

COURSEWARE IN CONTEXT

CWIC FRAMEWORK: GUIDE TO COURSEWARE ADOPTION

High-quality digital courseware alone will not lead to improved student outcomes. To reap the benefits of courseware, and to avoid common mistakes and unnecessary costs with its use, institutional leaders should approach implementation holistically.

This guide is intended to provide an overview of the different stages of courseware adoption, from determining readiness to scaling a courseware solution. While a methodical, planful approach to adoption is critical for successful experimentation, innovation and piloting, the guide also supports institutional leaders seeking to establish an iterative, continuous improvement approach to achieving scale and sustainability in courseware adoption. Recognizing that scale is achieved through a cycle of continuous improvement, the guide outlines key steps to be considered, identifies stakeholders to be engaged, and provides additional resources to be referenced in each stage.

INTRODUCTION

BACKGROUND

We believe that the use of high-quality digital courseware at scale in higher education has the potential to improve access and outcomes for postsecondary students.

Research suggests that the primary hurdle in the ongoing expansion of digital courseware adoption, however, is the inability to identify and implement a quality courseware product within a dynamic sea of evolving digital learning solutions. The CWiC Framework was developed in response to this challenge and is maintained by an Executive Committee of institutional leaders in collaboration with Tyton Partners and the Online Learning Consortium (OLC) through funding from the Bill & Melinda Gates Foundation. In addition, SRI International provided critical input in aligning the Framework to efficacy research.

WHAT IS THE CWiC FRAMEWORK?

The CWiC Framework supports postsecondary decision-makers in effectively navigating the market of courseware solutions. It is designed to help you make better informed adoption and implementation decisions with the goal of advancing the adoption of high-quality digital courseware in higher education and ultimately achieving improved outcomes for students. As a guide for broadening your awareness and equipping you with helpful decision-making tools, the Framework offers an inventory of product capabilities, as well as implementation considerations foundational to enhancing and improving blended and online teaching and learning with digital courseware.

WHAT IS DIGITAL COURSEWARE?

Digital courseware is **instructional content that is scoped and sequenced to support delivery of an entire course** through **software built specifically for educational purposes**. It includes **assessments to inform personalization of instruction** and is equipped for adoption across a range of institutional types and learning environments.

Specifically, digital courseware has three core elements:

1. Instructional content that is scoped and sequenced to support delivery of an entire course
2. Purpose-built software
3. Assessments to inform personalization of instruction

These three elements can be delivered in a single product or by the thoughtful integration of different products that collectively deliver a complete course.

WHO “OWNS” THE CWiC FRAMEWORK?

The CWiC Framework is an openly licensed, field-owned tool. It is governed by an Executive Committee that includes institutional leaders involved in the advancement of digital learning at their institutions and in the greater field.

THE CWiC FRAMEWORK’S PRIMARY PARTNERS ARE:



GUIDE TO COURSEWARE ADOPTION:

STAGE 1: Determining Readiness & Aligning Objectives

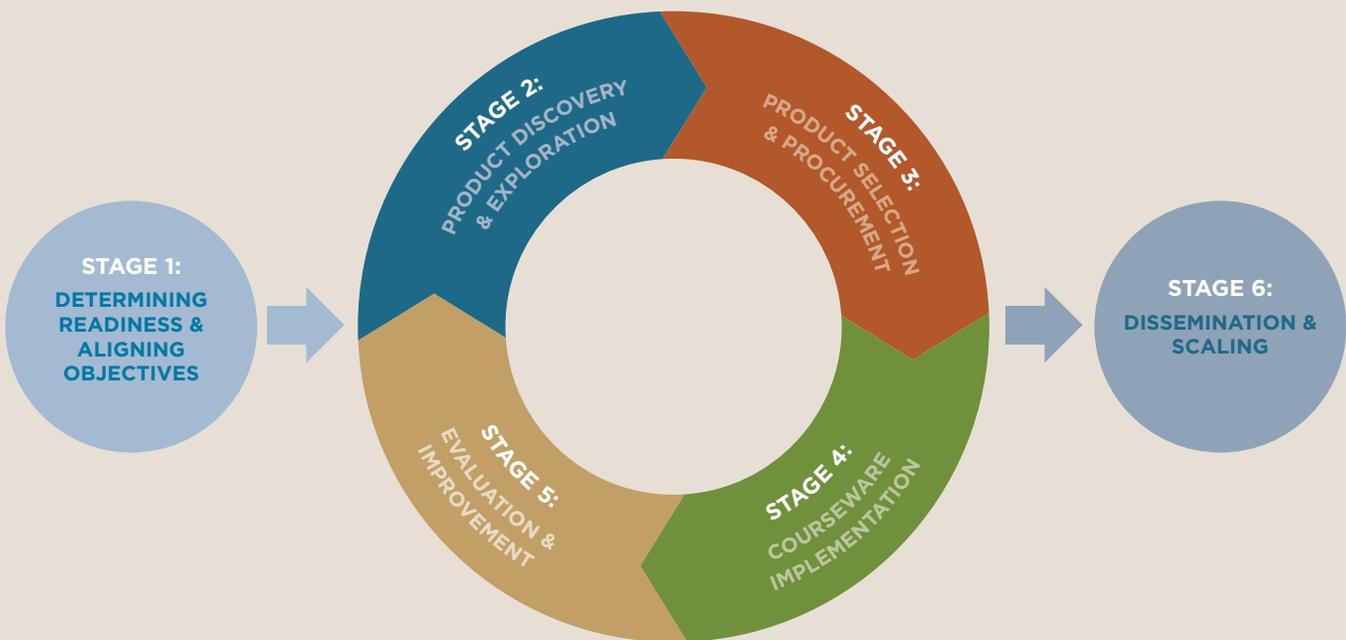
STAGE 2: Product Discovery & Exploration

STAGE 3: Courseware Product Selection & Procurement

STAGE 4: Courseware Implementation

STAGE 5: Evaluation & Improvement

STAGE 6: Dissemination & Scaling



STAGE 1: DETERMINING READINESS & ALIGNING OBJECTIVES

DESCRIPTION OF THE STAGE:

Before exploring potential products, this stage highlights items to consider in determining if a course, program or institution is ready to adopt and scale a courseware solution.

STAKEHOLDERS TO ENGAGE AT THIS STAGE:

Faculty and department chairs, instructional technology and design staff, program administrators, IT staff

ITEMS TO CONSIDER AT THIS STAGE:

- A problem or challenge has been identified, and it is believed that courseware can solve the problem or overcome the challenge.
- Measurable and specific outcomes of the impact of the courseware initiative have been determined.
- The courseware initiative aligns with institutional strategy or program and course goals, and a rationale for the initiative has been articulated.
- Evidence of (or the potential for) the effectiveness of the courseware initiative has been highlighted and understood.
- Key stakeholders for the courseware initiative have been identified and selected, agree on the rationale for the initiative, and are willing to provide their support. Moreover, faculty have shown interest and have been recruited to participate, and staff have been identified to advocate for the initiative and advancing the implementation.
- The institution or program has allocated resources (staff time, technology, training and development, faculty incentives and support, and student support) to support a successful pilot implementation and has considered resource implications for wide-spread adoption.



REAL WORLD EXAMPLE:

National Louis University (NLU) started with a strong vision of the overall program design, and an understanding of the problem they were trying to solve: given the large number of distance learners from underserved populations, how can NLU deliver a high-quality undergraduate education that provides students with flexibility and affordability? Faculty at NLU worked closely with its courseware vendor to understand which educational problems the courseware can help address and which ones would need to be addressed through other means. Once they had identified the problem they were trying to solve and understood the ways in which digital courseware can help address them, NLU's team designed a business/sustainability model to fully understand the cost of providing education through digital courseware. NLU's case study highlights the importance of assessing readiness and ensuring institutional alignment prior to product selection and courseware implementation. To learn more about NLU's experience, [click here](#).

STAGE 1: DETERMINING READINESS & ALIGNING OBJECTIVES (CONT.)

CWIC RESOURCES:

CWiC Course & Program Quality Indicators: This tool can be used to help determine readiness and align objectives prior to exploring products, selecting a solution and implementation in a course. Indicators relating to determining readiness for courseware initiative cut across both course and program-level quality indicators in the following categories: design & organization, course information, interaction, student support, faculty support, institutional support, and technology support.

CWiC Guide to Total Cost of Ownership: This tool can be used to help guide thinking around costs associated with courseware selection, procurement, implementation and evaluation.

SOME ADDITIONAL RESOURCES:

Designing Effective Courseware: 10 lessons learned for mapping the experiences of instructors and students: This tool can help educators build an understanding of courseware products and assess current and future products. Each lesson provides an overview, student and instructor quotes to show challenges faced, best practices, and exercises to help educators design better user experiences.

Instructional Design in Higher Education: This report provides an overview of the role, work and experience of instructional designers in higher education. It helps build understanding of what instructional designers do and how they can help bridge the gap between faculty and student online learning.

Professional Development Training Strategy Template: This resource can help organize professional development trainings to ensure that goals and metrics are aligned with the outcomes that are desired.

Blended Learning Toolkit- Suite of Resources: Developed by University of Central Florida, the blended learning toolkit provides a series of activities and modules that highlight best practices and strategies to effectively deliver blended learning.

Quality Matters Course Design Rubric Standards: Developed by Quality Matters, this tool is used to evaluate the design of online and blended courses.

OLC OSCQR Course Design Rubric: The OLC OSCQR rubric is course-level quality rubric for reviewing and improving the instructional design and accessibility of online courses based on online best practices.

Time for Class: Lessons for the Future of Digital Learning in Higher Education (2017): This paper contains Tyton Partners' primary research study documenting changes to the field of digital learning in higher education. It features interesting analyses of how product selection and evaluation decisions are made across higher ed.

STAGE 2: PRODUCT DISCOVERY & EXPLORATION

DESCRIPTION OF THIS STAGE:

Courseware product discovery and exploration can be challenging in the dynamic market of digital learning solutions. This stage highlights key considerations when exploring courseware solutions.

STAKEHOLDERS TO ENGAGE AT THIS STAGE:

Faculty, instructional support staff, IT staff, courseware vendors, academic leadership staff

ITEMS TO CONSIDER AT THIS STAGE:

- The product functionality required to meet the courseware initiative's goals has been identified, and cases of use have been illustrated in collaboration with faculty.
- Institutional stakeholders have been engaged to develop and agree upon product evaluation criteria, and have been trained on the use of the agreed upon criteria.
- Campus product demonstrations, stakeholder feedback solicitation, peer university feedback, and courseware evaluations have been conducted.
- The relationship between courseware provider and institution has been negotiated in regard to documentation, training, technical support, staff, student, and faculty support, and rigorous evaluation. Ownership and access of student data has been determined.



REAL WORLD EXAMPLE:

UNC Charlotte sought to enhance the pedagogy and delivery of critical gateway courses through the adoption of adaptive learning solutions. The university selected nine gateway courses with high drop, fail, withdrawal rates to integrate courseware through course redesign in order to increase student engagement. After an initial study of courseware providers, the university invited 13 vendors and the campus community to a two-day “expo” hosted on campus, where the CWiC Framework product taxonomy was modified and shared with faculty and administrators in order to initiate conversation amongst courseware providers and academic leaders. As result, a wide variety of courses in multiple disciplines, size, and delivery modalities have selected courseware for implementation. The framework provided a consistent set of questions for stakeholders to reference and enabled faculty, administrators, and vendors to speak a common language while discovering solutions. [Click here](#) to learn more about UNC Charlotte's use of the CWiC Framework in the courseware discovery and exploration process.

STAGE 2: PRODUCT DISCOVERY & EXPLORATION (CONT.)

CWiC RESOURCES:

CWiC Product Taxonomy: The CWiC Product Taxonomy is a collection of courseware product capabilities and attributes designed to aid in the understanding of product functionality to support differentiation among solutions. It includes product attributes across functional teaching and learning capabilities, as well as procurement and delivery capabilities. Institutions frequently adapt the CWiC Framework's Product Taxonomy to their course/program's goals and needs.

CWiC Framework Primer: The CWiC Framework Primer highlights product attributes based on an institution's goals for courseware adoption. Institutions that have clearly identified goals of their courseware implementation use the CWiC Primer to help with product discovery and exploration.

SOME ADDITIONAL RESOURCES:

LearnPlatform Product Library: LearnPlatform's product library hosts an array of courseware products. Use the CWiC Framework filter to view vendor-reported product features based on the CWiC Product Taxonomy.

EdSurge Product Index: View products listed on the EdSurge Product Index, based on a select set of CWiC product features.

Open Resources/ Open Courseware: This resource provides links to several open courseware content that is made available to the public.

STAGE 3: COURSEWARE PRODUCT SELECTION & PROCUREMENT

DESCRIPTION OF THIS STAGE:

A careful review of applicable products that addresses the needs of an institution and meets its procurement policies is conducted.

STAKEHOLDERS TO ENGAGE AT THIS STAGE:

Faculty, instructional designers, accessibility experts, academic and technology leadership, procurement and staff

ITEMS TO CONSIDER AT THIS STAGE:

- Procurement staff at the institution or system have been contacted to start the procurement process, and have developed a full understanding of the process, including competitive bidding, discounted pricing for multi-campus initiatives and other options.
- A timeline and milestones with associated activities has been determined. Tentative roll out dates of the technology and associated faculty development and support have been set.
- The procurement capabilities checklist (see CWiC Framework Product Taxonomy below) has been completed through a standardized rubric or tool used at the institution or system.
- Procurement process has been completed, and product selection has been communicated to the various internal personnel associated with the courseware initiative.



REAL WORLD EXAMPLE:

Georgia State University (GSU) launched a request for information (RFI) for adaptive courseware solutions, because of its promise of personalizing learning for students at different levels. GSU's objective was to find adaptive courseware for five courses: Global Issues, American Government, Micro & Macroeconomics, and Introduction to General Psychology. Faculty and administrators at GSU modified the CWiC Framework to customize it to suit its needs. They connected and collaborated with necessary players, including faculty, support staff, administrators, learning technology experts, and instructional designers to ensure a comprehensive and holistic product evaluation and selection process. Through this process, they were able to compare products and vendors on a variety of measures that were most important to meeting their needs. [Click here](#) to learn more about GSU's courseware procurement process and its use of the CWiC Framework.

STAGE 3: COURSEWARE PRODUCT SELECTION & PROCUREMENT (CONT.)

CWiC RESOURCES:

CWiC Product Taxonomy: The CWiC Product Taxonomy is a collection of courseware product capabilities and attributes, designed to aid in the understanding of product functionality to support differentiation among solutions. It includes product attributes across functional teaching and learning capabilities, as well as procurement and delivery capabilities. Institutions frequently adapt the CWiC Framework's Product Taxonomy to their course/program's goals and needs.

CWiC Guide to Total Cost of Ownership: This tool helps faculty and administrators think through all the costs associated with courseware implementation—from piloting a courseware solution to measuring its impact and scaling it across a program or institution.

SOME ADDITIONAL RESOURCES:

LearnPlatform Product Library: LearnPlatform's product library hosted an array of courseware products. Use the CWiC Framework filter to view vendor-reported product features based on the CWiC Product Taxonomy.

EdSurge Product Index: View products listed on the EdSurge Product Index, based on a select set of CWiC product features.

Implementing Adaptive Courseware - Vendor Selection: Developed by APLU, this report is a guide to courseware development based on collaborative experience of four public research institutions. The report captures vendor selection and procurement.

How to Find the Right Courseware for Digital Learning: This article is an interview conducted with Eddie Watson, former director of the Center for Teaching and Learning at the University of Georgia. It covers the process of product discovery, evaluation, and components of a successful courseware pilot.

STAGE 4: COURSEWARE IMPLEMENTATION

DESCRIPTION OF THIS STAGE:

After investigation, product selection, and procurement, the digital learning solution is implemented in a module or a course. The scale of implementation can vary, as initial implementations can be limited to a small single course section pilot or expanded to entire departments.

STAKEHOLDERS TO ENGAGE AT THIS STAGE:

Faculty, instructional support staff, and students; program administrators; IT/support center staff

ITEMS TO CONSIDER DURING THIS STAGE:

- A pedagogical model for effective use of the courseware has been identified, and courses have been designed/developed in alignment with this model.
- Faculty have received training, and support using the determined pedagogical model.
- The institution has a faculty development and teaching support program that complements course design and instruction using the selected courseware solution.
- A student support model has been designed to support students with technical and learning challenges. Guides and orientations to the technology and course have been developed.
- Supporting materials and instructions introducing students to the technology and the course format have been provided to faculty.



REAL WORLD EXAMPLE:

University of Central Florida (UCF) has been an innovator in digital learning in higher ed in the US, and is unique among large research universities for its focus on online and mixed-modality learning for its undergrad students. UCF's implementation of digital learning has helped improve access and success for students at a lower institutional cost. Its centralized management model and strong support for digital learning through the university's Center for Distributed Learning (CDL) has helped bolster the success of courseware implementations at UCF. CDL is a 90-person team composed of instructional designers, media support staff, faculty professional development staff and quality assurance staff. There is a strong emphasis on faculty professional development and training, as every faculty members teaching online courses must participate in at least 80 hours of training, and must work alongside instructional designers to develop digital classes. [Click here](#) to learn more about UCF's strategies for effective courseware implementation.

STAGE 4: COURSEWARE IMPLEMENTATION (CONT.)

CWIC RESOURCES:

CWIC Framework Course-level Quality Indicators: This tool can be used to assess implementation readiness for a course or across an entire program or department. Indicators relating to courseware implementation cut across both course and program-level quality indicators in the following categories: course information, interaction, student support, faculty support, technology support, and feedback & assessment.

SOME ADDITIONAL RESOURCES:

OLC Digital Courseware Instructional Practice Scorecard: This OLC developed scorecard provides quality indicators on how to build an effective classroom experience for students and faculty making use of digital courseware to enhance the learning process.

Lessons Learned From Early Implementations of Adaptive Courseware: This report provides an evaluation and analysis of early implementations of adaptive courseware in higher ed. It reviews the learning, cost and satisfaction outcomes to adaptive learning technology.

5 All-Too-Common Ways Edtech Implementations Fail: This is an article on why many digital learning implementations fail, and provides some strategies for mitigating them.

Teaching Online Preparation Kit (TOPKit): This resource provides the postsecondary community with the essential elements require to ensure a very high quality in online faculty development programs.

The National Center for Academic Transformation: The National Center for Academic Transformation website contains links to a host of Course Redesign Guidebooks, resources, and case studies on course redesign, which is often times a critical factor for success in courseware implementation.

STAGE 5: EVALUATION & IMPROVEMENT

DESCRIPTION OF THIS STAGE:

After a courseware solution has been piloted in a section or entire course, rigorous evaluation of the implementation can help inform improvements in another iteration of the pilot, or in identifying the potential for scaling the solution across several courses or an entire program/department.

STAKEHOLDERS TO ENGAGE AT THIS STAGE

Faculty, Instructional Support Staff, Program Administrators, IT Staff, Evaluation Team

ITEMS TO CONSIDER AT THIS STAGE:

- Measurable outcomes as determined in Stage 1 have been used to develop appropriate methods of data collection and analysis. Implementation evaluation has been integrated from the beginning of the initiative and has been an ongoing process.
- The evaluation process has included evaluation of design, including research questions methodology, variables, measures, data sources, data collection, data analysis, and findings.
- Relevant stakeholders from within the institution who are necessary for data collection have been brought in to the evaluation process.
- Data collection and evaluation process has been designed to include student data through the courseware, student surveys, and student information systems. Course level data may include student information system data analyzed at the course level (for quasi experimental, before and after) and course evaluations. Faculty and staff feedback has been gathered through surveys, focus groups, and narratives.



REAL WORLD EXAMPLE:

Southern New Hampshire

University (SNHU) created a design team, composed of academic leadership staff, instructional designers, deans of programs, and IT staff, to lead the evaluation of courseware products used at the university. SNHU adapted the functional, procurement and delivery product attributes from the CWiC Framework to evaluate the courseware implementation. The CWiC Framework was one part of a total evaluation approach which included use of a third-party evaluative platform and a scorecard devised in-house. Using the LearnPlatform, which allows for implementation evaluation, the design team at SNHU is able to evaluate each product, identify how the product facilitates learning, and understand which product attributes are most relevant in future iterations of a course to create improvement in teaching and learning. To learn more about SNHU's courseware evaluation, [click here](#).

STAGE 5:

EVALUATION & IMPROVEMENT (CONT.)

CWIC RESOURCES:

CWiC Course and Program-level Quality Indicators: This tool can be used guide evaluation and improvement of a courseware initiative for a course or across an entire program or department. Indicators relating to evaluation and improvement cut across both course and program-level quality indicators in the following categories: design and organization, course interaction, feedback & assessment, faculty support, student support, technology support, and quality & evaluation.

CWiC Product Taxonomy: The CWiC Product Taxonomy is a collection of courseware product capabilities and attributes, designed to aid in the understanding of product functionality to support differentiation among solutions. It includes product attributes across functional teaching and learning capabilities, as well as procurement and delivery capabilities. Institutions frequently adapt the CWiC Framework's Product Taxonomy to their course/program's goals and needs. When used at this stage, the taxonomy can be completed by instructors and instructional designers to reflect on what functional attributes were evident and actually used during the implementation in comparison to what the vendor might self-report about features and functionality.

CWiC Research Collection: The CWiC Research Collection is a list of published research studies which establish the connection between courseware capabilities and efficacy research. The collection can be searched and articles can be referenced in support of the findings from the implementation.

SOME ADDITIONAL RESOURCES:

Implementing Adaptive Courseware: Implementation & Evaluation: Developed by APLU, this report is a guide to courseware development and evaluation based on the collaborative experience of four public research institutions. The report captures implementation and evaluation.

Blended Learning Toolkit: Evaluation Resources: Developed by University of Central Florida, the blended learning toolkit provides a series of activities and modules that highlights best practices and strategies to effectively deliver blended learning.

Using Design-Based Research in Higher Education Innovation: This paper covers the design-based research approach used by the Center for Innovation in Learning and Student Success (CILSS) at the University of Maryland, University College (UMUC). The paper details one interpretation of design-based research (DBR) and how it can be applied by an innovation center working within a university for program evaluation.

DETA Research Toolkit: The DETA Research Toolkit serves to guide research conducted across institutions and disciplines, including both experimental and survey studies. The toolkit is comprised of pertinent research questions, guides to designing and conducting rigorous research, a student survey instrument packet, and data codebooks to help identify key variables, measures, and associated instrumentation.

STAGE 6:

DISSEMINATION & SCALING

DESCRIPTION OF THIS STAGE:

Courseware has been successfully implemented in pilot use, and the institution is ready for widespread adoption across programs/departments.

STAKEHOLDERS TO ENGAGE AT THIS STAGE:

High-level administration, administrative funding sources, central IT / support director, faculty development and training directors

ITEMS TO CONSIDER DURING THIS STAGE:

- Outcomes from the courseware initiative are shared with relevant institutional stakeholders, and are delivered at faculty showcases, faculty meetings, instructional support staff meetings, administrative meetings, and state, regional, and national venues. Audience may determine mode of dissemination, such as showcase of use, presentation of findings, whitepaper, blog post, and/or peer reviewed publication.
- The program or institution has created faculty development systems to support scaling use of courseware, such as on-campus follow-up support, workshops and professional development opportunities, online resources, structured mentorship programs and faculty learning communities.
- The outcomes from the courseware initiative have influenced improvement in faculty development and training workshops and their capacity increase through funding of staff, and new funding was available to incentivize more faculty to use the courseware, if evidence justified further use. Additional keys to assist in scaling may be online support mechanisms for just-in-time, self-support for faculty, instructional staff, and students.
- A comprehensive communication plan and strategy has been devised to reach all stakeholders, that



REAL WORLD EXAMPLE:

Arizona State University (ASU) developed and piloted two adaptive GenEd courses, including one in biology. The goal of the pilot was to assess the learners' experience with and the efficacy of the courseware solution. Following the pilot, the institution conducted an online student survey, organized student focus groups, and compared results with student performance from previous terms. The results through using the courseware solution were extremely positive, leading ASU to decide to scale the use of the courseware solution for the introductory biology class since it had much higher success rates and lower drop-out rates. [Click here](#) to learn more about ASU's experience in scaling courseware solutions.

clearly articulates the goals of scaling use of courseware, monitoring progress and celebrating success.

- The program or institution has made a long-term commitment to digital learning and has demonstrated that courseware implementation has helped meet academic and strategic outcomes the program or institution is looking to improve.

STAGE 6: DISSEMINATION & SCALING (CONT.)

CWiC RESOURCES:

CWiC Research Collection: The CWiC Research Collection is a list of published research studies which establish the connection between courseware capabilities and efficacy research.

CWiC Course and Program-level Quality Indicators: This tool can be used to assess readiness for the scaling of courseware implementation across multiple courses, across an entire program or department, or across multiple programs or departments at an institution. Indicators to consider when scaling a courseware solution are in the following five categories: faculty support, institutional support, technology support, student support, and quality and evaluation.

SOME ADDITIONAL RESOURCES:

Scaling Solutions to Higher Education's Biggest Challenges: This report highlights some of the biggest challenges to scaling digital learning solutions and identifies strategies for overcoming them.

Send us your courseware story at CWiC@onlinelearning-c.org.