

The ASU Framework for Assessing the Return on Digital Learning

Why Develop an ROI Framework for Digital Learning Initiatives?

To support higher education institutions to make better decisions as they formulate their strategies for digital learning, Arizona State University and Boston Consulting Group collaborated to examine the return on investment of digital learning initiatives in six different institutional contexts. This project had three primary goals:

1. To define what ROI means in a digital learning context.
2. To assess the impacts of digital learning on enrollment, student learning outcomes, and costs for institutions and students.
3. To identify and share lessons and best practices from different implementations of digital learning.

ASU and BCG released their findings in a 2018 report titled “Making Digital Learning Work.” The report introduces a framework for evaluating the ROI of digital learning initiatives and offers guidance for institutions seeking to systematically evaluate and improve their digital learning strategies. The ASU ROI framework was developed with input from an advisory committee of thought leaders from across the institutional and industry realms and is a useful tool for evaluating digital learning as a path toward institutional goals.

In this analysis, **digital learning** was defined as technology-enabled instruction that gives students and faculty greater flexibility in how, when and where learning occurs. This project focused on three types of digital learning implementation: fully online programs, online courses and mixed-modality courses.

The ASU ROI Framework

Working together with institutions and the advisory committee, the team from ASU and BCG determined that the ROI for digital learning should be a measure of the return for both an institution and its students, consisting of three components:

- Impacts on student *access* to higher education.
- Impacts on student learning *outcomes*.
- Impacts on institutional and student *economics*.

These three components represent common goals for implementing digital learning, as well as areas of progress or change that institutions report as a result of their use of digital learning.

The project team assessed the impacts of digital learning on these three components by working closely with six institutions that had implemented digital learning at scale. The team spent two months gathering information on each institution through site visits, interviews and data collection. This case study approach allowed for extensive data collection and development of a strong understanding of the different digital learning strategies of each institution. It also allowed for needed flexibility in data collection. The limitation of using a case study approach was that identifying generalizable findings between digital learning initiatives and their outcomes was difficult. Despite this, the approach outlined in the report can be used to inform institutional exploration of digital learning and the related ROI analysis.

Measuring Digital Learning Impacts on Access, Outcomes and Economics

Isolating and measuring the costs and returns of a digital learning initiative to calculate its ROI can be very complicated. For example, to understand the costs of a mixed-modality digital learning implementation relative to a face-to-face base case, an institution would need to consider the direct costs of the mixed-modality course (the costs of development and instruction, for example) relative to the direct costs of a comparable face-to-face course, plus indirect costs like those related to changes in how administrators and faculty spend their time. Each of these costs would need to be adjusted for the number of students served in each scenario. Most institutions have limited capability to do detailed “what if” scenario analysis in advance of a project; as a result, ROI is more often evaluated once a project is underway.

To help institutions get started with assessing ROI, “Making Digital Learning Work” suggests the types of data to include as inputs in the ASU ROI framework. The table below shows which metrics may be useful to track for each component of the framework and how those metrics can be measured.

Components of Digital Learning ROI and How to Measure

	Hypothesis*	Metrics	How to Measure
Access	Digital learning implementation can broaden access to high-quality education, particularly for disadvantaged student groups.	<ul style="list-style-type: none"> ● Enrollment (total and separately for digital and face-to-face courses). ● Representation of target student populations (e.g., Pell Grant recipients, minority students, female students, students age 25 or above). 	Review total credit hours and enrollment during the digital learning implementation period. Disaggregate the data by course delivery modality and student demographic data to detect overall growth of enrollments and shifts in the proportions of particular student populations over time. Compare the proportion of students from target populations in face-to-face courses versus digital courses.

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	Hypothesis*	Metrics	How to Measure
Outcomes	Digital learning implementation can deliver equivalent or improved quality of education and student learning outcomes.	<ul style="list-style-type: none"> ● Program outcomes like rates of degree completion, year-over-year retention, graduation and transfer to other institutions (total and separately for programs with digital learning and face-to-face courses). ● Course outcomes like percentage of students earning A, B or C grades, or DFW (drop, fail, withdraw) rates. ● Performance gap between different student populations. 	Group students within the same academic year by the number or type of digital courses they took during a particular period (e.g., students who took no digital courses, students who took at least one but not all digital courses and students who took 100% digital courses). Compare program outcomes, like retention, completion and time to degree across these groups. Compare the course level outcomes, ABC rates and DFW rates of sections of the same course that are taught face-to-face versus in digital modalities. Ideally, these outcomes would reflect the same time period; however, it may be necessary to compare outcomes from different years.
Economics	Digital learning implementation can help improve the financial picture of institutions and students by lowering costs or by raising revenues.	<ul style="list-style-type: none"> ● Student economics: Cost of course materials, tuition expenditures and potential salary earnings from earlier entry into the workforce. ● Institutional economics: Cost of implementing digital learning (employees, technology, infrastructure, etc.); income from tuition, fees and grants. 	<p>For student economics, look at the cost of course materials in face-to-face versus digital modalities, and consider the impact of the time to graduation on total tuition expenditures and potential salary earnings.</p> <p>At the institutional level, compare instructional, operations and student support and other costs at the per-student level. For example, compare instructional costs by gathering data on student enrollment numbers and the types of instructors (full-time versus adjunct) leading face-to-face and digital courses. Calculate instructional cost per student in different modalities.</p>

*Compared to face-to-face base case

To holistically evaluate the return from a digital learning initiative using the ASU ROI framework, the ROI from that initiative should be compared with the actual or projected ROI from maintaining the status quo or taking on other projects, like investments in campus-based instruction. This provides a basis for comparing different prospective or ongoing projects, in addition to evaluating whether a project is going to produce a positive return.

Key Findings and Implications for Digital Learning Strategies

ASU and BCG's detailed analysis of digital learning implementations at the six case study institutions not only informed the creation of the ASU ROI framework but also produced important findings that can shape how other higher education institutions think about their own digital learning strategies. Highlights from the report regarding the impacts of digital learning are provided below.

Selected Impacts of Digital Learning Implementation

Key Research Findings	
Access	<ul style="list-style-type: none"> ● Overall enrollment grew as the use of digital learning expanded. ● Target student populations grew as a proportion of the whole as the use of digital learning expanded. <p>Takeaway: Access to education for all students, including target student populations, can be expanded with greater use of digital learning.</p>
Outcomes	<ul style="list-style-type: none"> ● Students taking a portion of their courses online and a portion face-to-face experienced improved retention and graduation rates compared with students taking 100% face-to-face courses. ● One institution showed that students taking a portion of their courses online had a shorter time to graduation compared with students taking all courses face-to-face. ● Digital learning had mixed impacts on course grades, in some cases showing decreases in grades despite improved retention, supporting the “digital learning paradox” that other researchers have observed in past analyses. ● Adaptive courseware helped close achievement gaps for minority students and Pell Grant-eligible students compared with non-minority students and students ineligible for Pell Grants. <p>Takeaway: Digital learning programs and courses can result in student outcomes that are equivalent to or improved compared to face-to-face instruction, with the best outcomes noted for students taking a portion of their courses in digital modalities.</p>
Economics	<ul style="list-style-type: none"> ● Online courses have higher student-to-instructor ratios and use more adjunct or part-time faculty. Combined, these factors lower instructional costs per credit hour compared to face-to-face courses. ● Online learning has different infrastructure and maintenance costs. For example, online courses require less physical space on campus to serve more students. However, they can require investment in other infrastructure, like improved Wi-Fi on campus and digital support teams. <p>Takeaway: Carefully planned digital learning initiatives can reduce institutional course delivery costs compared with face-to-face learning.</p>

Conclusion

While applying the ASU ROI framework requires an investment of time and resources, it has the potential for significant dividends. These dividends come in the form of more systematic evaluation of digital learning investments, a data-based approach for decision-making, and ultimately more-effective resource allocation to support a digital learning strategy. At a time when higher education institutions' investment decisions are coming under increased scrutiny, the ASU ROI framework can provide both internal and external stakeholders with greater confidence in institutions' decision-making processes and ultimate allocation of funds. This is a necessity if institutions are to continue to work toward better serving students with digital learning initiatives, while increasingly constrained by limited resources.