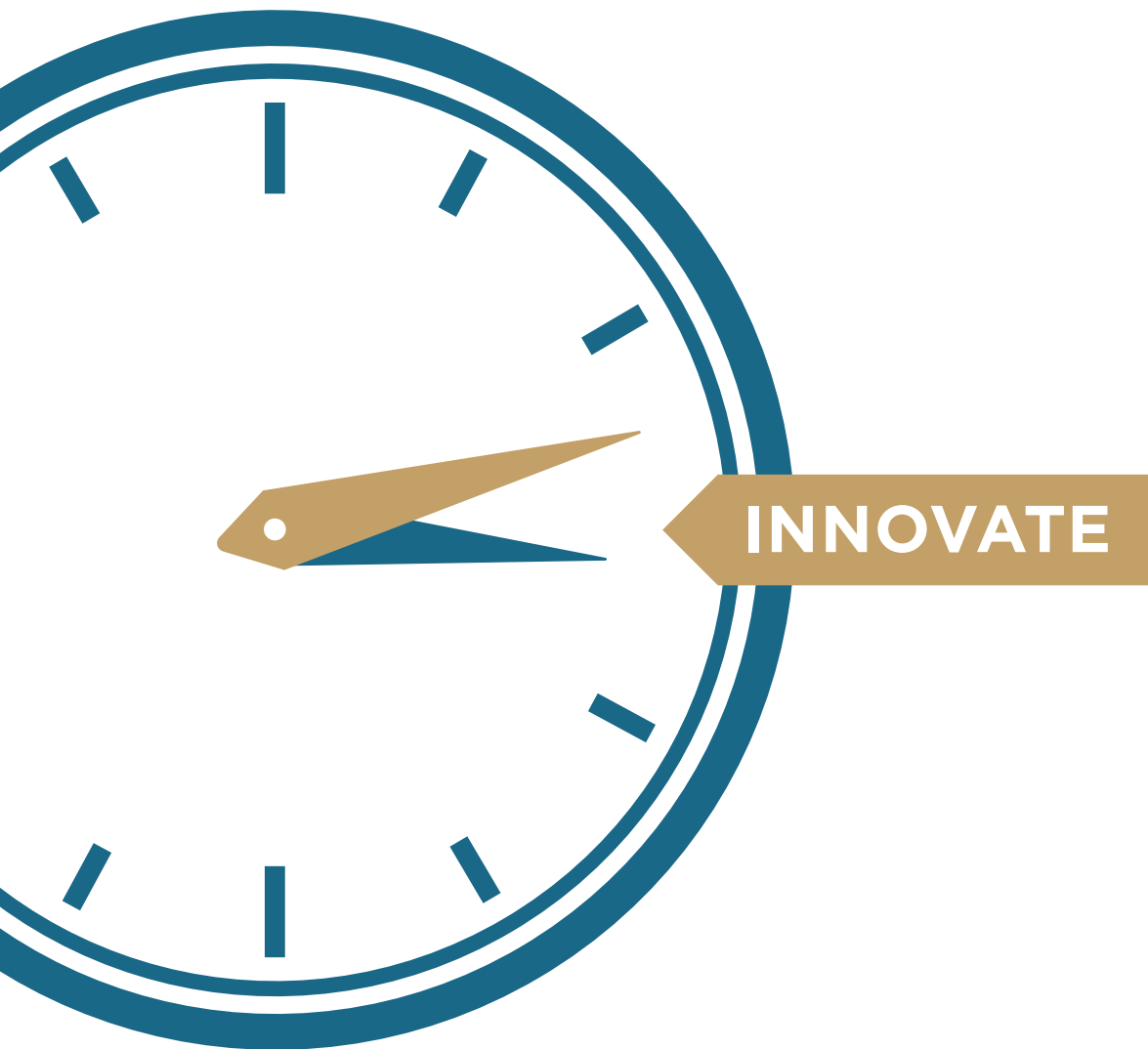# TIME FOR CLASS:

LESSONS FOR THE FUTURE OF DIGITAL COURSEWARE IN HIGHER EDUCATION

PART 2: EVOLUTION OF COURSEWARE SUPPLIERS

INNOVATE

TABLE OF CONTENTS

PART 2: EVOLUTION OF COURSEWARE SUPPLIERS

In July and August 2014, Tyton Partners (formerly Education Growth Advisors), with support from the Bill and Melinda Gates Foundation, developed and administered two surveys to national samples of postsecondary faculty and administrators. The objective of these surveys was to better understand the current level of adoption of digital courseware in US postsecondary education, as well as to collect practitioner perspectives on digital courseware use and barriers to further adoption.

*We define digital courseware as **curriculum delivered through purpose-built software to support teaching and learning**. We received over 2,700 responses from faculty and administrators, providing a new lens into the classroom and new insights on dynamics impacting the use of digital courseware in postsecondary education. Alongside these two surveys, Tyton Partners analyzed over 120 products from across the courseware supplier landscape through company surveys, interviews, and secondary research.*

Through a series of three issue briefs, we will present the findings from our research and propose tools that will support both institutions and suppliers.

> *__Part 1:__ Faculty Perspectives on Courseware*
>
> *__Part 2:__ Evolution of Courseware Suppliers*
>
> *__Part 3:__ Charting a Path Forward to Redefine Courseware*

In part 2, we will focus on the current state of the supply-side of the digital courseware market. Across this series, we will include important implications and recommendations for faculty, administrators, and courseware providers.

Executive Summary: *Pressure is mounting in the postsecondary education ecosystem to improve the quality of teaching and learning, while increasing accessibility and affordability for students. While it is widely accepted that educational outcomes are better when instruction is personalized to students' needs and objectives, effective personalized learning has historically been achieved in a face-to-face context that is instructor-intensive, a model that doesn't fit today's demand for more flexible learning experiences for millions of students.*

Digital courseware has the potential to alleviate the pressures building in postsecondary education through scalable, personalized instruction. However, the category has not yet realized its potential, and current offerings suffer from very low levels of faculty satisfaction. Based on our comprehensive scan of this market, there is an opportunity to redefine digital courseware and catalyze improved teaching and learning.

Findings from our review of over 120 courseware products indicate that the digital courseware market is a diverse landscape where innovations accumulate rather than displace one another. This phenomenon makes it difficult for newer solutions to gain awareness and differentiate themselves from the pool of existing offerings, thus creating a lag between product innovations and their proliferation in the market. While conventional wisdom might suggest that market-leading publishing companies would inhibit the adoption of new courseware solutions to protect their print revenues, their own histories indicate that they, like all suppliers are attempting to resolve the lag between courseware innovation and adoption.

The first paper in this series presented a stark picture of the current challenges to achieving personalized learning at scale using digital courseware. On the one hand, awareness and usage of courseware are high and growing, and a significant portion of faculty are open to the promise of digital courseware. On the other hand, faculty satisfaction with current courseware is abysmally low, and there are significant barriers to ongoing adoption. At best, digital courseware is facing an identity crisis. At worst, institutions are at risk of not meeting on the needs and expectations of the non-traditional students, who now constitute the majority of the student population.

But where should institutions start? How can institutions – in close and critical partnership with faculty – make best use of the varied resource that is digital courseware? To assist institutional stakeholders, including faculty and administrators, in differentiating courseware products, this paper offers a taxonomy of the courseware market and highlights the diversity of courseware offerings and their value propositions. As institutions consider courseware adoption, there is an opportunity to redefine the category not only around personalization and outcomes for students but also around responses to faculty demands for productivity and curricular flexibility.

DEFINING DIGITAL COURSEWARE

Given the breadth of the digital curriculum and teaching and learning solutions available, defining digital courseware is a challenging undertaking, but we propose the following:
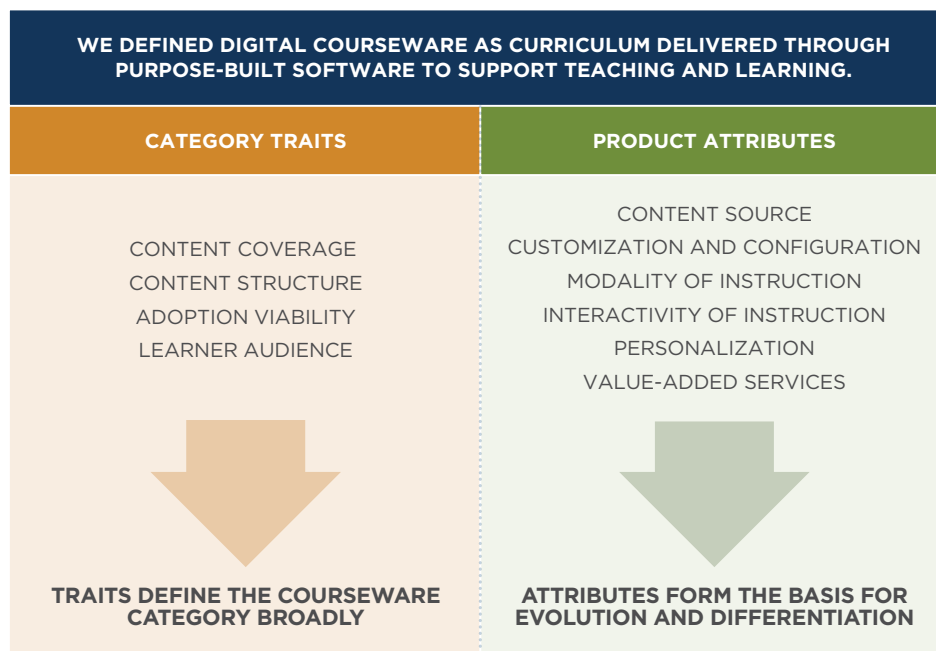
"DIGITAL COURSEWARE IS CURRICULUM DELIVERED THROUGH PURPOSE-BUILT SOFTWARE TO SUPPORT TEACHING AND LEARNING."

This broad definition provides a foundational lens for evaluating and tracking the ongoing development of the category and, ultimately, for redefining it. In conversations with courseware vendors and institutions, we found broad agreement that the products in the category have converged around four keys traits:

1. **Content coverage** that encompasses a complete for-credit course
2. **Content structure** that is sequenced and informed by instructional design
3. **Adoption viability** that meets institutional support requirements
4. **Learner audience** that is comprehensive

Using these traits as criteria for digital courseware in our research, we discovered a diverse and evolving courseware marketplace. Creating this diversity is robust competition among offerings on the basis of at least six product attributes.

DEFINING DIGITAL COURSEWARE

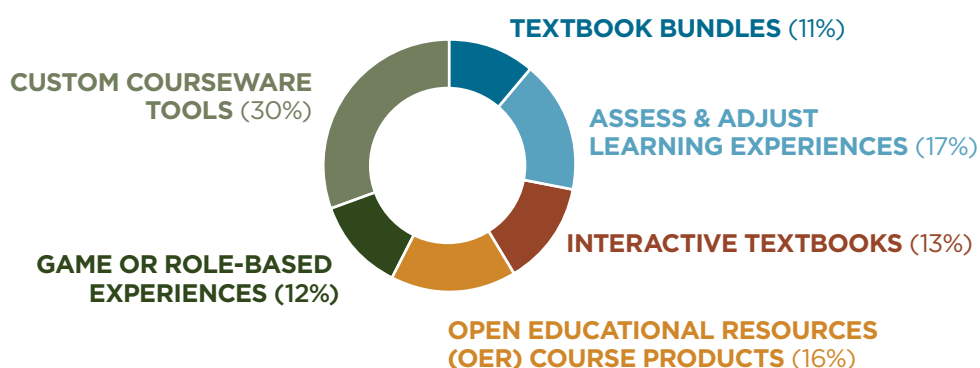| WE DEFINED DIGITAL COURSEWARE AS CURRICULUM DELIVERED THROUGH PURPOSE-BUILT SOFTWARE TO SUPPORT TEACHING AND LEARNING.	
CATEGORY TRAITS	**PRODUCT ATTRIBUTES**
CONTENT COVERAGE CONTENT STRUCTURE ADOPTION VIABILITY LEARNER AUDIENCE	CONTENT SOURCE CUSTOMIZATION AND CONFIGURATION MODALITY OF INSTRUCTION INTERACTIVITY OF INSTRUCTION PERSONALIZATION VALUE-ADDED SERVICES
TRAITS DEFINE THE COURSEWARE CATEGORY BROADLY	**ATTRIBUTES FORM THE BASIS FOR EVOLUTION AND DIFFERENTIATION**

As institutions grapple with delivering a personalized learning experience at scale, it will be important to evaluate courseware options on the basis of these attributes and traits relative to an institution's or course's specific instructional objectives. To help, we have developed a simple rubric for courseware offerings (see appendix) that institutions can use in their efforts to evaluate and categorize products.

When we applied the rubric to over 120 offerings from more than 100 companies, including established and emergent publishers, software providers, and custom publishing units, we were able to segment the postsecondary courseware market and better understand its historical trajectory. What emerged is a set of product archetypes that define the courseware space in its current form, as highlighted below.

COURSEWARE ARCHETYPES BY SHARE OF TOTAL PRODUCTS EVALUATED

TEXTBOOK BUNDLES (11%)

CUSTOM COURSEWARE TOOLS (30%)

ASSESS & ADJUST LEARNING EXPERIENCES (17%)

INTERACTIVE TEXTBOOKS (13%)

GAME OR ROLE-BASED EXPERIENCES (12%)

OPEN EDUCATIONAL RESOURCES (OER) COURSE PRODUCTS (16%)

TEXTBOOK BUNDLES
Course complete, originated as printed textbooks, inclusive of supplemental materials and assessments, possibly delivered as e-books, generally available as a course cartridge

ASSESS & ADJUST LEARNING EXPERIENCES
Course complete, featuring frequent and immediate feedback loops for learners, often with origins as assessment or homework tools

INTERACTIVE TEXTBOOKS
Course complete, marketed as textbook replacements, conceived as enhanced expository content but featuring more interactivity and analytics

OPEN EDUCATIONAL RESOURCES (OER) COURSE PRODUCTS
Generally course complete, built primarily with open resources complemented by instructional design and professional services, but may be an open or proprietary offering

GAME OR ROLE-BASED EXPERIENCES
Usually supplemental, emphasizing game design, role playing, or simulations to offer engagement and collaboration (with real or artificial intelligence)

CUSTOM COURSEWARE TOOLS
Any product or service that allows an institution to build digital curriculum or commission its development, including custom publishing units and content development platforms

CURRENT STATE OF THE COURSEWARE MARKET: DIVERSE AND EVOLVING

Today, courseware products old and new, and with print and digital origins, compete for institutional adoption. The ongoing transition from printed to digital curriculum and the co-existence of offerings on both sides of the spectrum show that new innovations do not eliminate their predecessors. Instead, as evident in the graphic below, the old and the new exist side by side to address a variety of value propositions and meet evolving use cases and goals at institutions.

ARCHETYPE	TEXTBOOK BUNDLES	ASSESS & ADJUST LEARNING EXPERIENCES	INTERACTIVE TEXTBOOKS	OER COURSE PRODUCTS	GAME OR ROLE-BASED EXPERIENCES	CUSTOM COURSEWARE TOOLS
VALUE PROPOSITION	EASE OF IMPLEMENTATION	PERSONALIZATION	INTERACTIVITY	LOW COST	INTERACTIVITY (SUPPLEMENTAL)	CUSTOMIZATION
EXAMPLES	CENGAGE Learning; ELSEVIER; JONES & BARTLETT LEARNING; HAYDEN McNEIL; MACMILLAN EDUCATION; McGraw Hill Education; PEARSON; Sinauer Associates, Inc.; WILEY	A; acrobatiq; McGraw Hill ALEKS; Carnegie Learning; Cerego; LEARNSMART; MindEdge LEARNING; MindTap; sapling learning; PEARSON MyLab / Mastering	CourseConnect PEARSON; Dallas Learning Solutions; Discovery EDUCATION; HARVARD BUSINESS PUBLISHING; lynda.com; npg nature publishing group; soomo LEARNING; thinkwell	gooru; IBM Academic Initiative; lumen; MIT OCW; Open Learning Initiative; openstax COLLEGE; panOpen; saylor.org; WolframAlpha	CAPSIM; cesim SimFirm; Cogent Education; LABSTER; late nite labs; MUZZY LANE; second avenue; TOOLWIRE; TOTEM learning	Adobe; alvoedu; PEARSON; Blackboard collaborate; McGraw Hill Education; COURSELOAD; KAPx; realizeit by CCKF; SMART SPARROW

The offerings of established publishers, through their acquisitions and innovations, reflect much of the evolution of the courseware market and nearly span the range of courseware product archetypes that constitute the market today. Pearson Higher Education, through its Pearson Learning Solutions, MyLab & Mastering, CourseConnect, and Propero offerings, and McGraw-Hill Higher Education, with its Learning Solutions, Connect, and LearnSmart offerings, serve as examples.

Historically, courseware innovations have taken years to gain market share. For example, sales of printed textbooks still surpass sales of digital curriculum, and first-generation courseware products that simply repurpose and digitize printed textbooks remain ubiquitous despite significant innovations in the space (see graphic below). As a result of this lag between innovation and broad adoption, established providers, with robust sales and distribution channels offer multiple generations of courseware products. Their roles as market leaders and primary purveyors of many first-generation products might suggest that they have an interest in inhibiting innovations that may draw demand to new solutions, but the facts suggest a more nuanced situation. The ongoing evolution of courseware discovered through our research suggests that all courseware providers – established publishers and emergent providers alike – are promoting new solutions that the market has been rather slow to adopt and appreciate.

Despite the widespread presence of off-the-shelf and course-complete offerings from established publishers, limiting the courseware discussion to these products would not capture the range of curriculum-providing options for college courses. Most college courses feature curriculum from multiple sources: courseware, supplemental content and experiences, and custom materials. Institutions can buy curriculum, build their own, or use both approaches. The Custom Courseware and Game or Role-Based Experiences archetypes address use cases of custom and supplemental curriculum, respectively, and OER Course Products stands as the latest archetype to emerge in response to the desire of faculty to incorporate a variety of low or no-cost content sources. These three categories in particular push the limits of the "course complete" definition we have used in regard to content coverage, but they each address market needs that are growing in importance. As shown in the graphic below, the the diversity and evolution of the market is on display across the six archetypes, with each category being introduced over time.

EVOLUTION OF COURSEWARE OFFERINGS OVER TIME
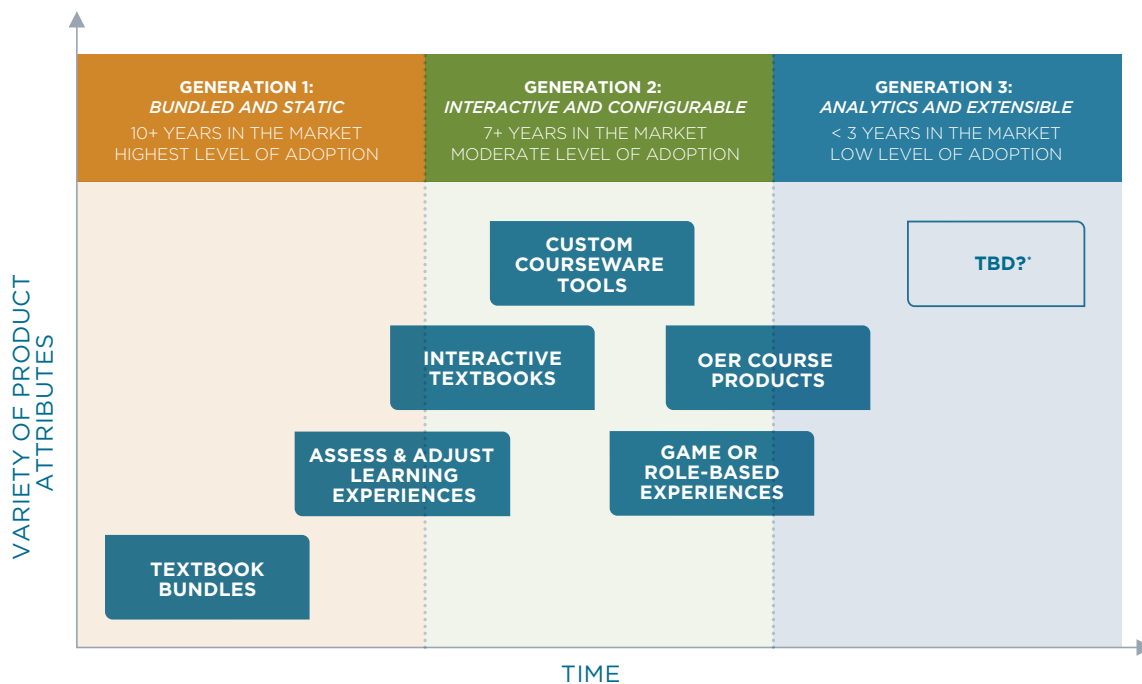
* At the time of publication a number of developments portend promising new directions for courseware offerings. They include, for example: MOOC content delivered in a blended classroom model, learning management system re-design and various demand aggregation consortia for learning platforms and courseware. All efforts support analytics and extensbility for digital content.

CHALLENGES TO ONGOING MARKET EVOLUTION

The foregoing taxonomy of product archetypes and exploration of their progression highlight some of the challenges to ongoing evolution in the postsecondary digital courseware market. These challenges give shape to the gaps that exist between supply and demand.
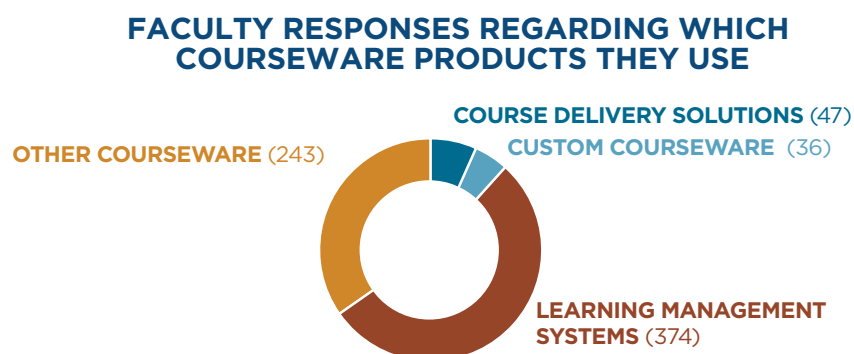
COURSEWARE INNOVATIONS DO NOT DISPLACE THEIR PREDECESSORS; THEY JOIN THEM IN THE MARKETPLACE.

The digital courseware market produces more than $1.6 billion in annual revenues. Meanwhile, the new textbook market earns $4.4 billion[1] annually. Clearly, the continued growth of digital products has not made a relic of printed materials. Textbook Bundles, the first innovation among product archetypes, became ubiquitous by the early 2000s, but they have not made printed texts irrelevant. In turn, offerings in newer courseware archetypes that promise rich media and personalization are not displacing Textbook Bundles from online storefronts anytime soon.

CUSTOMER CONFUSION OVER WHAT CONSTITUTES DIGITAL COURSEWARE LIMITS AWARENESS OF INNOVATIVE OPTIONS.

Faculty and administrators have a high awareness of courseware as a category but very low awareness of specific products and offerings. Fewer than 20% of the courseware products that our summer 2014 faculty survey respondents indicated that they use fit into the early-generation archetypes of Interactive Textbooks or Assess & Adjust Learning Experiences; while the newer archetypes barely registered among our survey respondents. We believe that the even lower awareness of both newer courseware products and the range of courseware offerings is one cause of the lag between innovation and institutional adoption in the courseware space. Further complicating adoption of innovative courseware models is the fact that textbooks and textbook bundles represent not only a familiar product but a familiar course experience for faculty, who know well how to fit these resources into their syllabi and lesson plans. Changing curriculum can mean changing the way a course is designed and delivered, and the time required to effect this transition was identified in our faculty survey as the leading barrier to adopting courseware.

Furthermore, we found a widespread lack of recognition of courseware as a category distinct from learning management systems and course delivery solutions (e.g., homework tools, lecture capture tools, content management systems). The chart below represents survey responses to an open-response question that asked faculty to name the courseware products they were using. Over half of our respondents did not or could not name the product that they used. Over half of those who did respond named learning management systems. Courseware products as we have defined them were less frequently mentioned. These responses represent a problem for this diverse market, which needs faculty to recognize courseware's focus on teaching and learning experiences rather than administrative and operational functionality.

FACULTY RESPONSES REGARDING WHICH COURSEWARE PRODUCTS THEY USE

COURSE DELIVERY SOLUTIONS (47)

CUSTOM COURSEWARE (36)

OTHER COURSEWARE (243)

LEARNING MANAGEMENT SYSTEMS (374)

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1. **Source:** Simba and Tyton Partners analysis

## COURSEWARE PRODUCTS MUST RESPOND TO INSTITUTIONS' WIDE-RANGING CUSTOMIZATION PREFERENCES

Course-complete curriculum resources are in competition with postsecondary courseware products that allow institutions to either build their own curriculum or supplement their content with open or proprietary assets. Based on our supplier scan, the custom courseware segment is robust reflecting demand from a significant tranche of the faculty population who faculty who prefer to customize their curriculum and aspire to curate a diversity of curricular sources. Open educational resources have also emerged as a possible solution in these contexts, yielding two product archetypes that can address both "buy" and "build" scenarios at an institution, Custom Courseware Tools and OER Course Products. In response to growing demand for customization, multiple products from the Assess & Adjust Learning Experiences and Interactive Textbooks archetypes have been adding support for third-party content, as well as increased personalization leveraging this content. To make this a sustainable business proposition, we see the suppliers moving from a "customized" experience to an "extensible" one where content is more modular. However, the market is still in the early stages of meeting faculty and institutional expectations against this value proposition.

EMERGENT COURSEWARE PROVIDERS FACE BARRIERS TO PRODUCT DEVELOPMENT, MARKET ENTRY, AND PRODUCT DISTRIBUTION.

The most obvious obstacle for smaller providers is one of limited resources that preclude broad portfolios that could address the heterogeneous needs of institutions. Large publishers have the means to simultaneously offer multiple courseware products that fit most archetypes across many disciplines and courses. Since 2010, we estimate that approximately $300 million in venture capital has been invested in the courseware ecosystem, averaging about $60 million per year and representing less than 10% of the total capital invested in emerging and early-stage businesses targeting higher education. In contrast, between the four largest publishers, an estimated $430 million is invested annually in research and development relevant to courseware – six to seven times more than the capital available to early-stage and emerging businesses for this area.

Distribution channels and sales reach play a key role in marketing courseware, where long cycles and high costs of sales inhibit market penetration. Courseware providers already face high barriers to entry due to product development costs, and they must also confront the need to create a market for their products by investing in sales and marketing teams or by partnering with established publishers. One emergent courseware developer we spoke with remarked that he does not bother to market his product directly to faculty at traditional institutions. After several costly but small-scale pilots, this developer quipped, "Faculty at these institutions don't seem to have the same sense of urgency about solving the problems that we are trying to solve."

ESTIMATED ANNUAL SPENDING ON DIGITAL COURSEWARE DEVELOPMENT[1]

GROWTH CAPITAL ($65M)

PUBLISHER INTERNAL DEVELOPMENT ($430M)
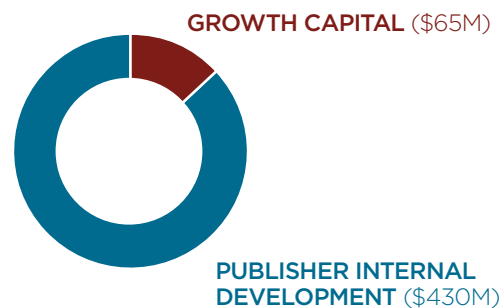
[1] Source: Company Filings and Public Announcements, Tyton Partners Analysis.

A CALL TO ACTION

In light of these challenges to the evolution of the courseware market, how can high-quality personalized learning in higher education be achieved at scale? Can digital courseware help to reach this goal? Answers to these questions will be found in the complex, messy process of closing the gaps between courseware supply and courseware demand.
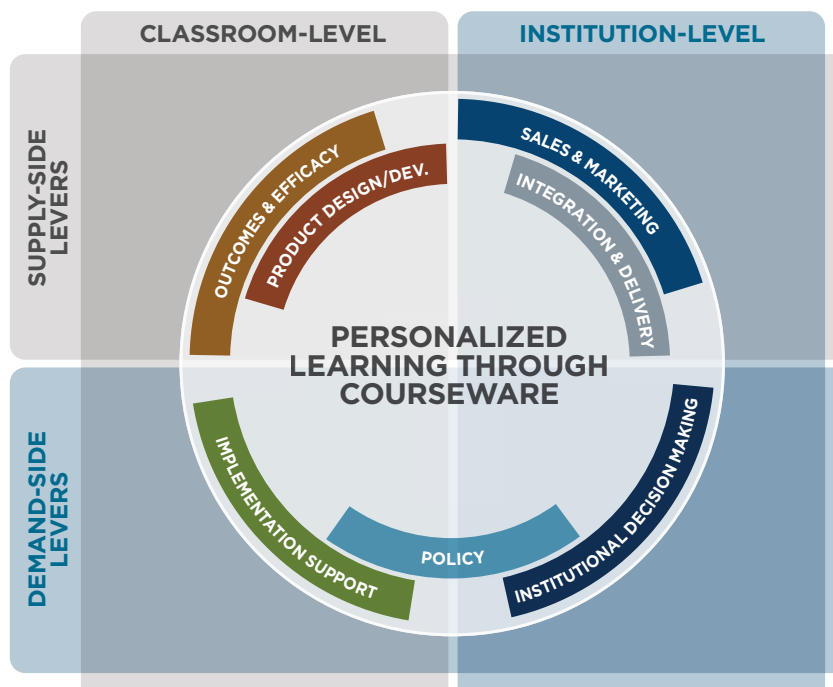
POSTSECONDARY INSTITUTIONS

On the **demand side**, faculty and administrators need to consider how to encourage and enable the adoption of courseware that supports their preferred teaching and learning practices and objectives. While centralized decision making and purchasing may offer some benefits, institutions need to seriously consider how faculty will be impacted by centralized decisions and to determine whether faculty incentives are aligned to support the effective adoption and application of digital courseware. In keeping with the framework presented above, to help close the supply/demand gap, institutions should focus specifically on decision making and implementation support.

- Faculty and administrators need to align **institutional decision making** to the value propositions of the product archetypes. Our taxonomy and rubric (see appendix) for courseware offerings provide helpful starting points for finding solutions that are aligned to specific institutional academic and strategic goals.

- Faculty and administrators need to consider how the vendor will provide **implementation support** to scale the solution from pilot to widespread adoption. Challenge vendors to identify processes for change management and professional development, which will indicate experience with enterprise-level campaigns.

COURSEWARE SUPPLIERS

On the ***supply side***, courseware providers need to consider the following opportunities and market forces to communicate the value of their offerings and help ensure broader courseware adoption.

- Courseware providers need to use ***product design and development*** to differentiate users' courseware experience more explicitly from their learning management system experience in order to demonstrate the difference between the more LMS-reliant Textbook Bundles and newer archetypes.

- Courseware providers need to use ***sales and marketing messaging*** to provide a compelling response to the following emerging purchase considerations:

    - The desire of institutions – faculty, instructional designers, and others – to efficiently and effectively build or configure curriculum themselves

    - The need to include open educational resources as a source of content or have other options to drive down total instructional materials costs

- Courseware providers need to devote innovative thinking and resources to ensuring the desired ***outcomes and efficacy*** of the solution and then deliver those results at scale. Serializing the pilot implementation is not an effective distribution and scaling strategy.

APPENDIX: GUIDE TO DIGITAL COURSEWARE PRODUCT ATTRIBUTES

As institutions evaluate various courseware options it is important to precisely understand how options align to key product attributes. The rubric below can be a helpful tool to determine the nuances of courseware offerings, how those solutions compare to other available options and how important those differences are to institutional stakeholders. For example, if faculty at your institution generally value using content from multiple sources, then a couseware offering with "closed or no external content" will not be a good fit, all else being equal.

DIGITAL COURSEWARE PRODUCT ATTRIBUTES
SIX PRODUCT ATTRIBUTES, EACH WITH A SPECTRUM OF OPTIONS

	PRODUCT ATTRIBUTES	INSTITUTIONAL IMPORTANCE
CONTENT SOURCE: Offering can deliver interactive instruction from a range of content sources or is "closed"	← – – – – – – – – – – – – – – – – – – → Closed or no external content / Limited external content / Ubiquitous external and aligned content	HIGH — MEDIUM — LOW

VALUE ON SUPPORTING MULTIPLE CONTENT SOURCES

	PRODUCT ATTRIBUTES	INSTITUTIONAL IMPORTANCE
CUSTOMIZATION AND CONFIGURATION: Solution supports the adaptation, sequencing, and/or creation of course content/experiences	← – – – – – – – – – – – – – – – – – – → Configuration or sequencing only / Customization possible but not primary use case / Customization identified as primary use case	HIGH — MEDIUM — LOW

VALUE ON DEVELOPING CONTENT ALIGNED WITH UNIQUE COURSE OR PROGRAM LEARNING OBJECTIVES

	PRODUCT ATTRIBUTES	INSTITUTIONAL IMPORTANCE
INTERACTIVITY OF INSTRUCTION: Offering delivers expository content, collaboration tools, and interactives to support a range of instructional models	← – – – – – – – – – – – – – – – – – – → Single dominant presentation / Single dominant presentation and interaction mode / Persistent variety of modes	HIGH — MEDIUM — LOW

VALUE ON VARYING MODES OF PRESENTATION, INTERACTION, AND ASSESSMENT

	PRODUCT ATTRIBUTES	INSTITUTIONAL IMPORTANCE
MODALITY OF INSTRUCTION: Product supports online, on-premises, and hybrid learning	← – – – – – – – – – – – – – – – – – – → Online or on-premises only / Hybrid possible, not primary use case / Hybrid is primary use case	HIGH — MEDIUM — LOW

VALUE ON SUPPORTING HYBRID OR BLENDED LEARNING

	PRODUCT ATTRIBUTES	INSTITUTIONAL IMPORTANCE
PERSONALIZATION: Offering assesses student learning and guides sequence and experiences of instruction	← – – – – – – – – – – – – – – – – – – → Basic usage and performance reports only / Can identify strengths/areas to improve / Can prescribe sequence and experiences	HIGH — MEDIUM — LOW

VALUE ON SUPPORTING PERSONALIZED LEARNING

	PRODUCT ATTRIBUTES	INSTITUTIONAL IMPORTANCE
VALUE-ADDED SERVICES: Product includes professional development or other services to aid adoption	← – – – – – – – – – – – – – – – – – – → Technical support only / Prof. dev. content but no change management support / Prof. dev. content and delivery, robust change management support	HIGH — MEDIUM — LOW

VALUE ON PROVIDING PEDAGOGICAL AND TECHNICAL SUPPORT

ACKNOWLEDGMENTS

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Adam Newman is a co-founder of Tyton Partners and has more than 15 years of experience in strategy consulting, market research, and investment banking supporting the education sector. Adam began his professional career as a K–12 educator and athletic coach at schools in Boston, MA, and New Orleans, LA.

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ABOUT TYTON PARTNERS

Tyton Partners, formerly Education Growth Advisors, is the leading provider of investment banking and strategy consulting services to the global knowledge sector. Built on the tenets of insight, connectivity, and tenacity, Tyton Partners leverages in-depth market knowledge and perspective to help organizations pursue solutions that have lasting impact.

As an evolved advisory services firm, Tyton Partners offers a unique spectrum of services that supports companies, organizations, and investors as they navigate the complexities of the education, media, and information markets. Unlike most firms, Tyton Partners understands the intricacies and nuances of these markets and plays an integral role in shaping the efforts that drive change within them. The firm's expertise is predicated on its principals' years of experience working across market segments – including the preK–12, postsecondary, corporate training, and lifelong learning sectors – and with a diverse array of organizations, from emergent and established private and publicly traded companies, to non-profit organizations, institutions, and foundations, to private equity and venture capital firms and other investors.

Tyton Partners leverages its deep foundation of transactional and advisory experience and an extensive global network to make its clients' aspirations a reality and catalyze innovation in the sector.

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This white paper, *Time for Class: Lessons for the Future of Digital Courseware in Higher Education* is the second of three publications in this area. The third publication will highlight key decisions that impact courseware adoption by institutions and share insights into the preferences of the decision-makers. It will also introduce a potential path forward for redefining digital courseware, with the objective of targeted evolution to enable personalized learning at scale

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