

rapid growth through easy downstream adoptions by faculty and students.

In 2012, OpenStax College launched as a nonprofit with the aim of producing high-quality, peer-reviewed full-color textbooks that would be available for free for the twenty-five most heavily attended college courses in the nation. Today they are fast approaching that number. There is data that proves the success of their original hypothesis on how many students they could help and how much money they could help save.¹ Professionally produced content scales rapidly. All with no sales force!

OpenStax textbooks are all Attribution (CC BY) licensed, and each textbook is available as a PDF, an e-book, or web pages. Those who want a physical copy can buy one for an affordable price. Given the cost of education and student debt in North America, free or very low-cost textbooks are very appealing. OpenStax encourages students to talk to their professor and librarians about these textbooks and to advocate for their use.

Teachers are invited to try out a single chapter from one of the textbooks with students. If that goes well, they're encouraged to adopt the entire book. They can simply paste a URL into their course syllabus, for free and unlimited access. And with the CC BY license, teachers are free to delete chapters, make changes, and customize any book to fit their needs.

Any teacher can post corrections, suggest examples for difficult concepts, or volunteer as an editor or author. As many teachers also want supplemental material to accompany a textbook, OpenStax also provides slide presentations, test banks, answer keys, and so on.

Institutions can stand out by offering students a lower-cost education through the use of OpenStax textbooks; there's even a textbook-savings calculator they can use to see how much students would save. OpenStax keeps a running list of institutions that have adopted their textbooks.²

Unlike traditional publishers' monolithic approach of controlling intellectual property, distribution, and so many other aspects, OpenStax has adopted a model that embraces open licensing and relies on an extensive network of partners.

Up-front funding of a professionally produced all-color turnkey textbook is expensive. For this part of their model, OpenStax relies on philanthropy. They have initially been funded by the William and Flora Hewlett Foundation, the Laura and John Arnold Foundation, the Bill and Melinda Gates Foundation, the 20 Million Minds Foundation, the Maxfield Foundation, the Calvin K. Kazanjian Foundation, and Rice University. To develop additional titles and supporting technology is probably still going to require philanthropic investment.

However, ongoing operations will not rely on foundation grants but instead on funds received through an ecosystem of over forty partners, whereby a partner takes core content from OpenStax and adds features that it can create revenue from. For example, WebAssign, an online homework and assessment tool, takes the physics book and adds algorithmically generated physics problems, with problem-specific feedback, detailed solutions, and tutorial support. WebAssign resources are available to students for a fee.

Another example is Odigia, who has turned OpenStax books into interactive learning experiences and created additional tools to measure and promote student engagement. Odigia licenses its learning platform to institutions. Partners like Odigia and WebAssign give a percentage of the revenue they earn back to OpenStax, as mission-support fees. OpenStax has already published revisions of their titles, such as *Introduction to Sociology 2e*, using these funds.

In David's view, this approach lets the market operate at peak efficiency. OpenStax's partners don't have to worry about developing textbook content, freeing them up from those