Toward Convergence

Creating Clarity to Drive More Consistency in Understanding the Benefits and Costs of OER

RESEARCH REPORT
APRIL 2022

MIDWESTERN HIGHER EDUCATION COMPACT

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Letter to Stakeholders

APRIL 2022

Dear Open Educational Resources (OER) stakeholder:

We are pleased to share this report developed by the Midwestern Higher Education Compact (**MHEC**), as part of the National Consortium for OER (**NCOER**), and by a workgroup of institutional, state, and national leaders to offer common principles and frameworks to improve consistency and reliability for measuring cost savings and the return on investment (ROI) of OER. OER are teaching, learning, or research resources offered freely to users in at least one form, which either reside in the public domain or have been released under an open copyright license that allows for its free use, reuse, modification, and sharing with attribution.[1]

This paper and the recommended practices in it were developed for those who engage in OER efforts at the campus and university system levels. It is our hope that the principles and practices herein will enable such OER stakeholders and practitioners to calculate and communicate with more clarity and consistency the ROI of OER implementation.

With support from the Hewlett Foundation, NCOER was created to collectively explore opportunities and address challenges related to OER implementation. NCOER includes four regional compacts including the MHEC, New England Board of Higher Education (NEBHE), Southern Regional Education Board (SREB), and Western Interstate Commission for Higher Education (WICHE).

Since 1991, MHEC has engaged in numerous initiatives to increase productivity, reduce administrative costs, and increase student opportunities. We believe collaborative actions informed by research and best practices are the catalyst for improving the quality, accessibility, relevance, and affordability of postsecondary educational opportunities for all. It is with our foundation in cost savings that it was a natural fit for MHEC to explore the calculation and reporting of cost savings attributable to OER implementation.

We believe the impact of this work is national in scope and will be beneficial for elected officials and other policymakers across the nation.

MIDWESTERN HIGHER EDUCATION COMPACT

NEW ENGLAND BOARD of HIGHER EDUCATION

SREB | Southern Regional Education Board

WICHE
Western Interstate Commission for Higher Education

This initiative is designed to help collectively consider a more consistent way of measuring OER cost savings to:

- Communicate clearly and accurately the value of OER by its practitioners;
- Validate how to reliably measure the cost savings and ROI of OER for students, families, institutions, systems, states, and policymakers;
- Understand existing effective measures of OER cost savings and benefits to students;
- Provide a needed shortcut for practitioners to help them communicate cost savings and the ROI of OER implementation at the institutional, system, and state levels; and
- Ensure OER is helping us improve higher education's efforts to increase attainment.

NCOER's constituents and OER champions across the nation see first-hand the challenges of continuously communicating the value of OER despite growing evidence that OER reduces costs for students and improves their learning experience. MHEC and its sister compacts believe bringing consistency and systematic consideration to such reporting will enhance its efficacy. We ask that you read the paper that follows and consider adopting the measurement and reporting conventions offered herein.

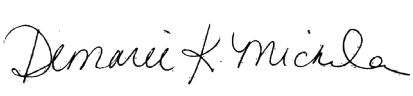
Thank you for your strong commitment and support of these common principles and frameworks to improve consistency and reliability in the field for measuring cost savings and the ROI of OER outcomes for our states.

Sincerely,

Susan G. Heegaard, President
Midwestern Higher Education Compact

Michael Thomas, President
New England Board of Higher Education

Stephen L. Pruitt, President
Southern Regional Education Board



Demarée K. Michelau, President
Western Interstate Commission for Higher Education

Executive Summary

OVERVIEW

Postsecondary education institutions in the United States struggle to resolve two conflicting trends. On one hand, the desire to obtain postsecondary education has never been greater, while the demand for postsecondary credentials in the workforce has never been higher. At the same time, the cost of postsecondary education has grown steadily and at a pace that exceeds that of other goods and services. One response, specifically to the growing costs of course materials (33 percent in a decade by the College Board's estimate), has been an increased use of Open Educational Resources (OER).

Open Education Resources (OER) are teaching, learning, or research resources that are offered freely to users in at least one form and that either reside in the public domain or have been released under an open copyright license that allows for its free use, reuse, modification, and sharing with attribution.

/ SPARC /

More than half the states have funded initiatives to develop and deploy OER. Understandably, policymakers and postsecondary education leaders want to know the outcomes and benefits of such investments for students individually, states and higher education systems, and individual institutions. Accordingly, more than three-quarters of states report on student cost savings or institutional returns on investment (ROI) in OER.

In 2020, the nation's four regional higher education compacts came together as the National Consortium for Open Educational Resources (NCOER), funded by the William and Flora Hewlett Foundation to complete projects that increase postsecondary education access, affordability, and equity using OER. Specifically, the Midwestern Higher Education Compact (MHEC) led a national effort to create this report to guide OER stakeholders and policymakers in determining and communicating the savings and ROI from OER. This report describes six principles that should define efforts to identify savings and returns from OER and offers two frameworks for making those calculations.

PRINCIPLES FOR MEASURING STUDENT COST SAVINGS AND PERFORMING A COST-BENEFIT ANALYSIS

The working group identified six principles for understanding key factors related to cost savings from OER:

- **What you need to know depends on where you sit,** so OER advocates should tailor information to audiences and the decisions those audiences make.

- **Access to course materials should be equitable,** so cost savings calculations should assume all students have acquired them from the start of the course rather than utilizing actual access.
- **Integrating learning materials is not unique to OER,** so the cost of developing OER should be viewed in the context of—and if possible, be aligned with—ordinary revisions to courses institutions make.
- **Adopting/adapting existing OER can reduce costs,** so institutions should take advantage of catalogs of OER and recycle any internal processes they build in creating new OER.
- **OER support learning as well as commercial resources,** so students can receive a high-quality education when their courses utilize OER.
- **OER benefits may extend beyond student cost savings,** so a full understanding of OER's value may mean considering learning outcomes as well as consequences for equity and completion.

FRAMEWORKS FOR CONSISTENCY AND TRANSPARENCY

The working group developed two frameworks to use when calculating and communicating cost savings attributable to the use of OER—one for assessing student cost savings and one for analyzing costs and benefits.

Student Cost Savings Framework

The working group established that cost savings calculations should involve:

- Identifying courses and sections that use OER, which requires adopting a standard definition of OER and creating the means to identify courses using OER;
- Determining the actual or estimated enrollment of course utilizing OER;
- Multiplying enrollment by the cost of the materials replaced by OER, which can involve retail list prices, average material costs, or general estimates.

The average course materials cost savings estimates reported by states and systems ranged from $61-192 with an average of:

$116

Cost-Benefit Analysis Framework

The cost-benefit analysis approach developed by the working group allows decision-makers and advocates to identify the potential costs and benefits of various approaches and to quantify outcomes in a comparative way. The general approach to this cost-benefit analysis framework includes:

- Brainstorming key factors such as alternatives to OER and their costs, stakeholders who may experience costs or benefits, and assumptions about factors that shape the analysis such as student behavior, faculty behavior, or institutional practice;
- Identifying and categorizing the costs and benefits that could be realized, which can range from the time needed to create OER and lost bookstore revenue on one side and greater student retention and attainment on the other;
- Comparing benefits and costs to students, institutions, and systems.

CONCLUSION

The significant investments resulting in the growth in OER use over the last decade has correlated with a leveling-out of textbook costs. To communicate the full benefit of OER to decision-makers and policymakers, OER advocates need consistency and clarity in how they talk about its impact. The principles and frameworks in this report are meant to provide that clarity and to serve as a starting point for advocates and decision-makers so they can monitor, track, and continuously deepen the impact of the OER movement on student success. Clarity does not mean everyone must use the same approach, but it helps if everyone is on the same page when they talk about student cost savings and ROI calculations. Ultimately the field must converge on a common approach, but this report offers the transparency to move further toward that convergence.

Introduction

In 2022, postsecondary education is more critical than ever. It is the key to expanding access to high-quality jobs that pay a living wage and offer employment stability[2]. During the global COVID-19 pandemic, this trend has continued as workers who possess at least some education beyond high school have experienced less unemployment and more job stability[3]. Unfortunately, the costs for achieving a postsecondary credential are higher than ever and continue to increase at a rate that exceeds most other goods and services[4]. **Several factors have driven increased**[5] costs in postsecondary education, and education leaders are pursuing innovations that help reduce costs to students.

Over the last decade, one of the most compelling examples of these efforts is the Open Education movement. Open Educational Resources (OER) are teaching, learning, or research resources offered free to users in at least one form and either reside in the public domain or have been released under an open license that allows free use, sharing, and modification with proper attribution. Educators worldwide have led OER efforts and created mechanisms, tools, and communities committed

to producing sharable and accessible learning resources. In the United States, OER efforts have been **motivated heavily**[6] by the **growing costs of textbooks**[7] and other learning materials purchased from commercial publishers. As a result, the movement has transformed the way students access course materials, helping lower educational costs and making learning resources more accessible.

OER AND THE COST OF TEXTBOOKS

According to the **College Board Trends in College Pricing**[8] reports, between 2006 and 2016, institutional allowances for books and supplies increased more than 33 percent for four-year institutions to $1,240 and 64 percent for two-year institutions to $1,460. Over the same period, the National Association of College Stores (NACS) Student Watch reports show that the average cost of new, printed textbooks increased just over 30 percent (as cited in the College Board publications). These alarming trends served as a rallying cry for educators and states to increase investments in OER efforts. According to **SPARC's State Policy Tracker**[9], in 2021 alone, states considered more than 30 legislative proposals or budget items related to OER. In addition, since 2010, more than 30 states have passed legislation related to OER, and at least 25 states have established OER initiatives and invested in the development or implementation of OER.

OER has not been the only disruptor to the cost of course materials. In response to growing costs, several solutions have arisen. For example, textbook rentals have grown in popularity, and academic libraries often carry copies of course materials for students to check out or access in the library. Some traditional textbook companies have started offering "inclusive access" options whereby institutions embed a fee for course materials for all students into the existing educational fee structure, providing students access to all course materials during a specific term or limited timeframe. Commercial learning material providers have also started to produce lower-cost, copyright-protected learning resources. Although many of these efforts are helping to reduce the financial obligations for students, not all of them provide the same level of benefit to students as OER.

Over the last 10 years, dramatic increases in OER efforts and investments at the state and institutional levels are correlated with positive student outcomes. The **2021 Student Watch Report**[10] indicated increases in the number of students accessing free online course materials. Additionally, data from both the College Board and NACS suggest textbook and course material costs have been leveling out and even declining since 2015. This trend is confirmed by data from the Bureau of Labor Statistics, which show

textbook costs are declining beginning in 2019 after years of dramatic growth[11]. At least one blogger attributed this trend directly to OER.[12]

Additionally, as the open education movement has matured, a growing body of literature shows OER can improve outcomes beyond student cost savings when well-implemented. For example, OER is more readily accessible to students, and research has shown it can lead to increased student engagement[13] and improved student outcomes[14]. Additionally, OER can improve faculty engagement, support better pedagogy, and enable more culturally relevant learning materials.[15]

So, how should policymakers and institutional leaders measure the impact of OER? Student cost savings has been a primary motivator for many OER efforts; as a result, states, institutions, and advocacy organizations have developed approaches to measure and estimate these savings for students. Some of these approaches have also accounted for the costs of developing and implementing OER. However, it is also essential to acknowledge the other benefits of OER. The principles and frameworks in this paper provide a student-centered approach to understanding student cost savings and a framework for decision-makers that recognizes and accounts for the array of costs and benefits associated with the use of OER.

USING THIS REPORT

Section I provides an overview of the *process and approach* for this work;

Section II *defines OER* and describes the student-centered characteristics unique to OER. It also provides a framework for understanding how OER compares with other lower-cost course material innovations;

Section III provides *an overview of state and system OER initiatives* and outlines major themes in legislation as well as approaches to student cost savings;

Section IV outlines *principles for measuring OER cost savings to students and understanding broader costs and benefits* to guide policymakers and decision-makers in structuring OER initiatives and programs as well as measuring their impact;

Section V recommends a *student cost savings framework* to provide guidance that will lead to more consistency in the calculation and reporting of cost savings to students; and

Section VI shares a *cost-benefit framework* decision-makers can apply to understand more fully the various costs and benefits of OER that are both monetary and non-monetary and accrue to multiple stakeholders.

SECTION I

Creating More Consistency in OER Student Cost Savings Measures and Return on Investment

In 2020, the Midwestern Higher Education Compact (MHEC) joined with the New England Board of Higher Education (NEBHE), Southern Regional Education Board (SREB), and Western Interstate Commission for Higher Education (WICHE) to launch the National Consortium for Open Educational Resources (NCOER). This collaboration was funded by the William and Flora Hewlett Foundation and draws on each regional compact's strengths to complete projects that increase access, affordability, and equity using OER. MHEC is known historically for its focus on resource efficiency and cost savings and agreed to lead efforts to examine promising and consistent methods for tracking and calculating student cost savings associated with the use of OER.

WHY IS THIS WORK IMPORTANT?

In preparation for this partnership, NCOER conducted an environmental scan and landscape analysis, which identified a common concern about

inconsistent cost savings metrics across states and systems. There is value in creating common standards and frameworks for understanding OER cost savings to students. This is true because:

- *Advocates* need a concise and consistent message to clearly articulate OER's cost savings and benefits.
- *Legislators and other high-level decision-makers* need consensus-based metrics to use or customize when measuring cost savings or wanting to understand the potential cost savings and benefits to students, institutions, or states.
- *Higher education leaders* need to know their institution's cost savings and cost-benefit calculations follow industry standards.
- *Practitioners* with limited time need a model to help them communicate student cost savings and the potential financial and non-financial benefits within their own OER efforts.

Finally, these stakeholders and those funding OER efforts need to understand the impact of OER on helping increase postsecondary success. Ultimately, leaders want to ensure OER efforts are helping states meet established postsecondary attainment goals designed to ensure our nation can meet current and future workforce needs while also providing individuals with more significant economic opportunities and self-actualization.

OER STUDENT COST SAVINGS AND RETURN ON INVESTMENT WORK GROUP

MHEC convened a workgroup representing a broad range of higher education and OER stakeholders to accomplish this goal. The workgroup included the following members:

	**NICOLE ALLEN**	*SPARC: Scholarly Publishing and Academic Resources Coalition*	*Washington, D.C.*
	**TIMOTHY ANDERSON**	*Minnesota State*	*Minnesota*
	**ROBERT AWKWARD**	*Massachusetts Department of Higher Education*	*Massachusetts*
	**DONNA DESROCHERS**	*rpk GROUP*	*Maryland*

	JEFF GALLANT	*Affordable Learning Georgia*	*Georgia*
	JAMES GLAPA-GROSSKLAG	*College of the Canyons*	*California*
	SCOTT HOCHBERG	*OpenStax*	*Texas*
	AMY HOFER	*Open Oregon Educational Resources*	*Oregon*
	KENDRA LAKE	*North Central Michigan College*	*Michigan*
	NANCY O'NEILL	*University System of Maryland*	*Maryland*
	DALE SANDERS	*University of Missouri Campus Stores*	*Missouri*
	JUDITH SEBESTA	*Digital Higher Education Consortium of Texas*	*Texas*
	EDDIE WATSON	*AAC&U: American Association of Colleges and Universities*	*Washington, D.C.*

This group met throughout 2021 and worked to develop a set of principles and frameworks to create more clarity around best practices in measuring student cost savings. The results of this work are presented in this document and were informed by an extensive literature review, more than 20 interviews with advisory group members and other key stakeholders, and a survey that targeted members of the OER community, including those associated with the regional compacts. Community members included participants in Driving OER Sustainability for Student Success (DOERS3), state systems and statewide OER initiatives, and the Community College Consortium for Open Educational Resources (CCCOER).

SECTION II

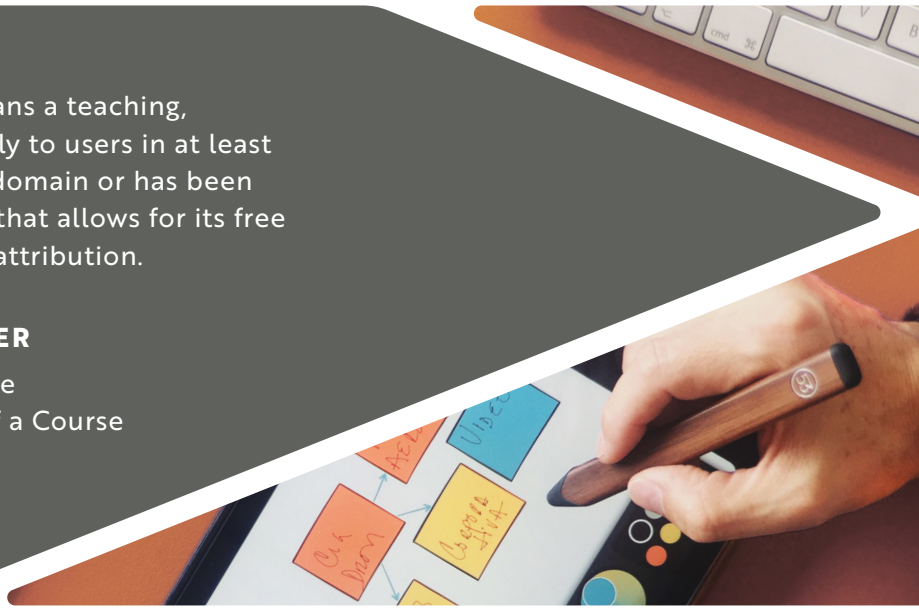
Defining OER

DEFINITION OF OER

The term "open educational resource" means a teaching, learning, or research resource offered freely to users in at least one form and either resides in the public domain or has been released under an open copyright license that allows for its free use, reuse, modification, and sharing with attribution.

STUDENT-CENTERED BENEFITS OF OER

- ✓ Public Domain or Licensed for Public Use
- ✓ Access to Course Material at the Start of a Course
- ✓ Ongoing Access to Course Material
- ✓ Free (from cost)
- ✓ Free (from collecting student data)



The benefits of OER go beyond the benefits of other low-cost learning material options. While there are many published definitions, this group recommends the following definition from the **SPARC Policy Playbook**[16] for policy audiences.

> *The term "open educational resource" means a teaching, learning, or research resource that is offered freely to users in at least one form and that either resides in the public domain or has been released under an open copyright license that allows for its free use, reuse, modification, and sharing with attribution.*

This definition underscores that OER are freely accessible and reside in the public domain or have been released under an intellectual property license that permits their free, perpetual use and repurposing by others. Since OER are freely available, students can rely on access from the first

day of a course or even before, and they can continue to access OER beyond the term in which they are enrolled in a course. Additionally, OER are available free in at least one format without requiring students to share their personally identifiable information. These student and faculty-centered characteristics set OER apart from other course material innovations and are described in greater detail below.

STUDENT AND FACULTY-CENTERED BENEFITS OF OER

Public Domain or Licensed for Public Use: When learning resources are available in the public domain or openly licensed for use, reuse, modification, and sharing, faculty may adapt and tailor resources to their specific course needs if they provide appropriate attribution. Open licensing makes it possible for faculty to respond quickly to the needs of students in their courses by ensuring the images and examples represent the students in their classes, inclusive language is used, and the course materials optimally support the course learning outcomes.

Access to Course Material at the Start of a Course: Students should start their classes with all the necessary course materials. However, students often encounter barriers to first-day access, such as how financial aid is disbursed or a bookstore's availability of used book options. Since OER are free in at least one, usually digital, format, all students have access to them when they start their courses and sometimes immediately after registering for a course.

Ongoing Access to Course Materials: Ongoing access to course materials is a significant benefit for students. It ensures they can access the materials they need to succeed while they are enrolled in courses and afterward, allowing students to benefit from those materials as they progress in their education. Also, if a student needs to repeat a course, it ensures they do not have to pay for the same resources more than once.

Free (from cost): Lower costs are a well-established benefit to OER. Students benefit when resources are free; giving more students access to course materials at no cost in at least one format from the first day of a course can help even the educational playing field. In some cases, students may incur costs if they choose to print copies of assigned OER, or faculty might make OER available through a learning management system that has an associated fee. When these resources are still available in one format for free, they are still considered OER; if they require students to pay fees, they may be more accurately described as low-cost. Such costs should be included in any student cost savings calculations.

Free (from requiring personally identifiable data): Not only are OER free from monetary costs to students, but they are also free of requirements

A NOTE ABOUT LICENSING

Learn more about Creative Commons, a nonprofit organization that "provides a menu of licenses that provide a standard way to grant copyright permissions for creative and academic works; ensure proper attribution and allow others to copy, distribute, and make use of those works."[17]

KEY ENABLER FOR EQUITY

The elements identified here have essential equity implications. For example, when content is openly licensed, faculty can make adjustments to the content to ensure it is relevant to and acknowledges the culture and experiences of all students. Additionally, OER allows access for all students simultaneously, assuring no student must wait to access learning materials because of a lack of financial resources.

that students share personally identifiable or transactional data through a login process or via other means. Some digital learning materials platforms offer what could be misconstrued as OER due to the use of a zero-dollar cost platform requiring students to share personal information, including logging-in and tracking their individual use and behavior as they interact with course content. If students must provide personally identifiable data that can be used in future marketing efforts in order to access learning resources, then those resources are not truly free or open.

COMPARING OER TO ALTERNATIVE MODELS

The table below provides an overview of the most popular alternative approaches to lowering textbook costs and how they do and do not achieve OER's student-centered benefits.

	IS THE RESOURCE...				
	Public domain or openly licensed?	*Available when a course starts?*	*Available in perpetuity?*	*Free from cost in at least one form to students?*	*Free from personal data sharing?*
OPEN EDUCATIONAL RESOURCES (OER)	*Always*	*Always*	*Always*	*Always*	*Always*
PRINTED COMMERCIAL MATERIALS RENTAL	*Never*	*Sometimes*	*Never*	*Never*	*Sometimes*
LIBRARY RESOURCES	*Rarely*	*Sometimes*	*Never*	*Always*	*Always*
LOW-COST PRINT OPTIONS OR COMPLIMENTARY RESOURCES OF OER	*Always*	*Sometimes*	*Always*	*Never*	*Often*
USED BOOKS OR OTHER ALL RIGHTS RESERVED MATERIALS WITH LOWER COSTS	*Never*	*Sometimes*	*Sometimes*	*Sometimes*	*Often*
INCLUSIVE ACCESS	*Rarely*	*Often*	*Never*	*Never*	*Never*

**The answers in this table are generalized; they may be different in different contexts.*

SECTION III

State and System-Level OER Initiatives

- Over the past decade, more than 25 states have supported efforts to study and plan OER initiatives, invest in OER, and encourage schools and colleges to notify students of OER availability.
- Since 2018, the United States Department of Education has provided funding for more than $15 million in OER grant projects, and MHEC'S survey of states and systems identified more than $30 million in state funding over the last decade.
- 77% of programs in MHEC's survey measured student cost savings, and 41% measured outcomes beyond student cost savings, including DFW rates, student satisfaction, and increased rates of course completion.

Over the past 10 years, states and the federal government have made significant investments in helping colleges and universities develop and implement OER. More than 25 states have supported OER efforts based on an analysis of SPARC's policy tracking efforts over the last decade. The number of legislative measures designed to support OER, or other low-cost course material development and implementation, continues to grow.

There are three major themes in the legislation supported by states over the last decade:

- **Study and plan for OER:** Many states require either a central entity or individual institutions to study and create a plan for implementing OER or otherwise reducing textbook costs.
- **Invest in OER initiatives:** States have invested funds into OER efforts, creating grant programs that support creation, implementation, and training efforts.

- **Require institutions to identify (or mark) courses with OER or other low-cost options:** A growing number of states require institutions to identify which courses use free or low-cost course materials in their course schedules or registration systems, a practice known as "course marking."

Since 2018, the federal government has also distributed more than $15 million through the Open Textbooks Pilot Program. This program supports institutions in creating new open textbooks and expanding the use of open textbooks in courses. It emphasizes savings for students through sustainable, expanded use of open textbooks in high-enrollment courses or in programs that prepare individuals for careers in high-demand fields. Additionally, as the benefits of OER have become clearer, faculty awareness has grown, and students have become advocates. Many systems and institutions have found ways to fund local OER efforts.

SURVEYING THE FIELD

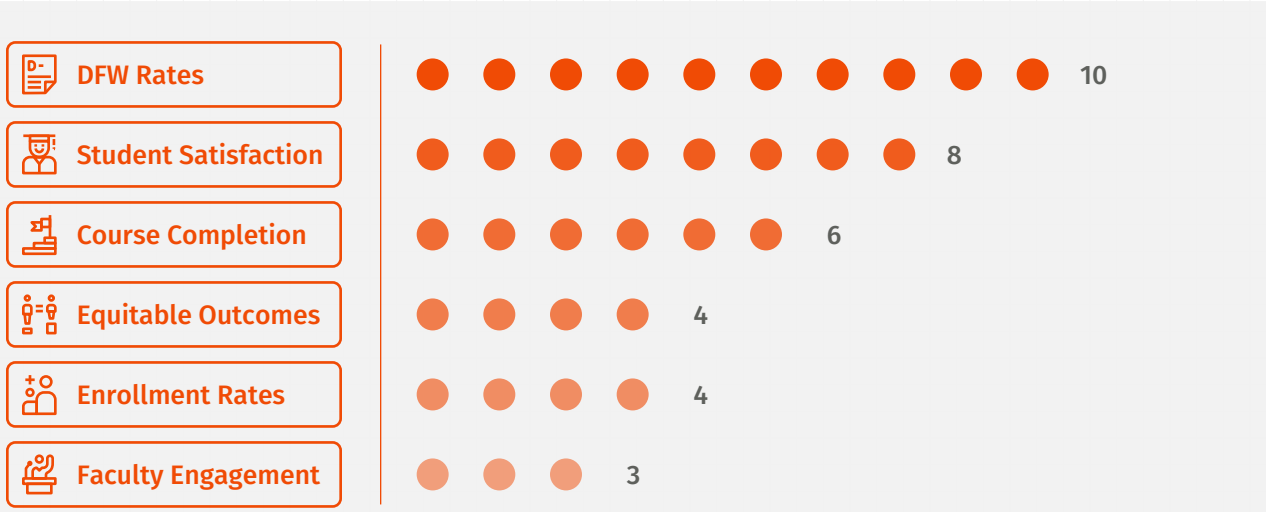
To better understand what states and systems are doing to support OER and measure student cost savings and other benefits of OER, MHEC deployed a survey via various OER networks. The primary audiences for this survey were staff of statewide OER initiatives and state public higher education systems, but several institutional staff also received and responded to the survey. MHEC received responses from 33 individuals representing 26 states' higher education boards, systems, or institutions. One state private college consortium and three private colleges also responded to the survey.

The results show OER efforts span two- and four-year institutions and include public and private institutions. On average, programs are about five years old. North Dakota and Georgia report having the oldest programs at eight and seven years, respectively. The newest program that responded started just one and a half years ago at The Ohio State University. Programs ranged dramatically in fiscal capacity, and most of them (77 percent) measure and report student cost savings or institutional ROI. Additionally, 13 respondents (41 percent) reported looking at or reporting benefits beyond student cost savings. Finally, respondents to the survey offered significant insight into measuring cost savings ROI. The following charts reflect these findings.

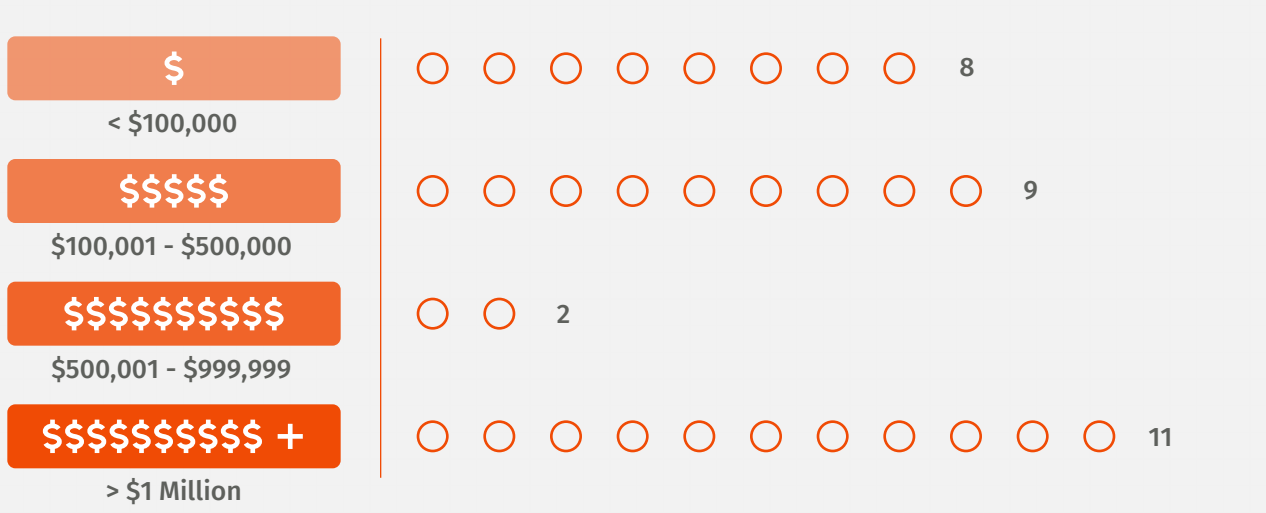
STATE AND SYSTEMS SURVEY RESULTS

77% of Programs Measure Cost Savings

Many Measure OER Benefits Beyond Student Cost Savings



OER Program Fiscal Capacity Varies



SECTION IV

Principles for Measuring Student Cost Savings and Performing a Cost-Benefit Analysis

PRINCIPLES TO GUIDE OUR APPROACH TO MEASURING STUDENT COST SAVINGS AND PERFORMING A COST-BENEFIT ANALYSIS

- ✓ **Principle 1:** What You Need to Know Depends on Where You Sit
- ✓ **Principle 2:** Access to Course Materials Should Be Equitable
- ✓ **Principle 3:** Costs Should Account for Implementation Costs Unique to OER
- ✓ **Principle 4:** Adopting/Adapting Existing OER Can Reduce Costs
- ✓ **Principle 5:** OER Support Learning as Well as Commercial Resources
- ✓ **Principle 6:** Acknowledge OER Benefits Beyond Student Cost Savings

The principles in this section will help guide decision-makers in creating more consistent cost savings metrics. Consistent implementation of the frameworks presented in Section V require that decision-makers have a common understanding of critical factors related to cost savings. The advisory group identified six themes from the literature, key informant interviews, and workgroup discussions to accomplish this shared understanding. These principles provide a starting point for decision-makers and are a crucial resource in making a case for OER.

PRINCIPLE 1

What You Need to Know Depends on Where You Sit

OER changes the way schools and faculty provide learning materials to students, and it is championed and implemented at multiple levels.

Not all champions need the same level of specificity about student cost savings or system-wide cost-benefit calculations. Governors and legislators supporting programs and goals must understand the general direction and magnitude of the impact of OER. They likely do not need to understand the same level of detail as those who implement such programs. At the college department level, leaders considering these programs need to understand the specific costs and benefits of OER. They may need to compromise to make tradeoffs within smaller budgets. They might have to navigate faculty contracts to free up time to create or implement OER. And they are more likely to need a fine-grained measure of student benefits to understand their OER investment. College presidents or state administrators may fall somewhere in the middle. They are not contending with the day-to-day coordination of OER. Still, they will have to report with some level of specificity to their boards or even to future students and their families about their efforts to improve affordability. When deploying the frameworks in this document, OER advocates should keep these distinctions in mind and ensure they tailor their messages to their audiences. Departments may want or need more fine-grained data than institutions, institutions may need more fine-grained data than systems, and systems may need more fine-grained data than legislatures.

PRINCIPLE 2

Access to Course Materials Should Be Equitable

If an instructor chooses to use certain course materials for a class, it means that material is necessary to ensure students have access to the full experience and learning from a course. Unfortunately, students have different levels of access to the materials that faculty assign. Some students purchase older (and therefore less expensive) editions of textbooks that may not have up-to-date content. Others rent or check-out materials from the library, limiting their access to course materials during and after a course. Others end up going without any course materials at all.

Further, this dynamic disproportionately impacts low-income students. If costs keep students from accessing learning resources required for learning, and certain students are more affected by the cost burden of purchasing textbooks, then equitable access does not exist. As stewards of the higher education system, it is imperative for state and institutional decision-makers to create conditions where students have equitable access to the materials they need to succeed in their studies.

Therefore, cost savings calculations, especially those for policy purposes, should assume every student has full and ongoing access to required

learning materials. Adjustments in estimates for actual student behaviors and other factors may be appropriate in situations where precision is important. However, this approach to calculating student cost savings runs the risk of reinscribing inequities. It is crucial to ensure cost-savings estimates do not further inequities, especially when they influence policy or decision-making. Instead, student cost savings calculations and analyses used for policy and decisions about OER implementation should assume if a learning resource material is assigned for a class, all students should have equal first-day and ongoing access to it.

Our Assumptions Matter: Consider two colleges that adopt OER for English 101. They both have the same number of students and replace a textbook that costs the same amount. But one of the colleges has a higher percentage of Pell-eligible students, meaning they or their families have lower incomes. As a result, fewer of their students purchase required learning materials. Suppose a cost savings calculation is adjusted for actual student behavior. In that case, the college with a higher proportion of Pell-eligible students will have a lower cost-savings estimate, even though both institutions adopted an OER under similar conditions.

PRINCIPLE 3

Costs Should Account for Implementation Costs Unique to OER

There are faculty and administrative costs associated with developing and implementing OER. Some of these costs are unique to OER and must be accounted for, but a portion of the expenses of OER implementation is not unique. All course development requires planning, assessment, and integration of learning materials.

Achieving the Dream's OER Degree Initiative[18] study, conducted by SRI International and rpk GROUP, shows that implementing a complete OER degree pathway requires both faculty and administrative costs. The median costs of developing OER were $4,500 for individual instructors and $10,600 for teams of instructors developing courses. This study provides essential information about the costs of developing OER programs that can inform costs for individual courses. However, it is important to acknowledge that integrating content is essential for all course design and redesign. Some work must occur even if a faculty member is choosing to use a new commercial learning resource. There are costs associated with textbooks, too. This study suggested it takes about 50% more time to develop or adapt OER than using more traditional instructional materials. As institutions and states invest in programs to create OER, it is important to understand places where states and institutions are creating economies of scale, or in other words, leveraging previous investments

to reduce or minimize OER development and implementation costs.

Universities and systems have different cycles for revising or refining existing courses, and there is variation in how they approach course updates and revisions. For example, course redesigns are sometimes defined in faculty contracts, sometimes completed centrally, and sometimes done on an ad hoc basis. Creating and implementing OER is often considered ancillary or additional, perhaps because it is a new initiative that has often had its own restricted line-items in state and institutional budgets, making it easy to quantify or single out. However, institutions may have opportunities to align OER implementation with existing course development cycles to minimize costs. When seeking to understand the costs and benefits of an OER initiative, policymakers and decision-makers should compare OER costs to the likely alternative.

PRINCIPLE 4

Adopting/Adapting Existing OER Can Reduce Costs

One of the benefits of OER discussed above is its ability to be used and adapted by anyone due to it being in the public domain or having an open license. In its survey, MHEC identified more than $30 million worth of investments in OER at both state and federal levels. This represents just a subset of greater national investment in OER initiatives. Most of these investments focus on OER development for a smaller number of high enrollment courses. They have resulted in a significant library of OER available for anyone to adapt and implement. Therefore, especially for some of the most popular courses, new OER efforts should focus on integrating and adapting existing course material rather than creating new material. Cost and benefit estimates should also consider the benefits of scaling these resources more broadly, and planning efforts should encourage faculty to leverage existing resources.

Scale is also an important consideration in understanding how existing OER efforts might reduce costs. Once institutions invest in faculty training and the culture-building necessary for implementing OER, institutions can realize greater efficiencies by allowing more faculty to adopt already developed resources and reach more students. For example, the Achieving the Dream evaluation[19] showed the development cost per OER student averaged $70 over two and a half years among the community colleges participating in the OER Degree Initiative. But after the initial investment period, OER development costs were reduced to $21 per student at the end of the initiative. This resulted from the tapering-off of course development, the launch of the developed courses, and enrollments in those OER courses.

There are extensive repositories where faculty can find OER to integrate into their courses.

A few examples of available resource repositories are provided below:

STATE EXAMPLES

Minnesota State's Opendora *is a digital archive for open educational resources that serves as a central repository for Minnesota State faculty and librarians to leverage licensed open educational resources (OER) with the ability to access, load, and share material.*

SUNY OER Ready-to-Adopt Courses *is a digital library catalog of ready-to-adopt courses meant to facilitate seamless integration of openly licensed content into learning management systems, the remixing of openly licensed content from various sources, the offline (print) production of learning materials, as well as the services and resources of their partners.*

OERTX *allows you to search OER used by higher education institutions in Texas and across the country, including courses aligned to the Texas common curriculum requirements.*

Open Oregon *lists course materials Oregon community college and university instructors are using to reduce textbook costs in their courses; it allows users to search by course number or keyword, discipline, and school type.*

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NATIONAL AND INTERNATIONAL REPOSITORIES

Open Textbook Library *is managed by the Open Education Network and provides a repository of almost 1,000 open textbooks available for faculty to use.*

OER Commons *is managed by ISKME, a global non-profit committed to creating an ecosystem of learning that supports collaboration and sharing.*

MERLOT (Multimedia Education Resource for Learning and Online Teaching) *is an online repository for learning objects launched in 1997 by the California State University Center for Distributed Learning. It is currently curated by an international consortium of higher education institutions (and systems), industry partners, professional organizations, and individuals.*

PRINCIPLE 5

OER Support Learning as Well as Commercial Resources

A consistent and growing body of evidence shows that when compared with traditional resources, learning outcomes for students are at least as good or better when they use OER. In 2020, **Hilton III**[20] analyzed the findings of 16 studies that examined student outcomes and student and faculty outcomes in implementing OER. Three of these studies found students enrolled in courses with OER had better (and statistically significant) outcomes on measures like grades, exam scores, and course completion. A few other studies found no measurable differences between outcomes for students enrolled in OER and non-OER courses. Just one study indicated better outcomes for students enrolled in a course that used "traditional" course material. However, this study did find students and faculty held favorable perceptions of OER. This was a follow-up from **an earlier analysis**[21] in which Hilton III found similar results. Clinton and Khan's study yielded **similar findings**[22] in a meta-analysis of the OER literature published in 2019. Clinton and Khan found students in classes using OER might be less likely to withdraw. Other studies also show positive outcomes for students enrolled in courses using OER when compared to students in courses using commercial textbooks. For example, Chang found **positive correlations**[23] between OER and student engagement. Colvard et al.[24] found improved end-of-course grades and reduced DFW rates for students enrolled in courses using OER. This same study observed more pronounced impact upon historically underserved students, including Pell-eligible students, part-time students, and students in underrepresented racial or ethnic groups. It is important to note that none of these studies can show a causal relationship from OER specifically. Still, some hypothesize in addition to saving money, OER efforts often catalyze course improvements and faculty engagement, which likely do have a causal relationship with improved student outcomes.

The evidence is clear: OER, when implemented well, can help support student learning as measured by exams and grades and has the potential to improve students' course success, all of which may support students along the path to college completion.

PRINCIPLE 6

OER Benefits Beyond Student Cost Savings Should Be Acknowledged

Finally, as OER and the movement to increase its use across higher education matures, the research continues to show the benefits of OER go far

beyond dollars and cents savings for students. As textbook costs increased, cost-savings were a clear and compelling benefit that propelled the OER movement into faculty conversations and legislative agendas. However, as awareness has grown, saving students money on textbooks has positive spill-over effects. Research cited in the previous section, which was meant to illustrate the ability of OER to serve students in comparison to commercial learning resources, has started to highlight some of the additional benefits for students and institutions.

OER has shown the potential to be a key enabler for improved learning, closing equity gaps, and improving student outcomes associated with degree completion. The Achieving the Dream evaluation explored data from 38 community colleges in 13 states and showed OER initiatives support faculty collaboration across departments. The study also found academic units, faculty, and students all found OER course content to be more relevant and up to date. Another finding concluded OER, or the process of implementing OER, influenced the pedagogical/andragogical principles deployed in the classroom. Finally, the study found students who took courses with OER were likely to earn more credits and maintain similar GPAs to students taking fewer OER courses.

Key informant interviews highlighted if OER and Z-degree programs can contribute to improved student outcomes and success indicators, they might have significant benefits for both institutions and states. For example, institutions experiencing increases in retention or student credit hour loads can expect additional tuition revenues, while improved graduation and completion rates might produce increased bonuses from the state through performance funding models. On the state side, increased completion rates and reduced time to degree might contribute to less demand for social safety net programs and help states meet their attainment and workforce development goals.

It is important for OER leaders to identify and highlight all the benefits associated with their work and to look beyond simple cost-savings efforts. It is promising to see many states and systems—about 40 percent of those who responded to MHEC's survey—are already considering and even reporting on the additional benefits of OER as part of their efforts. Most of them are looking at DFW rates, followed by student satisfaction surveys and course completion rates. The cost-benefit framework on the following page offers a mechanism to help institutions think through the full benefits that might be realized by different stakeholders when they consider investing in an OER program.

The guiding principles provide helpful guidance for how to approach student cost savings and cost-benefit calculations. The following two sections lay out two frameworks for how to calculate student cost savings and how to explore the costs and benefits of OER initiatives for various stakeholders using cost-benefit analysis. Like most higher education initiatives, OER leaders and advocates often feel a tension between recognizing the unique characteristics of local efforts and communicating the collective benefit of larger initiatives or the broader movement. OER hopes to address a fundamental need of providing affordable, high-quality course materials; however, as a grassroots movement, each individual program, effort, and resource has unique characteristics. The two frameworks presented help address this tension while providing guidelines for greater consistency and transparency in measuring and understanding cost savings.

SECTION V

Student Cost Savings Framework

There are several approaches to determining cost savings for students both in the academic literature and in evaluation and policy reports designed to evaluate the effectiveness of OER programs. Our research suggests the field is ready and eager for a consistent standard. In fact, 70 percent of survey respondents who calculate OER student cost savings use a standard method, while the remaining institutions allow variation across sites but provide some level of central guidance.

Overall, the general approach to calculating student cost savings involves the following steps.

STEP 1. IDENTIFYING COURSES AND SECTIONS USING OER

The key to measuring OER student cost savings is identifying which courses are using OER. Our survey results show this is easier in some contexts than in others. Some still rely on faculty manually reporting their use of OER while others have added course marking to their student information systems, thus making it much easier to identify courses using OER or other low-cost approaches. To obtain the most accurate measure of student cost savings, it is critical to take a systemic approach to identifying courses using OER.

To identify courses with OER it is essential to:

- Adopt the standard definition of OER and, if appropriate, low-cost course material.
- Ensure faculty members and/or other relevant staff know the definition of OER and low-cost course material.
- Create a mechanism for leaders and students to identify courses with OER and, if appropriate, low-cost course material, ideally within a data system linked to enrollment.

STEP 2. DETERMINING THE ACTUAL OR ESTIMATED ENROLLMENT OF COURSES UTILIZING OER

Once there is a common understanding of which courses are using OER, the next step is to determine, or estimate, enrollments. In other words, how many students benefited from OER? If course marking is in place, an institution's student information system should be able to provide this data. Alternatively, several survey respondents collect this information directly from faculty. Still, others use an estimate based on a combined understanding of courses likely to have OER and their typical enrollment levels.

STEP 3. MULTIPLYING ENROLLMENT BY THE COST OF THE RESOURCE REPLACED BY AN OER

The final, and most difficult step, in determining student cost savings is identifying the cost of the course material being replaced. Advocacy organizations, states, systems, and institutions have developed a wide array of approaches to estimate the difference in cost between OER and the course materials they replace.

KEY ENABLER: COURSE MARKING

Course marking enables both institutions AND students to identify courses that use OER or low-cost material, which makes it easier for students to plan and save money and states and systems to estimate how much money students saved. Marking Open and Affordable Courses[28] *provides guidance and examples for states and institutions. One crucial element of this process is to define what percentage of course materials must be OER in order for a course to be designated as OER as part of a course marking effort.*

A NOTE ABOUT DUAL ENROLLMENT

When applying this framework to a dual enrollment class, it is essential to understand who pays for course materials. State policy on dual enrollment varies greatly. Some states do not allow students to be charged for textbooks, leaving it to the high school to purchase course materials. Other states require high school students to cover the costs of course materials. Appendix C of MHEC and SREB's recent report *on OER and dual enrollment provides insight into different state approaches. Clarifying which party would normally pay for learning materials helps policymakers know which stakeholders are actually saving money from the use of OER.*

In MHEC's survey of states and institutions, 17 states and systems provided replaced materials estimates based on a composite of the approaches highlighted in this section.

Their responses ranged from $61-$192 with an average of

$116.

Determining the Cost of the Resource OER is Replacing

- **Actual Replacement Costs:** This approach involves collecting from faculty members, the bookstore, or another source, the retail costs of the course material being replaced by OER. It is the most accurate approach to determining cost savings but also the most difficult to execute since previous resource costs may not be readily available in all contexts. However, in MHEC's survey, about 41 percent of respondents were able to use the actual list price of the replaced materials.
- **Average Costs:** Since many OER efforts, especially those at the state or system level, may not have access to which specific resources are being replaced, many stakeholders use some sort of average. There are several averages currently referenced.
  - *Cross Institutional Average* – A 2018 SPARC study[29] looked at a nationally represented-sample of institutions and 20 courses where OER were common. Then they used the lowest price appropriate textbook available in the campus bookstore. Based on the sample of more than 600 courses at 120 institutions, the study found the average textbook cost was $134. SPARC estimated, on average, fees associated with OER (such as printing) averaged $17; thus, a net difference is $117. An earlier study with similar methodology estimated cost savings at $90.61.[30]
  - *Student Reported Spending on Course Material* – In 2021, the NACS Student Watch survey[31], which surveys students directly, found students reported spending about $53 on learning materials per course. OpenStax, an OER provider, uses data from the 2016 National Postsecondary Student Aid Study and estimated students spend about $79 on learning materials per course.[32] One of the challenges with student spending estimates is that they can embed the inequities warned against in principle 2 because they are based on student behavior. While we think these estimates are an important piece of the picture, we recommend adjusting upward to account for students who are choosing not to purchase textbooks.
- **A General Estimate:** Some institutions and states use $100 as a general estimate for OER student cost savings. The Open Education Network adopted this number, with a comprehensive overview of how they arrived at this number featured in this blog.[33] The $100 number provides for easier calculations and actually falls somewhere in the middle of materials cost estimates and estimates from student reported spending.

What is the Right Number?

In MHEC's survey of states and institutions, 17 states and systems provided replaced materials estimates based on a composite of the approaches highlighted in this section. Their responses ranged from $61-$192 with an average of $116. Institutions are most likely to benefit from a data infrastructure that can identify courses using OER and track the specific replaced resources so they can provide specific cost savings data to decision-makers. Working toward implementing such improvements in student information and learning management systems is an important step to take as an institution enhances its use of OER and wishes to sustain such efforts. For legislators, an estimate of replacement costs is often sufficient to inform the policymaking process. However, it makes sense for policymakers to support projects to improve local data infrastructures that support more finely grained cost savings calculations and reporting. Based on the findings of this paper, replacement cost estimates are between $90 and $117 and are commonly used by states, systems, and researchers. Such estimates may evolve as additional data emerge from local reporting efforts as well as the national reporting through the new Open Education Network (OEN) data dashboard and the growing number of similar resources.

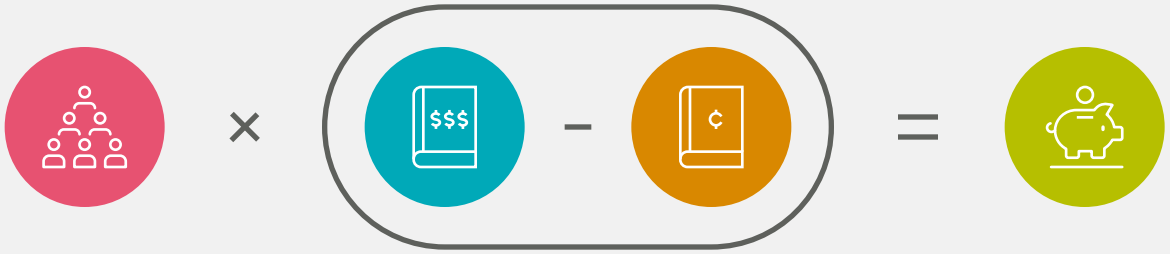
Handling Costs

OER councils, task forces, and other groups tasked with implementing OER programs often define low-cost resources as a complement to their OER efforts. Though this section is designed to provide a framework for measuring OER, this framework can also be applied to low-cost resources. Where low-cost resources are part of a broader initiative or where the vast majority of students pay an institutional fee to access otherwise openly licensed materials those costs should be subtracted.

HELPFUL RESOURCE

The Open Education Network recently launched a data dashboard for members designed to help OEN leaders track the various components of cost savings. This tool not only provides a valuable resource for measuring cost-savings, but it also provides a future data source for understanding the actual textbook replacement costs of OER.

CALCULATING STUDENT COST SAVINGS



Total Enrollment × (Cost of Original Resource – Any Costs to Students) = Cost Savings

SECTION VI

Cost-Benefit Analysis Framework

The cost savings framework focuses on the estimated cost savings realized by students when a course uses OER compared to traditional course material. This type of approach is an essential measure because lowering costs for students has been a primary driver of the OER movement. However, as research around the impact of OER continues to grow, and course material options evolve, decision-makers at all levels need a framework for comparing different options.

Cost-benefit analysis is used in public policy to understand the costs and benefits of a given program against the *status quo*. It allows decision-makers to compare costs and benefits realized by different stakeholders. It also makes the costs and benefits of various decisions more transparent and creates space for considering indirect costs and benefits. It is particularly beneficial because it allows decision-makers to distinguish between collective institutional or systems-level expenses and benefits versus individual expenses and benefits. This approach can be customized for local needs and priorities. Cost benefit analysis is a particularly useful tool for institutional-level decision-makers, such as department heads or academic deans who work closer to the classroom than policymakers but have different considerations based on their individual contexts. They must make more nuanced decisions around resource allocation.

The cost-benefit analysis framework provides a starting point for policymakers and decision-makers to adapt to their own needs and local circumstances. It allows users to identify the potential costs

HELPFUL RESOURCE

Cost-benefit analysis can be a complex, multi-step process. In addition to the templates provided here, rpk GROUP has worked with several organizations, including a cohort of Achieving the Dream partners[26] and the State University of New York System (SUNY)[27], to apply a cost-benefit analysis methodology to their OER implementation efforts. Although their work was designed for a specific purpose and may not meet all the principles in this piece, it is a helpful resource.

and benefits of various approaches and even quantify outcomes. A general approach to the cost-benefit analysis framework includes the following steps.[34]

STEP 1. BRAINSTORM KEY FACTORS

Alternatives: What are the alternatives to OER? Each alternative is likely to have unique costs and benefits, and a cost-benefit analysis approach encourages decision-makers to compare cost and benefits across options. Possible alternatives to OER initiatives for an institution may be commercial resources; low-cost, openly licensed materials; low-cost, copyright protected materials; and inclusive access.

Stakeholders: An OER initiative will require expenditures and use of resources that will differ by stakeholder groups. The same is true for the benefits resulting from OER use. Possible stakeholders may include students, faculty, institutions, systems, and the state.

Assumptions: Finally, any cost-benefit analysis will require some assumptions that will be highly local and specific to each stakeholder group and learning materials alternative. For example, a cost-benefit analysis may take into account student behavior, faculty behavior, or institutional practice. The cost savings multiplier discussed in the prior section is another example of an assumption that may be built into a cost-benefit analysis.

STEP 2. IDENTIFY AND CATEGORIZE THE COSTS AND BENEFITS THAT COULD BE REALIZED

Guided by the principles and assumptions above, the next step is to identify the various costs and benefits each approach is likely to have for stakeholders. Below is a list of potential costs and benefits that might be considered.

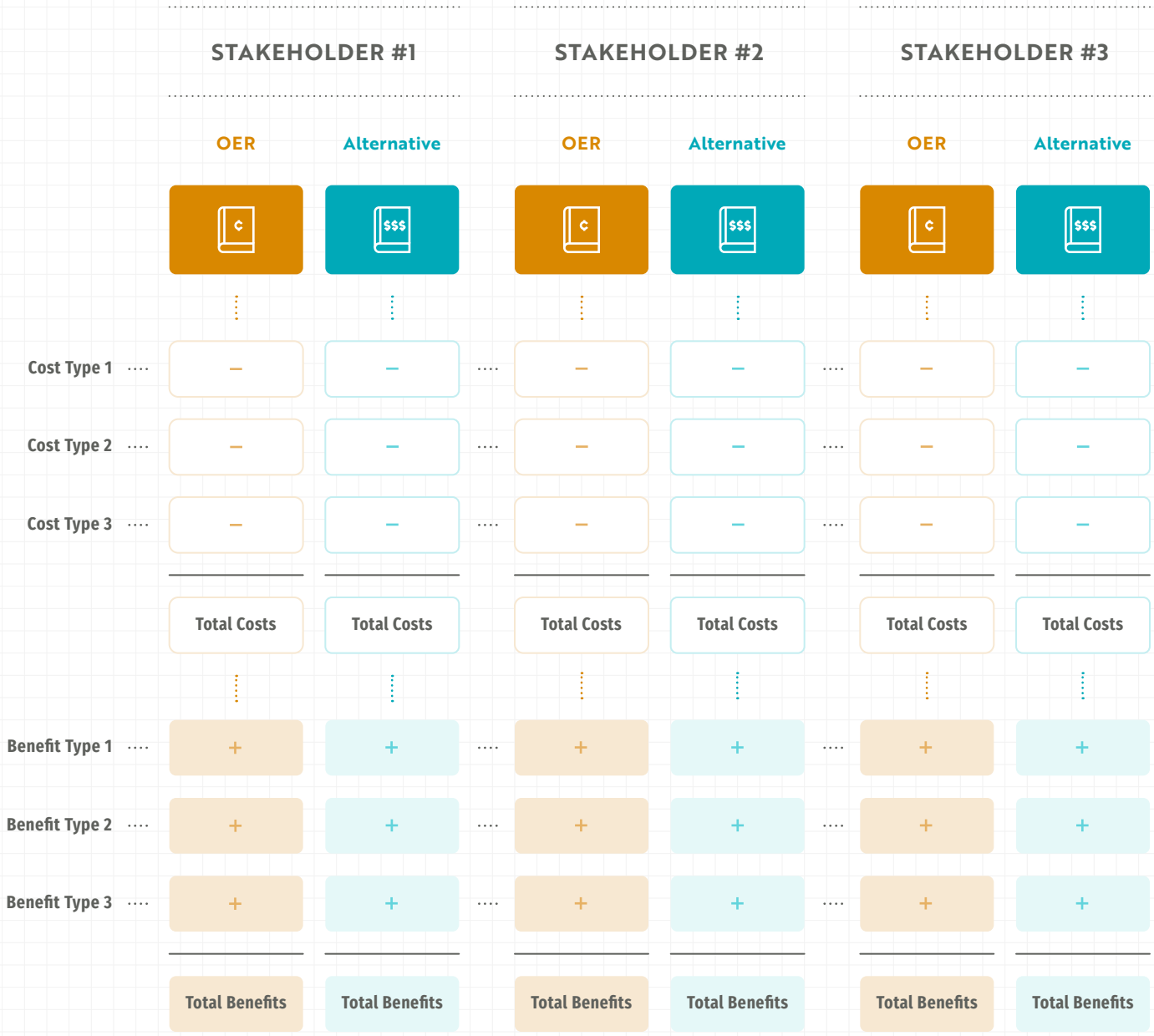
A NOTE ABOUT RETURN ON INVESTMENT

Policymakers often ask about the ROI of OER. This can be a confusing term because OER investments are often made by states, systems, and institutions while the most often measured benefit, student cost savings, go to the students rather than to those who do the investing. The benefits to the state, systems, and institutions are downstream (e.g., additional credits attempted, greater retention, lower DFW rates, etc.) and too often are not considered in analyses. The cost-benefit analysis framework presented here is designed to create more transparency around the full picture of costs and benefits so that ROI models can be clearer about how public investment in OER impacts different stakeholders.

POSSIBLE COSTS AND BENEFITS

- *Time to Develop Courses*
- *Time to Manage Systems Change*
- *Materials Costs*
- *Implementation Costs*
- *Reduced Book Store Revenue*
- *Student Cost Savings*
- *Credit Accumulation*
- *Increased Course Completion*
- *Student Retention*
- *Increased Attainment*
- *Student and Faculty Engagement*
- *Closing Equity Gap*

STEP 3. COMPARE THE BENEFITS AND COSTS



Conclusion

OER has truly transformed the way our postsecondary education system thinks about course material by offering an alternative to textbooks that meets student needs and can enhance faculty teaching. To communicate the true benefit of OER to decision-makers and policymakers, OER advocates and practitioners need consistency and clarity in how they talk about its impact. The principles and frameworks in this document are meant to provide that clarity and serve as a starting point for advocates and decision-makers so they can monitor, track, and continuously deepen the impact of the OER movement on student success.

Clarity does not mean everyone must use the same approach, but everyone needs to be on the same page when they talk about student cost savings and ROI calculations. The research in this paper shows the field is using the same ingredients to calculate student cost savings but their recipes are different. This piece provides an important leap forward in the field by:

- Aligning policymakers on a common definition and insight about how OER compares to other approaches to reducing the costs of course materials;
- Showing the existing alignment and trends across state programs; and
- Creating a common set of principles policymakers and higher education leaders can use to better understand the full picture of OER's benefits to students.

Ultimately, it is up to the open education community to move toward a common approach. The frameworks in this document provide the transparency that can help those in higher education to move closer to such convergence.

APPENDIX

Sample Cost-Benefit Analysis

SCENARIO

The English Department is deciding on new course material for their gateway course. Some instructors personalize learning materials, but most adopt a standard recommended text. The institution has a book rental provider, but instructors are frustrated that books often do not come on time, and they have noticed some students seem to be opting out of procuring a text at all. The institution has some extra funds and is considering providing textbook grants to students for the current rental agency, but an instructor suggested they dedicate those funds to identifying and integrating OER into the course. What are the costs and benefits of this decision for students, faculty, and the institution?

Alternatives

Textbook Rental Partnership or OER

Stakeholders

Students, Faculty, Institution

Assumptions

Course material is typically reviewed every five years; students are choosing not to buy materials because of costs; and there are already many OER resources available for the gateway English course, but it will take time to find one that is aligned.

Possible Costs and Benefits

- \- Textbook costs
- \- Time Waiting for textbook
- \- Identifying and integrating resources
- \- Administrative costs
- \+ More equitable resources
- \+ Retention
- \+ Cost savings

	STUDENT		FACULTY		INSTITUTION	
	OER	Rental Grants	OER	Rental Grants	OER	Rental Grants
Textbook costs	*$0*	*$70 × 600 students*				*$70 × 200 students*
Time waiting for textbook		*Typical 1-2 weeks*		*Time filling gaps for students*		
Identifying & integrating resources			*X hours to look for and integrate resources*	*X hours to choose available texts*	*X hours to support faculty*	*X hours to negotiate contract*
Administrative costs		*X hours to access*	*X hours to share and train others*		*X hours to coordinate*	*X hours to coordinate*
	Total Costs	**Total Costs**	**Total Costs**	**Total Costs**	**Total Costs**	**Total Costs**
More equitable resources	*2X outcomes due to cultural relevance*	*1X outcomes*	*Improved instruction due to OER implementation process*		*X performance funding incentive for serving students with more need*	*X performance funding incentive for serving **some** student needs*
Retention	*X% bump in retention due to greater access and improved instruction for all students*	*X% bump in retention due to great textbook access for some students*			*X increase in revenue due to more student enrollment because of retention increases*	*X increase in revenue due to more student enrollment because of slight retention increases*
Cost savings	*$70 × 800 students*					
	Total Benefits	**Total Benefits**	**Total Benefits**	**Total Benefits**	**Total Benefits**	**Total Benefits**

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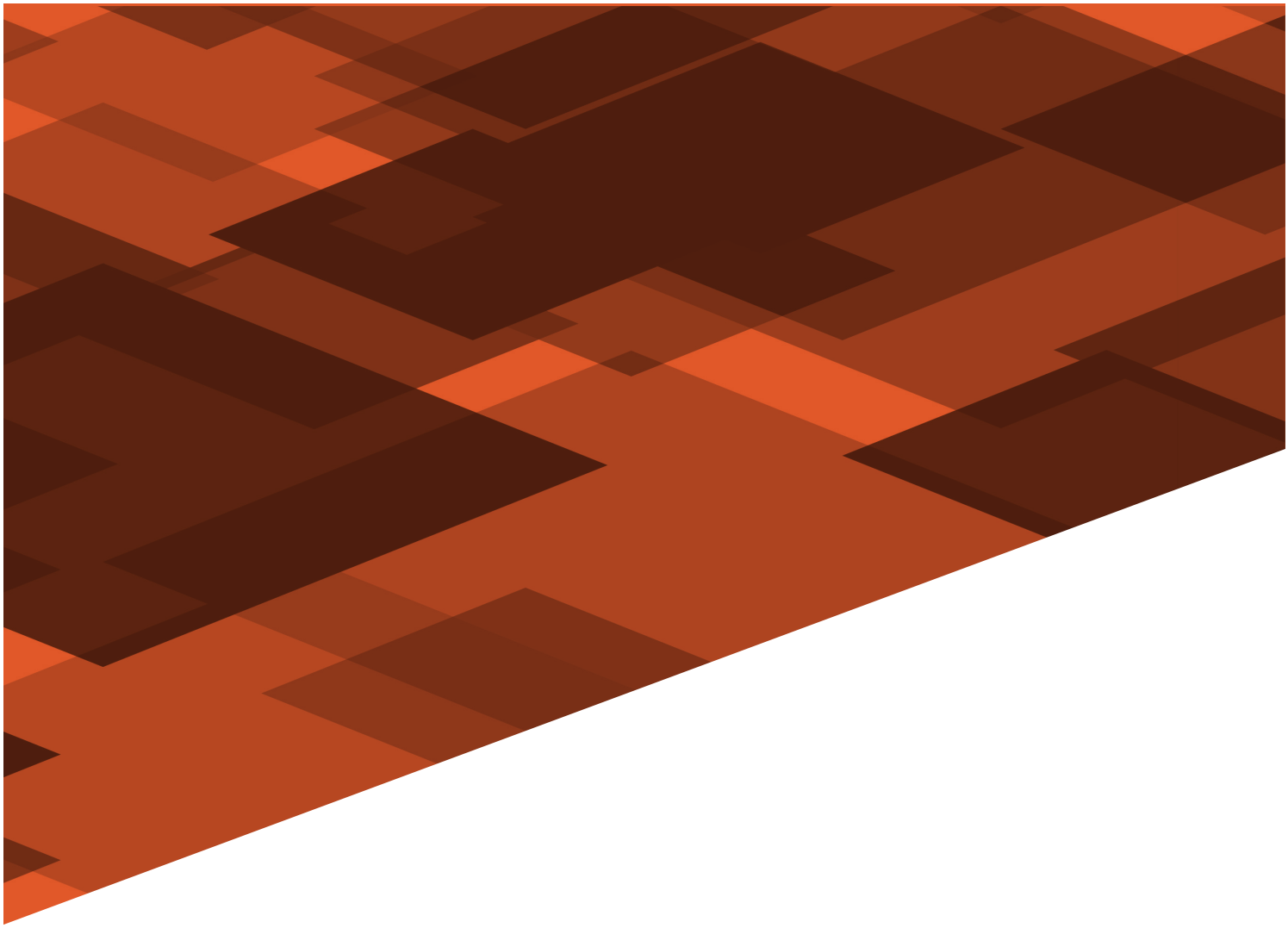

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