

MAPPING A POSTSECONDARY LEARNING ECOSYSTEM: ALTERNATIVE PROVIDERS IN CONTEXT

LOUIS SOARES, ACE CHIEF LEARNING AND INNOVATION OFFICER

This is the second piece in a series focused on exploring the concept of a *learning ecosystem* for postsecondary education. A postsecondary learning ecosystem includes not only traditional higher education institutions but also *alternative providers*—organizations that are neither public nor private institutions of higher education but deliver postsecondary content or provide skills training that connects learners to the labor market, either independently or in partnership with colleges and universities. As discussed in [the first article](#) in this series, alternative providers provide both competitive and complementary offerings respective to colleges and universities. This article elaborates on the concept of a learning ecosystem through the broad lens of a knowledge society that offers an alternative to the current either/or debate on postsecondary education opportunities. A deeper understanding of what remains an emerging learning ecosystem can help stakeholders take an agile, yet responsible, posture toward regulation, incentive structures, academic quality, and business models.

INTERDEPENDENCE IN POSTSECONDARY LEARNING ECOSYSTEMS

Technology is enabling diverse actors to collaborate and support learners on their learning journeys in unprecedented ways. Alternative providers are rising in prominence in this increasingly interoperable postsecondary market. As interoperability between vastly different types of institutions and organizations deepens, relationships between them are becoming more interrelated and mutually reinforcing, making the term *ecosystem* an apt metaphor to describe the increasing interdependencies between postsecondary actors.

In the life sciences, an ecosystem is a biological community of interdependent organisms in the physical environment. Interdependent organisms are those that are dependent on each other for life. If they are not interacting with each other's processes, they die, and the ecosystem collapses.

In non-biological terms, an ecosystem is a complex network or interconnected system of people, organizations, and other entities. The ecosystem metaphor is particularly useful to help us understand and grapple with the interdependence among a vast array of actors that interact with and influence postsecondary education. Colleges and universities are essential actors in the ecosystem because their role is central in delivering postsecondary education. However, they depend on other entities in the ecosystem, especially K–12 schools that create the traditional student pipeline; employers who hire new graduates; federal, state, and local governments that provide funding and regulatory infrastructure; community-based organizations that encourage college pathways; and families who encourage their children to pursue postsecondary education. Each of these actors depend on each other; for example, community-based organizations may provide resources to parents who never attained a college degree so that they can instill a college-going mindset in their children, who later become first-generation students.

One critical point of interdependence between actors in the postsecondary education ecosystem is the ability to document, validate, and share learning and its outcomes across stakeholders. Without processes that serve this function, no ecosystem can flourish. Historical examples of this process include traditional transfer of credit as well as awarding credit for prior learning for workplace training. These processes transform knowledge that is useful in one setting—a workplace or college—into college credits that form the foundation of a degree pathway. By recognizing these kinds of interdependencies, an ecosystem approach to higher education allows us to take a both/and approach that recognizes the centrality of colleges and universities as facilitators of knowledge creation and dissemination while also acknowledging the value of differentiated and diverse postsecondary options.

This article first describes the economic and social forces that are driving the expansion of post-traditional (e.g., informal and nonformal) learning and later offers preliminary frameworks for mapping alternative providers. Given the diversity of interests, motivations, and resources postsecondary providers bring to the personal learning journeys of millions of individuals, mapping the postsecondary ecosystem is critical to optimizing for positive learning, economic, and social outcomes.

ADAPTIVE PRESSURES DRIVING LEARNING ECOSYSTEM EMERGENCE

The emergence of a postsecondary learning ecosystem reflects the need for efficient, effective mechanisms to meet the need for human capital. In a now-prophetic 1994 article from *The Atlantic*, “[The Age of Social Transformation](#),” management guru Peter Drucker predicted that information technology would drive the emergence of a “knowledge society” in which the continuous production, dissemination, and application of knowledge was the life blood of both economic growth and social cohesion. Positing learning—knowledge creation at its most fundamental level—as an inherently social activity involving a mix of classroom study and learning-by-doing across different disciplines and functions in work and society, Drucker predicted that the coming decades would bring not only social change but also give rise to what we would now think of as an ecosystem of learning underpinned by new values, institutions, economics, politics, and social ways of being.

Drucker’s insightful thinking about how learning and knowledge creation would change provides a useful lens for higher education leaders to reflect on the trends shaping our sector and the world. For instance, [college enrollment](#) among recent high school graduates dropped by nearly 10 percent between 2009 and 2021, a trend reflecting [increasingly common popular sentiments](#) such as the desire for alternative pathways to prepare for life and work, the desire to obtain more marketable skills, and concerns over rising college costs.

Whether through short term-training, online learning, or vocational education, diverse forms of learning can help drive prosperity and enable greater flexibility for learners. Recalling Drucker’s argument about the knowledge society, this is especially the times of intense technological change, as modalities for learning and knowledge circulation are forced to adapt to new technological realities. The current moment is marked by adaptive pressures on individuals, cities, regions, and the nation that present new opportunities to expand the postsecondary ecosystem to optimize for greater social cohesion and economic growth.

HOW TECHNOLOGICAL CHANGE DRIVES LEARNING-BY-DOING

General-purpose technology is the term that economists adopted to describe technologies that serve as a foundation for a wide range of applications in the economy. Electrification, which transformed manufacturing and household production in the early twentieth century, and mechanization, which transformed manufacturing and agriculture in the nineteenth century, are examples of general-purpose technologies. These forms of technology are disruptive to economies because they yield inventions that profoundly alter commerce over a long period of time—often two to three decades or more. These changes occur as knowledge related to the new technology emerges and stabilizes, causing workers to adapt and learn new skills while employers try to understand how to best leverage new knowledge and skills to optimize and organize production. Economic life over the last 30 years was shaped by an especially potent general-purpose technology—information technology—which continues to transform multiple economic sectors (e.g., health care, manufacturing, and logistics). Artificial intelligence will likely be the next general-purpose technology to fundamentally change economic sectors, possibly followed by biotechnology and nanotechnology.

Importantly, the organic nature of this synchronous, multi-sectoral economic change drives sharp increases in *learning-by-doing*, by which productivity is achieved through practice and incremental innovation (in contrast to formal modes of knowledge transfer, which struggle to keep up with the pace of innovation). Learning-by-doing corresponds with hands-on approaches to education, wherein students must interact with their environment in order to adapt and learn. These modalities are critical in times of technological transformation because a standardized body of knowledge does not yet exist for all the new information impacting work and life.

The impacts of IT and, increasingly, AI, are already influencing the postsecondary learning ecosystem in ways that underscore the importance of learning-by-doing. This is evident in the relative rise in demand for experienced workers; the increase in demand for applied learning experiences like internships; the emergence of credentials like badges that purport to validate ever-smaller units of learning; competency-based education; and now apprenticeships—a paradoxically old and new way of learning-by-doing. Each of **these trends** reflect that technology-driven learning in the workplace is due, at least in part, to the difficulty that higher education institutions face in creating curricula and programs at the rapid pace of technological change.

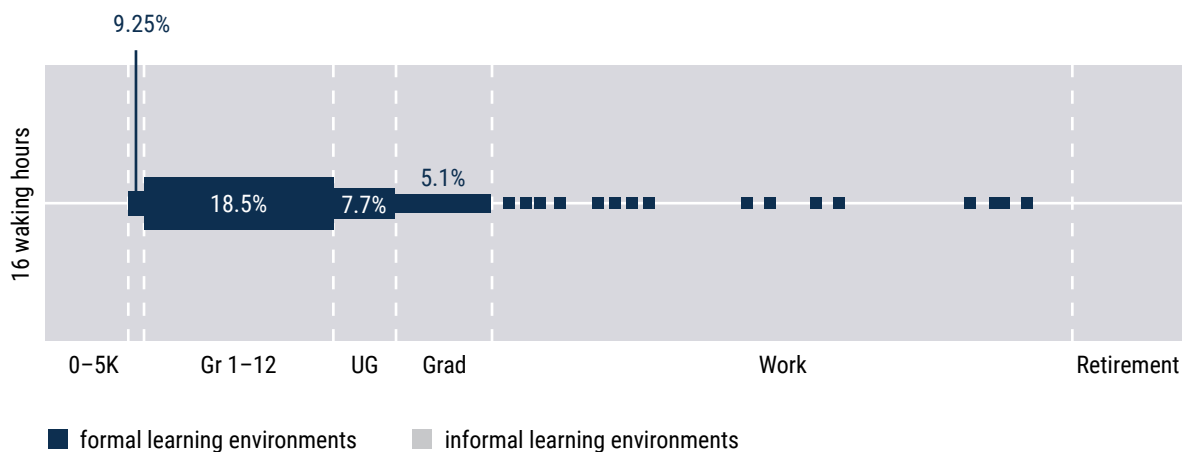
ECOSYSTEM IMPLICATIONS FOR ECONOMIES, SOCIETIES, AND INDIVIDUALS

A learning ecosystem that is adapting to technological change and is increasingly based in learning-by-doing will have significant impacts on the economy, society, and individuals. Addressing the macro-scale, economist **Bengt Lundvall** links learning-by-doing and scientific discovery in a virtuous circle for enhancing not only economic performance but also social cohesion. Lundvall makes the same connection that Drucker did.

Addressing the individual level, **Michele Wiese** takes a holistic view of learning in a time of dynamic change. Beginning with the demographic reality that many more people in developed countries will live at least 100 years, Wiese uses an ecosystem lens to posit a rich set of learning experiences over the course of an extended lifespan and longer careers. The optimal design principles for a learning system that accommodates this possibility include being navigable, supportive, targeted, integrated, and transparent. While enabling learning for one’s own purposes, the ecosystem can also facilitate connection to the broader social enterprise of knowledge creation and, critically, ensure that learning is efficient, effective, and fast.

These economic, social, and individual lenses are a starting point for understanding how learning will continue to evolve as we move deeper into the knowledge society Drucker predicted. Fortunately, researchers of the science of learning are also trying to better the connections between learning in informal and formal education settings. For example, figure 1, adapted from the Learning in Informal and Formal Environments (LIFE Center), demonstrates the relationship between the time we spend in school and the rest of our lives—illustrating how learning across different contexts might take place in a world of synchronous technological change. A critical task is to understand the characteristics of the learning ecosystem that can enable optimal outcomes at both macro and individual levels.

Figure 1. Lifelong and life-wide learning diagram



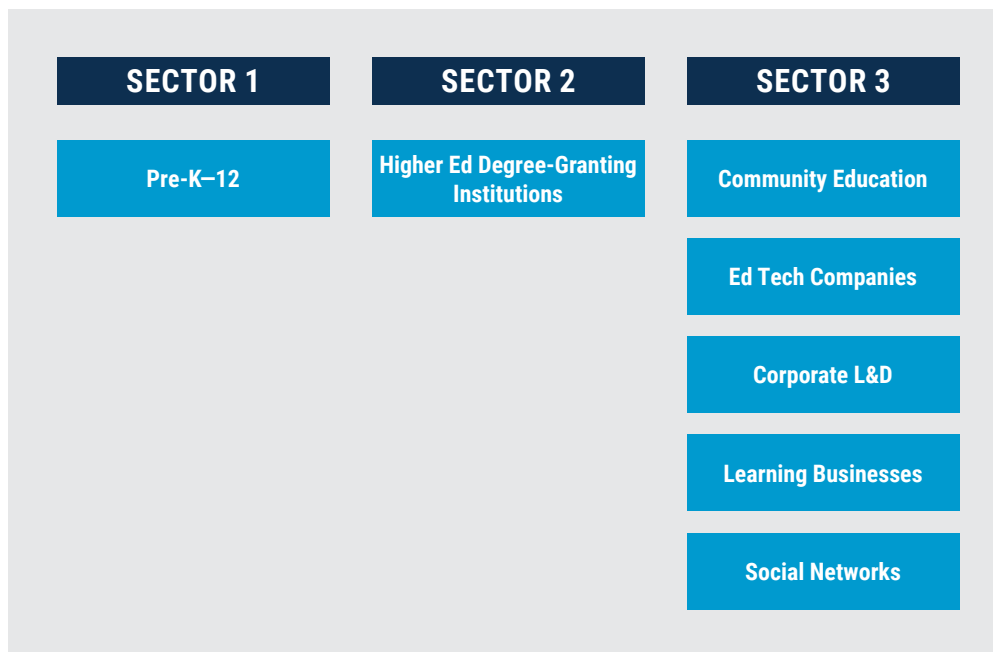
Source: Adapted from Reed Stevens, John Bransford, and Anne Stevens (Seattle, WA: LIFE Center, 2005). The LIFE Center Lifelong and Life-wide Learning Diagram is licensed under a [Creative Commons Attribution-NonCommercial-NoDerivs 3.0 United States License \(CC BY-NC-ND 3.0 US\)](http://creativecommons.org/licenses/by-nc-nd/3.0/us/). See <http://life-slc.org/about/citationdetails.html>.

Note: This diagram shows the relative percentage of their waking hours that people across the lifespan spend in formal educational environments and other activities. The calculations were made on the best available statistics for a whole year basis on how much time people at different points across the lifespan spend in formal instructional environments. (Reproduced with permission of the LIFE Center.)

MAPPING ECOSYSTEM CONNECTIONS ACROSS ORGANIZATIONS

As previously noted, an ecosystem is a complex network or interconnected system of people, organizations, and/or other entities. To illuminate the ecosystem implications of figure 1, we can draw on analysis from Leading Learning, a consultancy focused on workplace learning innovation and working to make sense of how corporate learning is interconnected and co-evolving with formal education. Figure 2, adapted from Leading Learning, posits three sectors mapping to K–12, traditional higher education, and informal education, respectively. Combining this model with figure 1, Sectors 1 and 2 would represent formal education, whereas Sector 3 would represent informal education. What is evident is that a significantly greater share of an individual’s time is spent engaged in informal versus formal education.

Figure 2. The learning ecosystem, education sector view



Source: Adapted from Jackie Harman, “The Third Sector of Education,” *Leading Learning Podcast*, episode 258 show notes, originally published January 12, 2021 and last updated February 28, 2021, <https://www.leadinglearning.com/episode-258-third-sector-education/>.

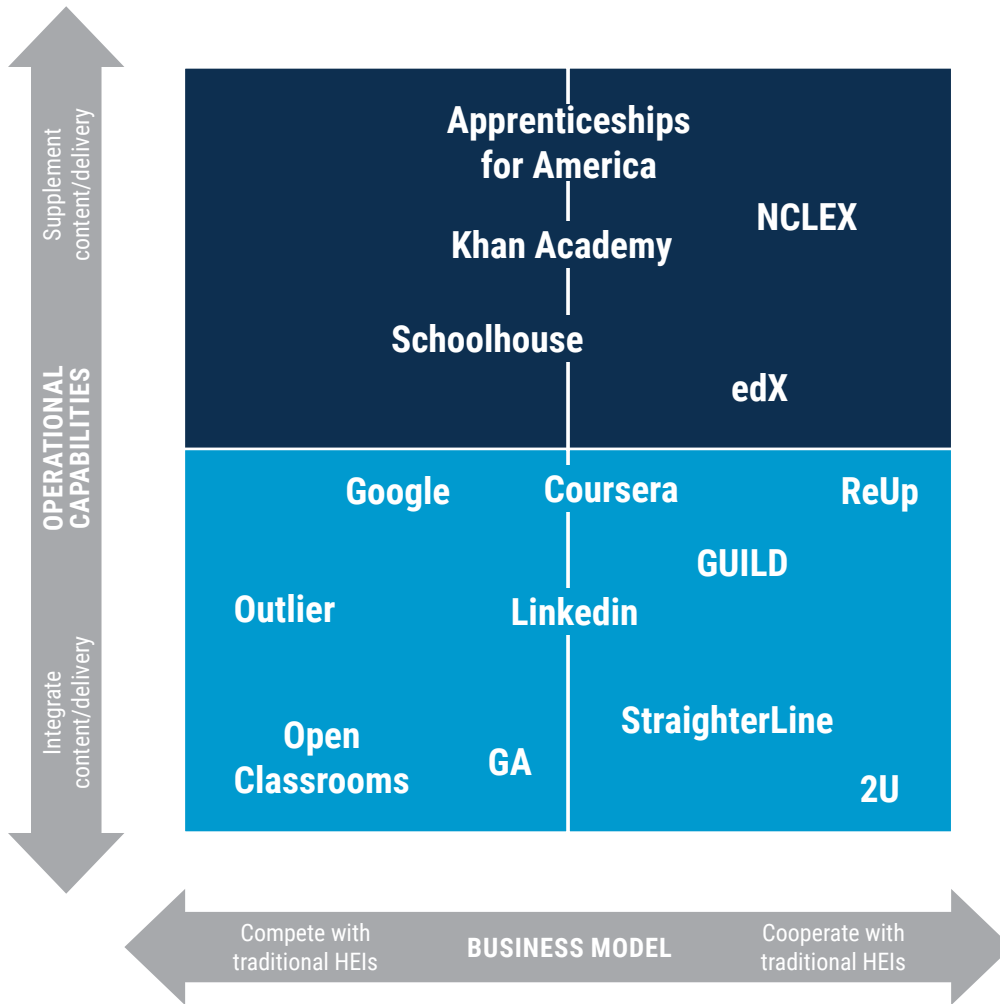
Two issues are notable for this emerging third sector. First, a great deal of knowledge creation within it takes the form of learning-by-doing, as learning experiences grow out of the work as well as family and community realities. Second, there is a great deal of variation between sources and providers of learning in this part of the ecosystem, revealing the need for greater understanding of the interdependencies between ecosystem processes in the third sector and other parts of the learning ecosystem. Although we are only beginning to understand this part of the broader world of learning, it is growing rapidly; Georgetown’s National Center for Education and the Workforce places investment in Sector 3 at \$590 billion, while Sector 2 investment is estimated at \$407 billion.

THE ROLE OF ALTERNATIVE PROVIDERS IN THE LEARNING ECOSYSTEM

Recall the standard definition of an alternative provider of postsecondary education posited in a recent ACE blog post: an organization that is not a public or private institution of higher education that delivers postsecondary content or provides skills training that connects learners to the labor market, either independently or in partnership with colleges and universities. Notably, this definition of alternative providers assumes the primacy of higher education institutions (defining alternative providers in terms of what they are *not*); it also firmly places alternative providers in Sector 3, providing a starting point for mapping the emerging learning-by-doing ecosystem.

Figure 3 allows us to make a more direct comparison of traditional institutions and alternative providers. The y-axis represents a continuum from replacing higher education services to complementing them, and the x-axis represents a continuum from competing with colleges and universities to cooperating with them.

Figure 3. Alternative providers in the market



Alternative providers position themselves in terms of their potential advantages over traditional colleges and universities, including shorter credential pathways, lower costs, greater flexibility, workforce-relevant programs, and streamlined connections to employers. However, this mapping of alternative providers in relation to traditional colleges and universities, although cursory, presents a more complicated picture in which these organizations will, for many learners, complement a more conventional college experience—as do other forms of learning-by-doing (e.g., family, community, and social networks).

MAPPING THE FUTURE OF LEARNING

Figures 1–3 serve as examples of how the learning ecosystem can be mapped, but they should be treated as a starting point for more expansive analyses to understand the interdependencies between ecosystem actors and processes. Future mapping efforts can address obvious questions such as the connections between actors and the extent to which they depend on each other for survival, but they should also engage more challenging issues around learner success and the optimal conditions for optimizing knowledge creation. Given the increasingly prominent role of learning-by-doing, we should also seek to understand specific outcomes such as the relationships between higher education institutions and apprenticeships and how relationships between ecosystem actors affect employer competitiveness.

These outcomes are central to the future of learning ecosystems that will optimize for social mobility and economic growth, as Drucker foresaw decades ago. For higher education leaders, the salient question is not whether alternative providers are a competitor but rather how ecosystem leaders can redesign relationships across informal, nonformal, and formal learning to position the nation for a prosperous future.