and on-time degree completion have been outcome metrics since 2007, at-risk

¹² https://www.in.gov/che/files/Outcomes-Based-Funding-Primer_Final.pdf

degree completion since 2009, STEM degree completion since 2019, and student persistence since 2013.

Figure 9. Change Over Time in Metrics Employed in Indiana’s Performance-Based Funding Model

			10-Year Change
Overall Degree Completion		All Degrees and Certificates	55%
On-Time Degree Completion	On-Time Number of Completers	Associate	180%
		Bachelor's	96%
		Total	101%
	On-Time Graduation Rate	Associate	11%
	Bachelor's	19%	
At-Risk Degree Completion		All Degrees and Certificates	137%
STEM Degree Completion		All Degrees and Certificates	89%
Student Persistence Incentive	2-Year Institutions	Completed 15 CH	0%
		Completed 30 CH	6%
		Completed 45 CH	3%
	4-Year Institutions	Completed 30 CH	2%
		Completed 60 CH	13%
		Completed 90 CH	13%



Indiana is currently considering a new approach to funding higher education that would shift performance funding to “prospective funding” (additional funding an institution can earn through performance on top of base funding) by converting funding an institution earns through improvements in performance to base funding in the following biennium, and by preserving the amount of prospective funding an institution was unable to earn in a given year, allowing that institution to earn it in subsequent years. The proposed approach also seeks to set targets that are more individualized by institution and to move away from competition among institutions by allowing institutions to show improvement against their prior performance rather than against other institutions for funding based on performance.¹³

Kentucky

Governor Bevin signed performance-based funding into law in 2017. Kentucky’s funding model seeks to increase enrollment and retention of academically qualified degree-seeking students, encourage full courseloads to increase timely completion, increase graduation rates and

¹³ https://indianacapitalchronicle.com/2022/10/27/commission-recommends-new-funding-model-for-higher-education/?utm_source=ECS+Subscribers&utm_campaign=af1c8d1f95-ED_CLIPS_10_31_2022&utm_medium=email&utm_term=0_1a2b00b930-af1c8d1f95-53612431

produce more degrees (especially among underserved student populations, and perform above sector average on student success metrics.¹⁴ The funding model allocates 30 percent of state funding to support basic campus operations, services, and infrastructure; 35 percent based on course completion (based on share of earned student credit hours weighted for cost differences by course level and discipline); and 35 percent based on performance. Performance metrics for four-year institutions are: bachelor’s degrees earned—with bonuses for bachelor’s degrees earned in science, technology, engineering, math, and health sciences and bonuses for bachelor’s degrees earned by target populations (underrepresented minorities and low-income students); progression metrics to incentivize intermediate milestones (30, 60, and 90 credit hour completion); and productivity defined as degrees relative to enrollment.

One of the key features of implementation has been the hold harmless and stop loss provisions used during the transition into the new funding model. Under these provisions, the maximum possible redistribution (transfer of funds among institutions due to the model) was set at three percent over three years.¹⁵ As required by statute, the work group that led the development of the funding formula will reconvene every three years to monitor the model’s performance, identify any unintended consequences, and recommend adjustments if necessary.¹⁶

Louisiana

Louisiana’s formula funding model has base, cost, and outcomes components. The base component is the institution’s allocation in the prior year. Variables included in the cost component are summarized in Figure 10.

Figure 10. Components of Louisiana’s Funding Formula

Cost Portion Funding Formula by Component	
Core Cost Component	Weighted Student Credit Hours includes student credit hours by institution multiplied by the cost weights by discipline. Base Student Credit Hour value is comprised of average faculty salaries and benefits, class size, student workloads, and academic support/services.
Operation of Plant and Maintenance	Net assignable square footage for instruction and research at an institution. Base dollar amount per square foot for instruction and base dollar amount per square foot for research tied to the Consumer Pricing Index.
General Support	A functional expense category that includes expenses for day-to-day operational support, general administrative, fiscal, and executive level services of the institution.
Underrepresented Minority Cost Factor	The difference between underrepresented minorities average cost and the average cost calculation is multiplied by the FTEs of underrepresented minority students at each institution.
State Share by SREB Category	The State’s share of total funding for each institution per SREB category.

¹⁴ <http://www.cpe.ky.gov/news/presentations/022819-perffunding-houseapproprevenue.pdf>

¹⁵ <http://www.cpe.ky.gov/news/presentations/022819-perffunding-houseapproprevenue.pdf>

¹⁶ <http://cpe.ky.gov/ourwork/performancefunding.html>

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The outcomes component includes metrics for retention and progression weighted by level, completers weighted by level, time-to-award (with heavier weights applied to students earning an associate's or bachelor's degree in less time), the number of students cross-enrolled at two- and four-year institutions, the number of transfers from two- to four-year institutions, federal research expenditures, the number of completers in programs leading to four- and five-star jobs (jobs with high wages and high growth in Louisiana), and bonuses for completers that are underrepresented minorities (Black, Hispanic, Native Hawaiian/Pacific Islander, American Indian/Alaskan Native, and those reported as two or more races), adults (age 25 and above), and Pell-recipients. Louisiana's model aims to incentivize institutions to achieve greater student success; meet economic development and workforce needs; promote research and innovation; and provide funding for the costs of credit hour, certificate and degree completion.¹⁷ The base, cost, and outcomes components make up 100 percent of funds appropriated by the legislature. The share of each of the three components is determined by the Board of Regents each year. In fiscal year 2020 \$305.7 million (63 percent of state funding) was allocated to the base component, \$82.5 million (17 percent) to the cost component, and \$97 million (20 percent) to the outcomes component.¹⁸

Tennessee

Tennessee's funding formula is used to allocate 100 percent of the total state appropriations to public institutions and is comprised of three major components: weighted outcomes, fixed costs, and quality assurance funding. Tennessee uses a three-year average of the following outcomes (for four-year institutions): credit hour accumulation (30, 60, 90 hours); completions; research, service, and sponsored programs; six-year graduation rate; and degrees per 100 FTE. Outcomes for adult and low-income students come with a premium.¹⁹ Outcomes are weighted to align with each institution's mission. An institution's share of total funding is driven by its change in performance outcomes compared to peer institutions—an institution can increase their appropriation share by increasing its performance compared to its own three-year average or by increasing its performance at a greater rate relative to other institutions. The fixed costs component allocates funds for the costs incurred by institutions for maintenance and operations, utilities, equipment replacement, and rent. The quality assurance component provides institutions up to an additional 5.45 percent of funding based upon metrics such as licensure pass rates, accreditation, and success with underrepresented populations. Approximately 78 percent of state appropriations to public institutions are allocated based on weighted outcomes, 17 percent based on fixed costs, and five percent

¹⁷ <https://www.laregents.edu/wp-content/uploads/2021/07/LA-Outcomes-Based-Formula-Overview.pdf>

¹⁸ <https://regents.la.gov/wp-content/uploads/2021/07/Funding-Formula-Summary-FY22.pdf>

¹⁹ https://www.ibhe.org/assets/files/Funding/2022/May/1-Outcomes_Based_Funding_Formula_Overview_One_Page.pdf

based on quality assurance metrics. In 2017-18 approximately \$913 million was allocated based on the formula.²⁰

Colorado

Colorado's funding allocation model consists of a College Opportunity Fund (COF) stipend for resident undergraduate students, a role and mission component, and an outcomes component. The COF stipend must equal at least 52.5 percent of total state appropriations and is calculated as the number of credits multiplied by a determined amount of dollars per credit. The role and mission component is intended to offset the cost of providing academic programs not covered by COF, and the amount is determined by weighted student credit hours (based on the institution's role and mission and recognizes differences in costs based on subject and level). A bonus is provided for credit hours completed by Pell-eligible students. The outcomes component includes completion, retention and institutional productivity measures. The completions measure rewards completions and transfers weighted by academic award level and provides bonuses for Pell and STEM+H (Science, Technology, Engineering, Math, and Health) completions. The retention measure rewards academic progress, measured and weighted by the level of progress (25 percent, 50 percent, 75 percent). The institutional productivity measure rewards institutions' performance in terms of awards conferred relative to size. A peculiar feature of Colorado's model is that increases in the number of Pell recipients increases the amount of state funding flowing to institutions through the role and mission component, money that comes from an equivalent reduction in the amount of funding that is distributed through the outcomes component. The Colorado Commission on Higher Education may make recommendations on formula structure—mainly regarding the portion of funding flowing to each component and the weighting of performance variables.²¹

Ohio

Ohio directs state funding to institutions through a mechanism it calls the "State Share of Instruction" (SSI), which is based on a formula that incentivizes completions of courses and programs. The SSI calculation differs for four-year and two-year institutions in the state. For universities, it allocates 30 percent of the funding to completed courses (measured as completed FTEs) and 50 percent to degree completion, with the remaining amount allocated based on "set-asides" for doctoral and medical education.²² Both of the former components of the model incorporate weights to account for costs that vary by discipline and level.

Additional weights are applied for completions by at-risk students—those who have incomes

²⁰ https://comptroller.tn.gov/content/dam/cot/orea/advanced-search/2017/2017_OREA_OutcomesBasedFundBrief.pdf

²¹ <https://cdhe.colorado.gov/sites/highered/files/documents/CCHE-Retreat-Presentation.pdf>

²² Ohio Department of Higher Education (2022). *State Share of Instruction Handbook: Methodology for Allocating State Share of Instruction Funds for Fiscal Year 2023. For Use by University Regional and Main Campuses*. https://highered.ohio.gov/static/files/uploads/financial/ssi/FY2023_SSIHandbookUniversity_final%20draft_06282022.pdf

below a given threshold, have low standardized test scores, or have completed developmental course work. Non-resident students who remain in Ohio one year after graduation are counted as one-half of a degree. The “at-risk” designation for the degrees completed measure includes students who began college after age 22, underrepresented racial/ethnic populations, and first-generation students in addition to the low-income and academic preparation weights.

In the two-year sector, Ohio allocates 50 percent of SSI funding based on course completions, 25 percent for success points accumulation, and 25 percent for completion milestones.²³ Success points are awarded for completing a college-level math or English course within 30 SCHs and for completing 12, 24, and 36 SCHs of college-level coursework. Completion milestones include degrees, long-term certificates, and transfer to a four-year institution (for those students who have earned at least 12 SCHs prior to transfer). Weights are awarded for the course completions and completion metrics for students who are considered “access” students—those over age 25 when they enroll, Pell-eligible students, African-American, Hispanic, or American Indian students, and students assessed to be academically underprepared.

Florida

Florida has separate governing boards for its State University System and its College System, each of which operates a performance funding model to allocate a portion of its respective state appropriation to its constituent institutions. First approved in 2014, the Florida SUS approach involves 10 separate metrics and institutions are eligible to earn performance points based on Excellence or Improvement.²⁴ Thresholds enabling institutions to earn between zero and 10 points are set for each of the metrics. Excellence thresholds are simply levels established by the SUS, while Improvement thresholds are set as percent increases over prior performance by each institution. Institutions receive points for either Excellence or Improvement, whichever is greater, and institutions must reach a minimum threshold of total points to be eligible to receive any funding from the PBF policy. Such institutions are obligated to submit a performance improvement plan to the system. Metrics include:

- Percent of bachelor’s graduates making above a specified level of wages (\$30,000 in 2022), or are subsequently enrolled, one year after graduation.
- Median wages of bachelor’s graduates employed one year after graduation.
- Net tuition and fees per 120 SCHs.
- Four-year graduation rate among first-time students enrolled full-time.
- Second year retention with a GPA above a specified level (2.0).
- Bachelor’s degrees awarded in fields of strategic emphasis.

²³ Ohio Department of Higher Education (2022). *State Share of Instruction Handbook: Methodology for Allocating State Share of Instruction Funds for Fiscal Year 2023. For Use by Community and Technical Colleges*. https://highered.ohio.gov/static/files/uploads/financial/ssi/FY2023_SSIHandbookCollege_final%20draft_06282022.pdf

²⁴ <https://www.flbog.edu/finance/performance-based-funding/>

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- Master's degrees awarded in fields of strategic emphasis (two SUS institutions with no master's degrees has an alternate measure).
- Percent of undergraduates in receipt of a Pell Grant.
- Two-year graduation rate for incoming transfer students with an associate's degree.
- Six-year graduation rate for Pell recipients.
- A metric defined by the institution

The Florida College System operates a performance-based incentive program that relies on four measures:

- Retention rate, which captures first-time students who reenroll at the same institution in the fall term of their second year.
- Completion rate, which accounts for the students who earn a degree, certificate, or diploma within a specified time frame. The completion rate metric is weighted for Pell recipients.
- Postgraduate employment or continuing education rate, which is measured at 12 months after completing a degree, certificate, diploma, or apprenticeship.
- Entry-level wages, which captures the gap between the average wage earned by an institution's completers and the reported entry-level wage in the institution's service area.

As with the SUS policy, the Florida College System also relies on Excellence and Improvement benchmarks to award points to institutions. Institutions that fail to reach a minimum threshold are ineligible to receive performance funding and are obligated to submit a performance improvement plan. Institutions that exceed this minimum threshold but whose point total falls more than one standard deviation from the mean of all institutions will not receive any performance funding. Any institutions with a point total above one standard deviation receive their own performance funding and a prorated portion of the funding that was forfeited by the institutions in the two lowest categories.²⁵

Subsequent analyses will assess the impact of the PBF policies in these states to identify lessons to be applied to the model to be recommended in Missouri.

Basic Principles

Based on NCHEMS' research into other states' funding approaches and our own deep experience, we propose a set of basic principles to guide the design and implementation of the funding model, including provisions to incentivize institutional performance. This set of principles has been reviewed by Department leadership and institutional leaders, with adjustments made in accordance with feedback received, is as follows:

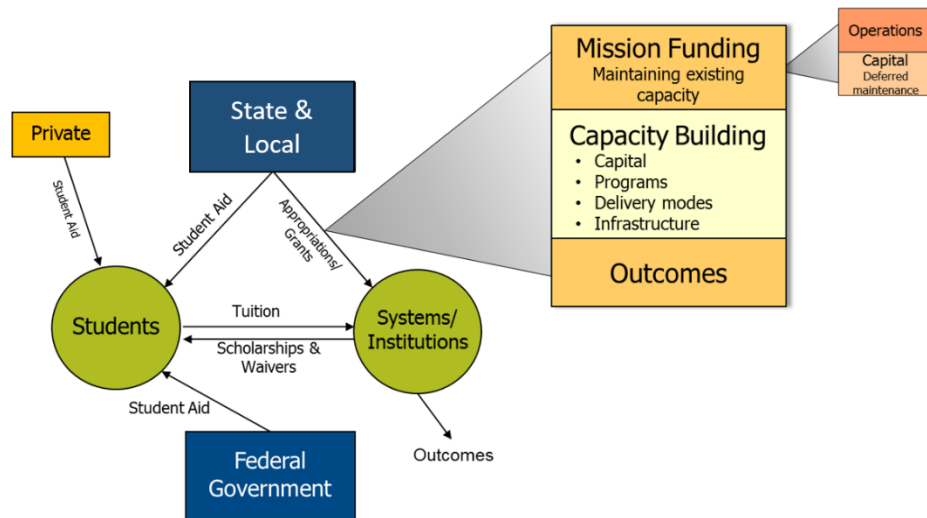
²⁵ Florida Administrative Code 6A-14.07621. <https://www.flrules.org/gateway/RuleNo.asp?id=6A-14.07621>.

Design Principles

1. The funding model should be developed in the context of the full array of higher education funding flows that support institutional operations, including:
 - a. Appropriations to institutions—those amounts provided by the state and, for two-year institutions, local governments.
 - b. Tuition and fee revenues.
 - c. Student financial aid—primarily grant aid from all sources—federal, state, private, and institutional aid in the form of scholarships and waivers.

Figure 11 below illustrates the relationships among these funding flows. The allocation model being developed deals with the mission (operations component only) and outcomes components of the model. It recognizes the need for capacity-building funding but does not provide calculation routines for specifying the amounts of such funding.

Figure 11. The Flow of Funds



2. The funding model should be aligned with a set of agreed upon priorities, such as those specified in MDHEWD’s Strategic Plan. In particular, the model should create incentives for a.) increasing the number of postsecondary credentials produced annually, thereby increasing the educational attainment levels of the state’s population and b.) responding to workforce needs in the state and contributing to workforce participation rates.
3. In order to align funding with completion goals and workforce needs, improved student success should be at the core of the funding policy. This means that:
 - a. Institutions should be provided with funding that is adequate to support the fulfillment of their different missions—to pay for the array of programs they offer and provide the particular support services required to ensure the success of the students they enroll, with their varied needs. The objective should be to fund institutions at a “frugal” level—sufficient to meet needs but not extravagant.

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- b. Institutions should be held accountable (and rewarded) for contributing to established state priorities. This means that there should be a performance or outcomes component to the funding model that rewards institutions for their contributions toward the achievement of the state goals.
 - c. Efficiency of operation and collaboration in the delivery of services should be incentivized in the design of the allocation model. In this regard, the model should help to dampen competition for programs and students and reward institutions that work together in ways designed to improve efficiencies in operations and create more options for students at lower costs.
- 4. The design of the model must recognize the differing governance structures of institutions. Allocations are made to Boards, not to individual institutions. As a result:
 - a. The University of Missouri must be treated as a single institution with allocation to the individual campuses in the system to be determined by the Board of Curators.
 - b. The same is true for St. Louis Community College and Metropolitan Community College with allocations to individual campuses made by their respective Boards of Trustees.
- 5. The performance component of the model should be designed in such a way that it is a funding model, not an allocation model. For example, each unit of output should generate a fixed amount of funding. This in opposition to a model that allocates a fixed pool of performance money to institutions based on their shares of the outcomes produced. This latter approach too often creates situations in which institutions lose funding even when they improve performance, but other institutions that improve at a higher rate receive a preponderance of the available funding. This circumstance, though not uncommon in PBF models, corrodes the legitimacy and effectiveness of the model. Institutions that show improvement but fail to see a financial benefit are unable to sustain and enhance the practices that created the improvement, even if their motivation to seek performance improvements remains undiminished (a supposition that strikes at the core of the intent behind such funding models).
- 6. Performance funding must be designed in a way that meaningfully incentivizes continuous improvement at all institutions while simultaneously recognizing that institutions have differing levels of capacity and room for improvement. Once an institution approaches a specified threshold for high performance, it should be rewarded for maintaining that level of performance, not penalized for failure to make additional, increasingly demanding improvements.
- 7. Institutional funding should be provided at levels that allow affordability for students to be maintained. For state goals to be reached, more students will have to enroll and be retained. This can only occur if affordability is not a barrier to initial and continued enrollment.

Implementation Principles

- 1. The implementation of the new model should occur over multiple years, ideally 3-4 years, to allow for institutions to react to new incentives and plan effectively. This

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implementation timeline also recognizes that institutions will need time to adapt to equity adjustments.

2. Implementation should recognize that there will likely be reallocations of state funds among institutions. Institutions should not be held harmless, but stop-loss and stop-gain provisions should be incorporated into the implementation plan during the transition period. Such provisions limit how much institutions can lose or gain in any one year during the transitional period. A less desirable alternative is hold institutions harmless but preclude them from receiving new monies until all equity adjustments have been made. This problem can be alleviated by special equity allocations that serve to level the playing field early in the implementation process.
3. The allocation model should be used both in years when appropriations increase and when they decrease. In years when total appropriations decrease, the amount for each institution should be calculated, these amounts summed, and a proportional decrease applied to each institution in order to bring request and allocation into balance.
4. Achieving equity in the base funding levels across institutions should be considered simultaneously with performance funding. As long as there remains inequity in institutional funding, state support should be provided in larger shares based on resolving that inequity. Once equity is achieved, a greater proportion of state funding can be devoted to performance. This balance should be monitored and may need to be readjusted periodically.
5. The funding model to be adopted should be “owned and operated” by the Missouri Coordinating Board for Higher Education in order to ensure that it can be flexible enough to adapt to changing conditions rather than requiring changes be made through the legislative process. In practice, this means that the specifications of how the model works, the variables to be used and their values, etc. should not be inscribed in statute, but rather be managed by MDHEWD and supported through a regular and consistent review process involving consultation with the institutions and policymakers.

The Underlying Conceptual Framework

The conceptual framework, developed by NCHEMS and used to good effect in other states, that provides a foundation for the study is presented in simplified form in Figure 12. This diagram conceptualizes the full operational costs of a public institution by dividing those costs into broad categories and assigning a funding responsibility for each.

Figure 12. Institutional Adequacy Conceptual Framework (Simplified Version)

		Expenditure Type Category	Funding Responsibility
Funding Model		Non-Instructional Mission-Related Activities and Other Activities	External Funders & Self-Support
		Capacity Building	Mix (State/Local, Tuition, & External Funders)
		Performance	State/Local
		Variable Costs	Mix (State/Local & Tuition)
		Fixed Costs	State/Local

For application in Missouri, a model with the following components is being recommended.

1. Fixed costs—reimbursement of costs that are *relatively* impervious to the total enrollment of the institution, but which reflect a “frugal” level of funding needed for administrative operations, as well as to maintain the value of the institution’s assets at current levels.
2. Variable costs—funding to cover costs that vary in accordance with the number of semester credit hours (SCH) produced, differentiated by discipline and level, and in accordance with the characteristics of students served by the institution.
3. Performance—funding based on contributions made to goals established in the Department’s strategic plan. The plan emphasizes improvements to education attainment (especially among Blacks, Hispanics, and residents of rural Missouri) and to workplace participation among those same populations. In spite of the fact that improvements in outcomes for specific racial groups is an explicit goal in the Department’s Strategic Plan and contrary to research that race/ethnicity has its own separate effects on student outcomes that are not fully addressed by alternative variables, it may be that use of race as an explicit factor in the funding model will not be acceptable to key decision-makers. If so, outcomes for Pell recipients may be recommended as a partial proxy, potentially supplemented by information about student characteristics that research shows are related to lower rates of academic success (e.g., age, first-generation status, English-language-learners²⁶).

²⁶ Levin, J., Baker, B., Lee, J., Atchison, D., & Kelchen, R. (2022). *An Examination of the Costs of Texas Community Colleges*. Institute of Education Sciences, Regional Education Laboratory Southwest. https://ies.ed.gov/ncee/rel/regions/southwest/pdf/REL_2023142.pdf.

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4. Capacity Building—this category captures investments in new programs/capacity or enhancements to existing capacity. These are allocations that are made to institutions that are outside the scope of the funding model. It is appropriate to consider certain existing Missouri programs under this category. One such example is the MoExcels Workforce Initiative, which makes funding available to support employer-driven education and training initiatives proposed by institutions. Activities funded through MoExcels that achieve performance goals may have their costs rolled into the institution’s base funding support.
5. Non-Instructional Mission-Related Activities and Other Activities—this category covers institutional costs for activities that are largely self-supporting. This includes research and public service activities that are funded externally, and which tend to pay for their own direct costs and contribute revenues that cover indirect operational costs (as well as capital expenditures). It also includes the costs of other activities such as housing, athletics, museums, performing arts centers, and the like, which are typically expected to pay for themselves. In numerous states there is an explicit prohibition against the use of state funding for the support of such activities.

As indicated in the diagram above, the portion of institutional funding requirements that the new funding model will address includes only the fixed and variable costs and the performance component.

The simplified version of the conceptual framework is expanded to show more detail in Figure 13. This more detailed view offers a new lens for looking at institutional costs and funding requirements. It does so by unbundling the elements of what has traditionally been called “Education and General” or “Education and Related” expenses, which combine institutional costs for delivering instruction, administering the enterprise, and caring for its assets into a single, largely opaque value that purportedly represents the costs of doing business in higher education. Instead, the more detailed framework captures the elements of the fixed and variable costs in ways that make explicit the levels of funding necessary to support an institution’s essential administrative core at an appropriately “frugal” level; assure that the assets held by an institution on behalf of the state are maintained at an adequate level; provide for the instruction of students enrolled in programs that vary in cost by size, level and discipline; and support the success of those students through funding that is sensitive to the differing student characteristics at different institutions. Incorporating a performance element into the framework is intended to assure that incentives exist to drive improvement in the achievement of state goals. Beyond that, the framework accounts for the additional funding institutions require to develop new or enhanced capacity, to be initially provided outside of the funding model as seed support. It also accounts for recurring activities undertaken in the public interest that may be partially paid for by the state. Finally, the framework captures costs associated with activities that are traditionally self-supporting.

Figure 13. Institutional Adequacy Conceptual Framework

		Category	Function and Roles	Funding Responsibility
Funding Model	Not (Primarily) Instruction	Other	Advancement, auxiliaries, athletics, etc.	Institution
		Externally Funded Research and Public Service	Grants management, community engagement, museums, arts, extension services	External Funders
	Strategic Goals	Purchase of Goods and Services	Funding for specific purposes, i.e., applied research on a particular topic of special interest (e.g., public health), incentives to seed and support shared academic program delivery, noncredit offerings	Mix (State & External Funders)
		Capacity Building	Funding needed to start new programs or fund initiatives prioritized by the General Assembly, the Governor's office, or through another planning process with institutions	Mix (State/Local, External Funders, & Tuition)
	Variable Costs	Performance	Factors in the model that recognize: activities related to strategic plan, closing equity gaps, economic development	Mix (State/Local)
		Audience	Semester credit hours (SCH) weighted by student characteristic(s) or added weights applied to headcount	Mix (State/Local & Tuition)
		Scale	Semester credit hours (SCH)	Mix (State/Local & Tuition)
		Scope	Semester credit hours (SCH) weighted by level and discipline	Mix (State/Local & Tuition)
		Fixed Costs	Asset value preservation / maintenance	Shares of facilities replacement value of facilities, technology value, payroll (for professional development)
	"Frugal" foundational funding		Benchmarked against similar institutions with relatively low spending on administrative expenses	State/Local

With respect to the diagram, these categories break down into the following (starting at the bottom and moving up):

- Foundational – expenses necessary for the core administration of the institution: employing the senior institutional leaders who will perform essential functions related to governance, information technology, audit/accounting and other compliance-related activities, human resources, etc.
- Maintenance/renewal – operational expenditures required to ensure that institutional assets are appropriately tended at a level and in a manner that prevents further depreciation (i.e., existing conditions do not worsen); these include maintaining physical facilities,²⁷ addressing regular equipment needs, assuring curricular relevancy, and supporting professional development, as well as planning activities that ensure the institution maintains its ability to serve its mission.
- Scope – expenses related to the array of academic programs and account for variation in the costs of programs with different costs of delivery.
- Scale – expenses related to the size of the enterprise; more students require more classes, faculty/staff, support services, equipment, etc.

²⁷ This relates to operational maintenance costs, not capital costs. These are the costs that are intended to keep deferred maintenance backlog from getting any worse, not to make progress in reducing that backlog.

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- Audience – expenses related to serving different populations of students whose needs for support services vary by type and magnitude.
- Performance – expenses associated with efforts to stimulate continuous improvement in institutional performance according to a set of established priorities, as well as the infrastructure to sustain a culture of innovation and reliance on high-quality data.
- Capacity building – start-up expenses necessary to add new programs, implement new interventions intended to yield more effectiveness, scale best practices, etc.
- Purchase of goods and services – expenses associated with distinctive mission-specific costs such as the pursuit of activities related to unique statewide academic programs, state-funded research, Land Grant and other public service activities, and other endeavors that serve specific state needs.
- Externally funded research and public service – expenses associated with carrying out grant and contract-funded activities that are neither institutionally funded nor funded by the State of Missouri.
- Other – expenses associated with all other functions, including advancement, auxiliaries, athletics, and other independent operations, etc.

An important purpose of the institutional adequacy framework is to help policymakers better understand the links between institutional costs and funding requirements. At its most basic, the framework suggests that there is a minimal amount of expense associated with operating an institution that the state—and local governments in the case of Missouri’s community colleges—is obliged to cover. This “frugal” funding level represents what is necessary to preserve the institution’s value as a state (and local) asset. Just as Missouri’s ownership of any of its state parks incurs costs even when it attracts no fee-paying visitors—for oversight of the park system, financial services, environmental compliance, road and structure maintenance, search and rescue capabilities, etc., costs which are exclusively the state’s responsibility to pay—so does ownership of its public colleges and universities require funding support for core administrative functions.

This level of unavoidable expenditures is represented in the diagram by the Foundational and Maintenance/Renewal categories (the two categories in blue). The dark blue Foundational funding component refers to the expenses necessary to operate the core administrative functions. The light blue Maintenance/Renewal category reflects the expenses necessary to keep the state/local asset from deteriorating, not to make improvements in the institution’s conditions. In addition to maintaining facilities and doing regular equipment upkeep, it is also important to recognize that a higher education institution—which must count its curriculum among its most critical assets as well as the faculty who renew, support, and deliver it—incurs costs for curricula revision and professional development to maintain the value of those assets.

This minimal level of funding represents what is necessary to maintain the institution’s value as a delivery site to student populations and communities that, in the institution’s absence, could not be served effectively (or possibly at all). Accordingly, it is especially important to understand that smaller institutions have less capacity to spread their fixed costs over more students to benefit from economies of scale, making the recognition of these core costs all the more crucial in a

funding model. In effect, these two categories are conceptualized as the funding support that is necessary simply to open an institution's doors and to preserve its value as a state (and local) asset. No tuition or other revenue should be expected to bear the burden of these "value preservation" costs, which is solely the responsibility of the asset's owner. Tuition revenue should be reserved to pay for instructional costs—those that are reflected in the Scale, Scope, and Audience categories—and to support other operational costs associated with organizational capacity and enhancement.

Next in the framework are the variable costs. These costs represent the direct expenses of the instructional mission, and they vary among institutions based on:

- Scale—the number of students enrolled.
- Scope—the mix of programs by field and by level—upper-division or graduate courses in engineering are more expensive to offer than lower-division general education courses.
- Audience—the needs of the students being served; students who are older or who come from low-income, first-generation, or underrepresented backgrounds tend to require additional support as they make their way into college and on to a degree. Growing the number of educated members of the workforce requires attention to meeting the needs of students being served.

The variations in scale and scope are addressed most commonly by using weighted semester credit hours (SCH), with the weighting determined by research on the relative costs of different disciplines at different levels while variations in audience are based on the additional resource requirements necessary to improve the likelihood that all students will be successful. It is important to note here that these all represent current costs, particularly those relating to the characteristics of students. That is, this reflects the actual costs an institution incurs to produce awards at the current pace with its current population of students. Changes to any of the elements of this production function may require additional funding—improving the success rates of academically underprepared students bears additional cost, as does serving a larger number of students.

The next component in the conceptual framework is funding to support performance improvement and incentivize institutions to link their activities and investments to the achievement of state goals. These are the priorities expressed in MDHEWD's strategic plan—raising the educational attainment of the working-age population to 60 percent and the labor force participation rate to 70 percent, and eliminating equity gaps (among Black, Hispanic, and rural populations) in both measures, by 2030. The actual metrics to be used in this component need additional research and analysis. As addressed later in this report, the performance component should follow effective practice such as:

- The total amount of funding available through performance incentives should be sufficient to garner the attention of institutions.
- The set of metrics should be as straightforward, transparent, and as few in number as possible.

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- Provisions should be made to avoid creating perverse incentives; additional weights should apply to hard-to-serve populations in order to ensure that institutions can be rewarded for being successful with a larger number of such students.

In addition, the performance component should be designed to limit the extent to which it breeds competition among institutions for the available funding. Institutions that show improvement on the metrics should be able to count on additional funding regardless of how well other institutions perform.

Additionally, the conceptual framework recognizes that not only do institutions require additional funding to create new programs or grow existing worthy activities, but the state's political leadership will want to make specific investments in postsecondary education outside of what the funding model estimates is required for supporting the public institutions in their current configurations. The framework creates space for these investments in two ways: investments in added capacity and allocations made to provide for the purchase of specified goods and services.

Investments in added capacity are intended to build institutional capacity to better meet clearly defined state needs in priority areas. Such investments may be directed to one or more specific institutions—for instance, to assign an institution the task of developing a new program that meets a specific workforce need in a geographic area. This kind of capacity-building investment should be non-recurring; although it may require multiple years of funding to get a new program off the ground, it should be able to stand on its own at some point in the reasonably short term. As this new capacity develops and comes online, the results should be observable in the scale, scope, and audience components of the framework. In other words, with respect to investing in capacity, the state is not expected to fund the related activity outside of the funding model in perpetuity.

Given the imminent challenges created by the anticipated decline in prospective students enrolling direct from high school, investments in added capacity include seeding collaborations among multiple institutions²⁸. Such funding support may serve to stimulate collaborations that show promise for creating efficiencies that spread across multiple institutions or ensuring that academic programs are more widely available without requiring individual institutions to set up new programs. This is particularly important in less-populated areas where demand is likely to be more sporadic or where associated costs are simply too great. As collaborations become more established and entrenched within participating institutions' operations, the state can look for new investments. However, there may be cases where there is an ongoing need to sustain worthy collaborative activity, as noted in the "purchase of services" description that follows.

A second set of payments to be made by the legislature occur when one or more institutions is effectively a preferred vendor for a product or service that it is specially equipped to provide. These purchases of goods and services may or may not be a source of recurring funds to the individual institutions, but there is not the same expectation that the investments will generate

²⁸ <https://knocking.wiche.edu/wp-content/uploads/sites/10/2020/12/Knocking-pdf-for-website.pdf>

new capacity that can gradually be reflected in the funding model. Among the activities that fall into this category are:

- State-funded research activity (typically applied research that is distinct from research activity funded by other partners including the federal government).
- State-funded public service activity.
- Regional economic development or other civic initiatives.
- Non-credit programming.
- Funding that is necessary to support collaborative activity across multiple institutions that a) would not occur in its absence and b) has the effect of promoting greater operational efficiency across the group of participating institution or supports academic programming to reach specific populations or meet a clear state or regional need. In such cases, the “service” to be purchased is effectively to counteract a market failure.

Finally, this conceptualization is designed to inform strategic discussions about the balance of revenue sources of different institutions appropriate to their varied missions and the characteristics of their student bodies. Institutions face different conditions in their respective markets, leaving some more vulnerable than others to proportional cuts in state spending. Although it can be difficult to draw a bright line between these categories in accounting data, to the degree that data are available and sufficiently accurate to measure these categories, then the framework also provides quantitative guidance for allocating funding to institutions.

NCHEMS anticipates that funding model will be designed based on the principles and conceptual framework described above. While it is premature to specify the exact form the model will take—the variables and weights to be included in the funding model for each component detailed in Figure 3—the recommendations will address steps to be taken to develop the details of the funding model that can be advanced for consideration by the legislature in the 2024 session. As work progresses on the operationalization of this model, NCHEMS and MDHEWD will be consulting with institutions and their representatives on an advisory body in order to ensure that there has been sufficient input concerning these details, including definitions (of terms such as adequacy and equity), metrics, and the data to be used to support the model.

Monitoring the Adequacy of State Funding

Once the funding model is in place and is being used to allocate the state appropriation for the on-going operations of institutions of postsecondary education in the state, it is important that the performance of the model be monitored on an annual basis. Such monitoring is required to ensure that the model is achieving the desired results—adequate and equitable funding for institutions and affordable education for students—and is not yielding negative unintended consequences. To make this assessment, all that is required is a comparison of actual state (plus student) funding for each institution with the level of funding calculated as “adequate” (according to the institutional adequacy funding framework) to meet an institution’s need. Adequacy is achieved when the actual amount is at least equivalent to this calculated amount. Equity in funding is achieved when the ratio of actual funding to the level of calculated funding need is

generally the same for all institutions. By itself, equitable funding does not mean that funding of institutions is adequate; institutions can be equitably over or underfunded as well as equitably AND adequately funded.

Funding for institutions comes primarily from the state and from students. Adequacy can, therefore, be achieved by shifting more responsibility for funding to students and allowing the state to “underfund” its share. To ensure that adequacy of funding is not being attained by placing an unfair burden on students, it is important to monitor the affordability of education for students at each institution. Affordability can be calculated in multiple ways. NCHEMS’ preference is to use an approach dubbed “shared responsibility,” an approach that starts with total cost of attendance then deducts amounts for student contributions (calculated as earnings from working 15 hours a week at the state minimum wage), expected family contribution using the federal algorithm, and grant aid from state, federal, and institutional sources. Some states that employ this approach also consider the role that borrowing may play in providing needed financial resources, but those that do tend to mitigate against excessive reliance on loans by incorporating borrowing into the calculation only for students attending the four-year sector and by limiting the level of annual borrowing to an amount that a graduate who subsequently works in a socially valuable occupation (e.g., teacher, social worker) can reasonably repay under standard repayment terms. The remainder is a measure of institutional affordability. Adequacy of state funding is achieved when institutions are adequately funded from all sources (as described above) and the remainder from the shared responsibility calculation, summed across all resident students in different income categories, is zero or nearly so. This is the condition that yields both adequacy of institutional funding and affordability for students. The objective over time should be that the funding model yields results that make institutional funding not only adequate to meet institutional needs but equitable and supportive of affordable education for students. The state will still need to review the results of this calculation across different income groups, however, in order to assess the degree to which low-, medium-, and high-income students are carrying appropriate burdens. If monitoring results in all three of these domains—adequacy, equity, and affordability—indicates that one (or more) of these objectives is not being met, the values of the parameters being used in the model should be evaluated and likely adjusted.

Recommendations

Although the study on performance funding models was expected to be complete by December 15, 2022, of Missouri’s history with performance funding, discussions with MDHEWD staff and policymakers, the results of a funding equity study conducted for MDHEWD in 2018, and NCHEMS experience in creating funding models in other states has led to the conclusion that Missouri’s needs would not be well served by either this narrow focus or the rush to a conclusion. Performance funding models have little chance of being successfully implemented or achieving state goals if they are layered on top of a base funding model that is fundamentally flawed—the funds institutions receive from the state in recurring allocations are either inadequate or inequitably distributed (or both).

As a result, NCHEMS recommends and will develop an approach that proposes that performance funding be a component in an integrated framework that includes operating requirements which vary among institutions according to their mission. More specifically, NCHEMS will approach its charge or providing recommendations on public higher education funding models by designing an approach that accounts for the entirety of state appropriations, performance as well as base funding. Consistent with the mandate in the RFP, NCHEMS will also provide recommendations regarding allocation of resources on the basis of institutions' production of student outcomes and other outcomes that tie to state priorities and contribute to state needs. To achieve the state's goals, including those for the efficient and effective operation of public institutions, an appropriate framework will consider the funding requirements for components that account for:

1. Fixed costs that reflect a frugal level of funding for base operations—the costs associated with providing the basic administrative infrastructure for managing the institution—as well as the costs incurred to maintain the human, curricular, and physical assets of the college or university.
2. Variable costs that account for variation among institutions in the resources needed to fulfill the instructional component of their missions—to instruct students in the fields and at the levels approved within their missions, and to provide support services necessary to ensure that the students they enroll will be successful in their academic pursuits.
3. Performance incentives that seek to reward institutions for contributing to state goals—specifically increasing the education attainment of the state's adult population, meeting the state's workforce needs, and doing so efficiently and effectively.
4. Funding needs associated with unique mission functions, such as University of Missouri—Columbia's and Lincoln University's Land-Grant missions and the Historically Black Colleges and Universities missions of Lincoln and Harris-Stowe State University, as well as other special mission designations as reflected in statute.
5. Funding support for developing new or enhancing existing capacity that addresses specific state priorities. Such investments provided to institutions by the legislature directly or routed through the MDHEWD is intended to be temporary; after a limited amount of time, the activities (e.g., new academic programs) that these investments make possible are expected to be integrated into the funding model.
6. The payments the state makes to a given institution for specific goods or services on a recurring basis. In such cases, it is expected that the institution will be uniquely capable of fulfilling that requirement.
7. The appropriate balance between what state and students should be expected to share in paying the costs specified by the model's calculations.

Ensuring that all of these important elements of institutional operations be accounted for in the design of a funding model that includes incentives for performance stands the best chance for creating a funding model that address state needs effectively. Specific recommendations regarding the way these components—including performance incentives—should comprise a well-designed funding model are expected to be addressed in the project's final report after more input is deliberately sought from stakeholders. It should be noted that this approach is consistent with

feedback received from COPHE and MCCA in response to their review of an initial draft of this report.

After consultation with key legislators, NCHEMS and MDHEWD developed a revised timeline and work plan that incorporates the work necessary to develop a comprehensive funding model as background to submission of project recommendations by July 1, 2023, as required by the RFP. The report will also include findings and recommendations derived from the efficiency study component of the project. This timeline and related activities are included in the project work plan, which is included in the appendix. The extended period will permit MDHEWD and NCHEMS to gather feedback from institutions during the development of the performance funding model via selected on-campus visits and through interaction with an advisory body that is being organized by MDHEWD.

Accordingly, the detailed recommendations necessary to enact legislation that changes Missouri's approach to funding higher education institutions await the more thorough analyses and stakeholder engagement that will take place through July 1, 2023. Nevertheless, this report does offer recommendations that will be helpful in guiding the development of that report. These recommendations for legislative action in the 2023 session include:

1. Allowing MDHEWD to recommend a funding model that allocates all state appropriations to higher education, not just funds tied to performance.
2. Require the Department, in consultation with the institutions, to develop the operational details of the model recommended for implementation. While the conceptual framework for the model is as described above, the key decisions about values associated with the variables within the model will be made over the course of the project. These decisions include the specification of the variables/parameters to be used in calculating each of the above components, as well as suggesting appropriate values for each of these parameters. The design features of this model should be consistent with the principles set forth in this report.
3. Call on the Department to recommend procedures for implementation of the new funding model for the fiscal year beginning on July 1, 2024 (i.e., FY 2025). These procedural recommendations should deal explicitly with:
 - a. Approaches to eliminating (over time) funding inequities that will inevitably be revealed in the process of operationalizing the model.
 - b. How the state will transition into full implementation of the funding model over 3-4 fiscal years in a manner designed to allow institutions to plan effectively and with minimal disruption. The implementation recommendations will address the extent to which funding adequacy should be achieved before performance funding is incorporated into the model.
 - c. The periodicity of model review, both technical and from a policy perspective.
 - d. Procedures to be followed in the eventuality that the funds appropriated by the legislature are insufficient to cover the costs calculated through the model as being adequate. This expectation also applies to the funding set aside for distribution of funds to institutions based on performance.

- e. Incentives to support collaborative activity among institutions in ways that promote access to programs and other educational opportunities for students throughout the state or that improve operational efficiencies.

Notwithstanding these foregoing recommendations, if the General Assembly wishes to consider performance funding more narrowly, without a full review of the state's current approach, this report details effective practices and examples from other states that operate performance models. Those states that have more successful performance models operate a more structured funding approach than is the case in Missouri. The report also details shortcomings associated with Missouri's current funding approach, which lacks an overriding rationale and strategy for allocating resources necessary for a performance funding component to be adopted effectively.

Appendix. Project Work Plan

Comprehensive Work Plan

Study on Higher Education Performance Funding and
Efficiency/Reform (RFPS30034902300023)



Prepared for the Missouri Department of Higher Education and Workforce Development
October 4, 2022 (revised October 12, 2022)

As required by the Request for Proposals and proposed in NCHEMS' response to the RFP, MDHEWD and NCHEMS held an initial planning meeting on September 21, 2022, in Jefferson City Missouri. Attending were Dennis Jones, Brian Prescott, and Sarah Torres Lugo of NCHEMS and Leroy Wade, Jeremy Kintzel, and Gerren McHam of MDHEWD. Representative John Black also met with the project team to hear an overview of the project and to address questions about the nature and timing of the final products. This work plan incorporates the feedback provided during this planning meeting and reflects NCHEMS' understanding of the agreed-upon approach to the project. The accompanying timeline indicates the proposed schedule for major milestones of the project.

The project will yield deliverables in two primary areas: (1) recommendations for a new funding model, including elements that link funding to institutional performance, and (2) a set of recommendations that seek to stimulate improved efficiency and effectiveness in the delivery of public higher education services to Missouri. Work on these two areas will partially overlap, with a heavy initial focus on addressing the funding model.

One important takeaway from our conversations to date was that Missouri is seeking recommendations for a comprehensive funding model, one that better rationalizes the allocation of state taxpayer dollars to institutions, including through performance elements that incentivize institutions to improve their effectiveness, efficiency, and affordability. Such a model should also be linked to the state's strategic goals. This more comprehensive approach stands in contrast to the creation of a performance-based funding policy that simply supplements historic funding levels to institutions (which is how NCHEMS interpreted the RFP and the assignment initially). That is, Missouri is interested in a funding approach that strategically distributes the full state appropriation to its public institutions, rather than recommendations for a narrower performance-based policy that may only determine the allocation of a small percentage of state funding. This difference has important implications for how NCHEMS and MDHEWD carry out the project, especially in terms of the timing of the work. Although NCHEMS will ultimately generate a report to MDHEWD that contains recommendations drawn from its wide expertise and deep analysis, it is not expected that these recommendations will have achieved general acceptance from the institutions that will be subject to any new funding approach by the mid-November deadline established in the RFP. The report and the recommendations will be much likelier to fit the context in, and the needs of, Missouri if there is an opportunity to meaningfully engage the institutions and key stakeholders in the period after this deadline. Thus, NCHEMS anticipates delivering a conceptual framework for a new funding model consistent with the expectations discussed during the initial planning meeting by the RFP's required deadline of mid-November, but NCHEMS and MDHEWD expect to continue to work on refining the funding model's design—especially the parameters to be used in implementation—in the months that follow, provided that key legislators do not express reservations before October 26, 2022. Ultimately, NCHEMS will provide a report to MDHEWD that includes recommendations for design features for a new funding model

and for implementation; these will be informed by dialogue with stakeholders over the months to come.

1. Development of recommendations for a new funding model for Missouri's public institutions.

- a. Submit a comprehensive work plan no later than 14 days following the planning meeting.
- b. Submit a revised comprehensive work plan no later than 7 days following receipt of the state agency's changes.
- c. NCHEMS will identify states that are using approaches for funding public higher education institutions that have design elements appropriate for consideration in adapting to Missouri's context. Where appropriate, these states should be similar to Missouri in key respects related to funding levels, governance and structures, and population characteristics, recognizing that no states will make a perfect match. The emphasis will be on relevance of design elements rather than similarity of states to Missouri.
- d. Collect Missouri documents and data specific to Missouri and its financing history, including relevant statutes and legislation, task force reports, institutional submittals, and spreadsheets used to generate recommendations for total funding and the performance funding component (even when it has not been funded).
- e. NCHEMS will analyze and summarize reports on funding models and compare to Missouri state goals, including Research and policy reports addressing peer states' performance funding models, where we will look for evidence of success and factors that contributed to that success, as well as design and implementation features that proved to be problematic.
- f. Present conceptual framework of a comprehensive funding model with a performance component during a virtual kick off meeting (tentatively to be held the third week of October). Invitees to this meeting will include an array of stakeholders including policymakers and their staffs, institutional leaders, and association leaders (COPHE and MCCA).
- g. Conduct interviews with finance officers in selected other states to learn about potential differences between explicit directives/guidance for making funding decisions and how funding decisions are actually made, as well as the pros and cons to approaches used in select states.
- h. Gather and analyze data on outcomes produced in states with several years of experience utilizing performance-based funding.
- i. Develop a heuristic model for the design of a funding model in Missouri.
- j. Develop a report that specifies the conceptual framework for designing a comprehensive funding model with a performance component that would best suit the needs of Missouri. This report will also articulate the steps to be taken to refine the design and develop an implementation strategy, including

recommendations to the legislature for sequencing legislation to ensure the process moves forward fairly and expeditiously.

- i. By November 4, electronically deliver a draft report to MDHEWD for review by November 9.
 - ii. Revise draft report incorporating MDHEWD's feedback.
 - iii. By November 14, electronically deliver revised report to MDHEWD for circulation, with feedback due November 18 from institutional, legislative, and gubernatorial representatives.
 - iv. The week of November 21, virtually meet with MDHEWD to discuss feedback received.
 - v. By November 23, submit a revised report incorporating feedback.
 - vi. NCHEMS will present the report to the Coordinating Board for Higher Education at a public meeting (expected to be at the Dec. 6-7 meeting).
 - vii. By December 15, electronically deliver the completed initial report to the Governor and General Assembly.
- k. Subsequent to the delivery of the initial report, NCHEMS will further develop the funding model in accordance with the conceptual design. This will involve:
- i. Developing an interactive model that will allow investigating the consequences of assigning different values to the key parameters in the model.
 - ii. Developing the performance portion of the model in a way designed to promote achievement of key priorities as established in the Department's strategic plan as well as other priorities such as:
 1. Efficiency in delivery of services.
 2. Collaboration among institutions.
 - iii. Compile the data needed to populate the model. Per agreement with MDHEWD, every effort will be made to use data readily available from either IPEDS or MDHEWD. This limitation may require making estimates of certain variables.
 - iv. Prepare a set of recommendations regarding the values for variables in the model based on use of the model to investigate the consequences of assigning different weights.
- l. Undertake stakeholder engagement activities to gather feedback on the design and improve the model. These activities will include:
- i. Engaging first with staff of MDHEWD and with key legislators (or their staffs) and representatives of the Governor's Office.
 - ii. Then engaging with representatives of the institutions and their associations.
- It is anticipated that two rounds of such engagement will be required, with NCHEMS making adjustments to the model (or recommended values for parameters) between these two rounds of meetings.

- m. Develop a set of recommendations regarding implementation of the model, including timing and the use of stop-loss and stop-gain provisions in transitioning to the model.
- n. Prepare a draft final report on the funding model for review by MDHEWD staff and others of their choosing. (This report will likely include the results from the efficiency review activities described below, such that this final report addresses both major thematic topics of the overall project.)
- o. Prepare a final report that incorporates changes suggested in the review process.
- p. Present the report to the Coordinating Commission for Higher Education and legislative committees.

2. Assess efficiency and effectiveness at Missouri's public institutions.

- a. Survey SHEEO agencies regarding efficiency initiatives in collaboration with MDHEWD's Office of Postsecondary Policy.
 - i. NCHEMS will work with SHEEO staff to develop a survey of its members with key content areas being:
 - 1. Source/champion(s) of efficiency initiatives—were they mandated by the legislature or governor, system office or coordinating board?
 - 2. Goals for efficiency initiatives. Are goals related to:
 - a. Cost savings?
 - b. Student outcomes?
 - c. Others?
 - 3. Areas of focus of efficiency initiatives
 - a. Administrative services?
 - b. Academic delivery?
 - c. Other areas?
 - 4. Collaborative initiatives, i.e., statewide initiatives or bilateral or multilateral initiatives (including partnerships with non-higher education entities)
 - a. How were they organized?
 - b. How were they funded?
 - c. What have been the results?
 - 5. Funding supports.
 - 6. Measures – both those defined for consistency across institutions, and any others.
 - 7. Targets for improved performance or cost savings.
- b. Conduct a survey of Missouri institutions to acquire information about current effectiveness and efficiency initiatives. This survey will be an adaptation of one NCHEMS fielded in Virginia. NCHEMS, with the advice and counsel of SCHEV (Virginia's counterpart to MDHEWD) staff and institutional finance officers, conducted a survey of Virginia institutions seeking information about their practices

aimed at producing more efficient operations and generating savings that could be reallocated to high priority purposes.

- c. Review institutional missions, enrollments, and programs for a more macro look at possible areas for increasing efficiency. As noted in the Request for Proposals, Section 173.020, RSMo, gives the CBHE authority to develop “arrangements for more effective and economical specialization among institutions in types of education programs offered and students served, and for more effective coordination and mutual support among institutions in the utilization of facilities, faculty and other resources.” To identify possible areas for increasing efficiency, NCHEMS will build on the report developed by the Missouri Higher Education System Review Task Force in 2016 and will review institutions’ mission statements and “operational missions”, clear expressions of roles based on the institutions’ array of programs, audiences served, and other special features such as status as a land-grant institution or HBCU.
- d. Complete data gathering and analysis on efficiency to identify areas having greatest potential for efficiency enhancements. Areas to be covered by these analyses include:
 - i. County of origin for incoming students, both recent high school graduates and adults
 - ii. Transfer patterns
 - iii. Programs offered
 - iv. Research volume, preferably by discipline
 - v. Expenditures by function
- e. Consider opportunities for shared administrative services.
 - i. Based on NCHEMS conceptual work in categorizing functions that are candidates for collaboration, identify administrative services that could be shared to reduce costs.
 - ii. Estimate costs associated with putting in place the necessary infrastructure, including managing the collaboration. An incentive fund may be necessary to get collaborations started.
 - iii. Compile resources for contracting matters, such as examples of contracts from other states with a similar governance model.
- f. Consider opportunities for shared services in delivery of academic programs and provide resources for supporting such shared services.
 - i. Using IPEDS enrollment data and documentation of DHEWD’s program review process, identify programs with few graduates that suggest opportunities for shared services in delivery of academic programs.
 - ii. Estimate costs associated with putting in place the necessary infrastructure, including managing the collaboration. There may

- need to be incentive fund to get collaborations started (potentially including collaborative delivery of academic programs as an outcome to be rewarded in the performance funding model).
- iii. Compile resources to assist with revenue sharing.
 - iv. Compile resources for contracting matters, such as examples of contracts from other states with a similar governance model.
- g. Visit selected campuses for stakeholder engagement to test ideas for Missouri-specific efficiency measures. Particular targets for stakeholder outreach will include presidents, provosts, and chief financial officers.
 - h. Complete draft report on efficiency and effectiveness activities that could increase the efficiency with which postsecondary education is provided in Missouri and how to evaluate long-term effectiveness.
 - i. By May 11, 2023, electronically deliver draft report to MDHEWD.
 - ii. Receive feedback on draft report from MDHEWD and other stakeholders by May 25, 2023.
 - iii. No later than June 1, 2023, complete final report on recommendations to the Governor and General Assembly.
 - iv. Travel to Missouri to present report on postsecondary education efficiency.
3. **Plan for stakeholder engagement.** NCHEMS and MDHEWD will ensure that the project incorporates multiple touchpoints and opportunities for stakeholders to engage throughout the project. Planned activities include:
- a. Kick off meeting with stakeholders in mid- to late-October, with invitations extended to legislative and gubernatorial staff, institutional representatives, and key board members.
 - b. Regular meetings with MDHEWD staff throughout the project. In addition, MDHEWD may name an advisory group consisting of representatives of selected institutions and both institutional associations (COPHE and MCCA) and work with NCHEMS to make sure members are kept informed and consulted.
 - c. NCHEMS will gather feedback on funding model design parameters from institutions, likely on two separate occasions, during the spring semester, prior to making final recommendations to MDHEWD.
 - d. NCHEMS will conduct a survey of Missouri institutions to acquire information about current efficiency initiatives.
 - e. NCHEMS expects to visit selected Missouri campuses for stakeholder engagement concerning efficiency-related activities. These visits will most likely occur in April 2023.
 - f. Opportunities for feedback from MDHEWD and institutional, legislative, and gubernatorial representatives on draft reports before they are finalized.

NCHEMS

Project timeline. In the figure below, green bars indicate periods during which NCHEMS will be working on a task. Darker green bars are for each of the two major topical areas that are part of the project. Yellow bars indicate areas in which stakeholders will have an opportunity to provide input or feedback to the effort. Orange, italicized text represents additions to the original plan as described in the proposal; these are added to better meet Missouri’s needs and goals for this project.

	Sep		Oct		Nov		Dec		Jan		Feb		Mar		Apr		May		Jun	
	1-15	16-30	1-15	16-31	1-15	16-30	1-15	16-31	1-15	16-31	1-15	16-28	1-15	16-31	1-15	16-30	1-15	16-31	1-15	16-30
Draft and submit comprehensive work plan	Green	Green																		
Performance funding model review	Dark Green	Dark Green	Dark Green	Dark Green	Dark Green	Dark Green	Dark Green	Dark Green	Dark Green	Dark Green	Dark Green	Dark Green	Dark Green	Dark Green	Dark Green	Dark Green	Dark Green	Dark Green	Dark Green	Dark Green
Identify states similar to Missouri	Green	Green																		
Collect Missouri documents and data, <i>populate Virginia model for base funding</i>		Green	Green	Green																
<i>Presentation to stakeholders of a draft conceptual framework with performance component</i>				Yellow																
Analyze and summarize reports on performance funding & compare to state goals			Green	Green																
Interviews with state finance officers				Green	Green															
Gather and analyze data on outcomes produced				Green	Green															
<i>Draft report with recommendations for a conceptual framework for a new funding model</i>				Green	Green															
<i>Revisions to draft report based on feedback from MDHEWD and stakeholders</i>						Yellow	Yellow													
<i>Submit final version of initial funding report and present to Commission</i>						Green	Green													
Develop heuristic model for performance funding								Green	Green	Green	Green	Green	Green	Green						
<i>Develop draft recommendations and parameters for funding model (base and performance)</i>													Green	Green						
Engage stakeholders													Yellow	Yellow	Yellow					
Prepare draft report															Green	Green	Green			
Review draft with MDHEWD																Green				
Revise and submit report																	Yellow	Yellow		
Present report to stakeholders																		Green	Green	
Efficiency and reform review								Dark Green	Dark Green	Dark Green	Dark Green	Dark Green	Dark Green	Dark Green	Dark Green	Dark Green	Dark Green	Dark Green	Dark Green	Dark Green
Meeting with MDHEWD								Yellow												
Review and summarize reports on efficiency initiatives								Green	Green	Green										
Survey of SHEEO agencies								Green	Green	Green	Green									
Survey of Missouri institutions										Yellow	Yellow	Yellow	Yellow	Yellow						
Review of institutional missions, enrollments, and programs												Green	Green	Green	Green					
Stakeholder engagement - visit selected campuses																Yellow				
Prepare draft report															Green	Green	Green			
Review draft with MDHEWD																Green				
Revise and submit																	Yellow	Yellow		
Present report to stakeholders																		Green	Green	
Regular check-in calls with MDHEWD		•		•		•		•		•		•		•		•		•		•