Agile Program Management

Strategies for thriving in the face of complexity and change

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Agile Program Management

Written by Remie Verougstraete

Edited by Ashley Safranski
and Anne Peasley

Artwork by Griffin Parrish
Design by Ashley Doyle

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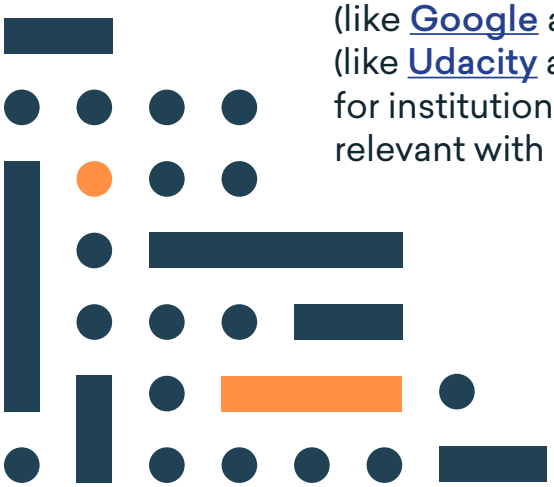
Introduction

Academic programs are the lifeblood of any college or university. While there are other important factors in enrolling and retaining students (recruitment strategies, marketing campaigns, wraparound services, etc.) an institution lives or dies on the strength of the programs it offers and whether or not those programs are attractive to learners. That's why maintaining a program portfolio's relevance and value is of paramount importance.

And yet, many institutions continue to manage academic programs the same way they did back when enrollment was steadily rising and society had an unflagging confidence in the value of a college degree. Today, things are different.

The world of work is more complex and fast-paced than ever before. Technology continues to advance at an exponential rate while impacting an ever-growing swath of the economy (including traditionally "blue collar" industries like manufacturing and agriculture). At the same time, demographic trends indicate that the prospective students of tomorrow will look very different than they do today.

As the pipeline of traditional college-age students dries up, institutions will be serving a greater proportion of adult learners who are focused on financial and career outcomes. And the growth of alternative education options from major employers (like Google and IBM) and specialized, niche training providers (like Udacity and General Assembly) is creating greater pressure for institutions to be early-to-market and transparently career-relevant with new credentials and program offerings.



Sasha Thackaberry, VP of Online and Continuing Education at Louisiana State University, summed up the situation in a recent op-ed for *Evolllution*: "Students' needs and expectations are changing because the world is changing, and our institutions need to change lest we fail to meet the challenge of our mission."

This changing world calls for a new approach to managing academic programs. Clearly, higher education will need to optimize new and existing programs to meet emerging needs of new kinds of learners. But the change must go deeper. In order to arrive at sustainable solutions for long-term viability, higher ed must re-examine how those program decisions are made in the first place. In particular, institutions must find a way to manage and develop academic programs that maintain relevance and value in a fast-paced, dynamic economy.

Now is the time for agile program management.

WHERE WE'RE HEADING IN THIS PAPER

To help your institution understand and apply a more agile approach to program management, we'll start by defining terms. We'll look at what we mean by "agile" and then define what we mean by "agile program management," or APM. After that, we'll dive into three specific applications of these principles. In other words, we help answer the question, "what does APM look like in action?" We'll also touch on the inescapably human dimension of agile program work by looking at implications for how institutions organize and work together. By the end, you'll have a vision and strategies for using agile principles to make program decisions in an increasingly fast-paced, complex, and uncertain higher education landscape.

What is Agile?

And why does it matter?

According to Webster's dictionary, the word "agile" simply means, "marked by ready ability to move with quick easy grace" or "having a quick resourceful and adaptable character." But in the last two decades, it has taken on a more technical meaning as well. These days, especially in the software development industry, it often refers to a particular mindset or philosophy regarding how one approaches work.

This more technical use of the term traces its origins back to 2001, when a group of 17 computer programmers drafted the Agile Manifesto (Appendix A) and an accompanying list of 12 principles (Appendix B). The manifesto doesn't define agile *per se*. Instead, it provides a set of values that articulate what an agile approach to software programming entails.

However, as a 2017 writeup in the Atlantic points out, "this isn't just a software story. Today, teams across industries and around the world are 'going Agile'—or, at least, using bits and pieces of the Agile philosophy."

According to the Agile Alliance, agile itself is ultimately "a mindset informed by the Agile Manifesto's values and principles. Those values and principles provide guidance on how to create and respond to change and how to deal with uncertainty." Or, as the Atlantic put it: "Agile is a philosophy, not a set of business practices. The four bullets outline a way of thinking, a framework for prioritizing all the complicated parts of a project."

What is Agile Program Management?

In this paper, then, our goal will be to explore how agile principles can inform and guide the vital work of improving and creating academic programs. Note that we are NOT seeking to woodenly apply rigid project management practices or suggest that universities are identical to software companies. Rather, we want to glean from an approach that has a track record of success in organizations ranging from GE to John Deere, and explore how some of its principles might be relevant for leaders making academic program decisions (see Appendix B for a higher ed "translation" of the 12 agile programming principles).

To do this, we offer the following definition:

Agile Program Management — An approach to program management that emphasizes adaptability in the face of challenges and responsiveness in the presence of opportunities.

To help flesh out this definition, we will look at three specific strategies institutions can adopt to pursue a more agile approach to program management:

1) Continuous market research

2) Incremental curriculum improvement

3) Iterative program development

Along the way, we'll point to examples of institutions that are putting some of these strategies into practice. Indeed, while the exact phrase "agile program management" may be new, it's encouraging to see that some higher ed leaders are already highlighting the relevance of agile approaches for higher education. Sometimes they use the word itself, as in Nathan Grawe's recent book, *The Agile College*.

Other times, the concept is implicit even if the word is absent. For example, Ray Schroeder, Senior Fellow at UPCEA & Associate Vice Chancellor for Online Learning at University of Illinois Springfield, recently wrote **an article for *Inside Higher Ed*** that included the following quote:

"In order to meet the desires of our learners and their soon-to-be employers, we need to thoroughly understand the changing environment and constantly adjust our curriculum and learning outcomes to match the needs."

While he never uses the word "agile," Schroeder's words practically serve as a mission statement for agile program management.

A NOTE OF ENCOURAGEMENT

Higher ed leaders should also be encouraged that many agile principles are not as revolutionary or foreign as their Silicon Valley-esque vocabulary may suggest. Indeed, higher education professionals may even be uniquely equipped to appreciate the value and relevance of core agile practices. Commenting on his experience leading agile adoption at the Open University (London, UK), Matthew Moran observed: "Academics perhaps more than most people appreciate the importance of transparency, inspection and adaptation, both for their research and their teaching practice. These are very strong supports for us in our work of introducing and supporting teams with agile thinking and practices."

In other words, "going agile" in higher education may actually mean "going back" to some of the fundamental principles of academic inquiry (e.g. inspection and adaptation), and working to apply those principles more consistently in the work of managing academic programs.

3 Key Strategies

STRATEGY 1

Continuously and proactively monitor market conditions for new opportunities

For too many institutions, labor market research may only occur when it's needed for accreditation review or on the regular program review cycle. But these reviews sometimes only occur once every three, five, or even ten years. In today's economy, that's an eternity. Institutions that continue with this "business as usual" approach to market research risk being late to (or missing entirely) new program opportunities that could expand enrollment and deliver huge value to their region. Not to mention the risk of allowing existing programs to age out of relevance as employer needs and learner expectations continue to evolve.

Instead, institutions should adopt a more continuous, proactive approach to labor market research. The continuous/proactive concept is evident in some of the original 12 agile principles, like "*early* and *continuous* delivery" of software. In the context of APM, this same mindset must be applied to the work of tracking shifts in the job market. Doing so will fuel agile program management strategies that are better suited to the complexity and uncertainty of today's economy.

Note that this is different from the concept of "continuous improvement" often discussed in the context of assessment and sometimes accreditation. The difference is that "continuous improvement" in those contexts is often inwardly focused, looking at the institution itself (its goals and performance) and students' learning outcomes. By contrast, an agile approach to program management requires continuous review of a more outward nature, directed towards the evolving labor market that learners will enter when they graduate.

How often is "continuous"?

Ultimately, the ideal cadence for market research will be up to the institution. It will, of course, depend on staff and resources, the dynamism of the regional economy (or lack thereof), and the activity of peer institutions that may be competing for market share. But essentially, continuous market research is consistent and proactive rather than sporadic and reactive.

To quote Schroeder again: "This is not a once-every-year-or-two event. Rather, it is an ongoing process of knowing our students before they arrive while monitoring the industries and enterprises for which we are preparing the students."

While this focus on labor market awareness has traditionally been associated with the mission and mindset of workforce-oriented and professional education divisions, it's a practice that will be increasingly important for the entire institution. Even for departments and programs that don't think of themselves as career oriented, there is tremendous value in understanding and articulating how course content fosters transferable skills that do connect to learners' professional goals (often in surprising ways). For more on this, explore "The Case for Skills-Based General Education" and Equipping Faculty to Engage Learners."

Getting practical: What data?

In general, best practices for market research include monitoring completions data from peer institutions and keeping an eye on broad occupation and industry trends in your region (or regions where you intend to market online programs). When pushing towards more proactive market research, one obvious limiting factor to note is how often this data is updated. While some data points (like unemployment rate) are updated monthly, many others are only released on a quarterly basis, and some (like Occupational Employment and Wage Statistics) are only updated annually.

This data has important strengths (accuracy, comprehensive coverage, consistent taxonomies that enable comparisons across time, etc.), but timeliness is not one of them. Additionally, it tends to lack granularity. It's good for getting a big-picture sense of the industries and occupations to which programs should align, but lacks the precision and detail to inform curriculum decisions about skills to teach or emerging job titles that don't fall cleanly into a particular SOC code.

Agile program management, therefore, requires going beyond these lagging indicators of economic conditions with more detailed sources that allow you track emerging trends in real time.

For example, employer job postings have proven to be a reliable leading indicator of job opening trends. While the exact number of postings is typically higher or lower than the actual number of postings (often depending on the industry), the direction and magnitude of the trend usually provides an "early warning system" for detecting a shift in employer needs.

Because posting data updates daily, institutions can use it to track these changes as they occur while waiting for the official job counts to be collected, processed, and released by the Bureau of Labor Statistics, Bureau of Economic Analysis, and other agencies.

Job postings also provide increased precision compared to traditional sources of labor market information. Institutions can use them to identify key employers who are driving job growth in their region, the particular job roles those employers are hiring for, and the specific skills they're looking for in candidates. These insights have obvious utility for institutions seeking to align academic programs with labor market opportunities. But beyond that, they can also help program managers expand employer advisory boards and better engage with industry leaders in their region.

In summary, because job postings are constantly being updated by employers to reflect their current needs, they provide an excellent tool for agile program managers to get real-time insight into the evolving opportunities in their region, and at a level of detail that can immediately inform curriculum decisions.

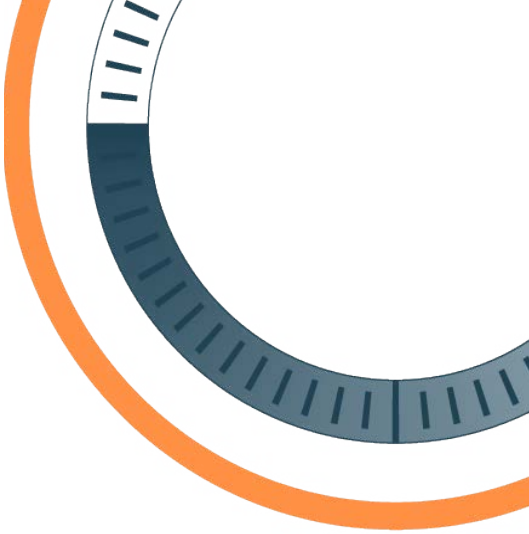
Constant awareness vs. constant change

It's important to clarify at this point what we are not saying. The point of proactive, continuous market research is not to constantly make changes (that is neither practical nor desirable), but to be constantly aware of evolving conditions so you can spot opportunities when they arise. In other words, if you stay ready, you don't have to get ready.

Consider this simple analogy: Naval ships assign a lookout to be on duty 24/7 not because they plan to change course constantly, all day, every day. Rather, the lookout is there so that when there is something to see, the commanding officer will know right away and be able to take appropriate action.

The same principle applies to tracking evolving trends in the labor market. It is meant to help institutions spot new program opportunities early so they can respond quickly and stay ahead of the curve when labor markets shift.

Likewise, it can help them adjust existing programs that may have been successful in the past, but now need to be revamped or scaled back. In either case, the agile program manager will establish systems and habits *today* that prepare the institution to adapt tomorrow, or whenever the need arises.



STRATEGY 2

Make precise, incremental improvements to existing curriculum

The way innovation is sometimes talked about in higher ed, it can sound like an all-or-nothing proposition. Either you re-invent the whole institution from the ground up and enter the brave new world, or you sink into oblivion tomorrow and go the way of the Dodo bird. For some institutions, the picture may be that stark. But for many, there is a third (agile) way: the path of consistent, strategic, incremental improvements to existing courses and programs that steadily bring them into closer alignment with the labor market — and keep them aligned over time.

Recall the aforementioned quote from Schroeder, which captures the idea well: "In order to meet the desires of our learners and their soon-to-be employers, we need to thoroughly understand the changing environment and **constantly adjust our curriculum and learning outcomes to match the needs."**

Consider how this incremental strategy plays out in agile software development. Rather than planning, building, and releasing a whole collection of improvements over a long time horizon (e.g. waiting a year to upgrade software from version 1.0 to version 2.0), teams continuously make smaller improvements and release them more often (e.g. go from version 1.0 to version 1.1 in a matter of weeks). This has the double benefit of allowing the end user to receive value sooner while also enabling the developers to receive feedback earlier and more frequently (which in turn informs future changes). A virtuous cycle is formed that helps developers continuously improve their software in ways that are best aligned with the needs of their market.

Skill Insights: The engine of curriculum optimization

In a higher education context, institutions may not want or need to launch an entirely new program every year, much less sunset existing programs. Major changes at the program level can be disruptive to faculty and students alike, and because of their large scale, cannot be easily reversed if demographics or economic trends suddenly shift.

By contrast, individual programs and even courses can undergo micro-updates and optimization that have an outsized impact on their quality and value over time.

For example, you may want to add a new course to a program as an elective, then monitor to see how enrollment performs and how employers respond to the skills students acquire in that course. Perhaps the marketing degree would benefit from a new course focused on multimedia production, so that graduates can meet surging demand for **content creation skills** that incorporate podcasts and videos. It may start as an elective, but if labor market trends continue on their current trajectory, the course can then be shifted to the core curriculum so that all students in the major have basic competencies in this emerging area.

While the concept of modifying programs is nothing revolutionary, what is revolutionary is the ability institutions now have to use skills as a direct link between curriculum and employer job postings.

This use of skills data as a common language opens up new vistas of insight into how programs and even individual courses can be fine-tuned to align with opportunities in the labor market. Even the addition of a single in-demand skill to a single course's curriculum can have a material impact on a program's effectiveness and the marketability of its graduates.

Consider the example of one private research university in the Northeast. Based on labor market trends, they saw that the technical skill SQL was under-taught in their region and simultaneously in high-demand with employers. Based on this insight, they incorporated SQL into a course within one of their graduate programs. Developing proficiency with this skill now equips their grads for one of the 10,000 job postings in their city that mention SQL each month.

Filling curricular skill gaps

We often talk of skill gaps in terms of people. In this context, the "gap" refers to the disconnect between the skills a certain population has and the skills employers in their region are asking for. But skill gaps can also exist between an institution's programs and the skills needed by employers, and therefore learners, in their region.

Tracking and filling these gaps over time is one of the most effective ways to optimize curriculum and keep course material fresh.

For example, Texas A&M University - Central Texas recently used skills as a common language to assess curriculum-to-market alignment. As TAMUCT's Director of Institutional Research and Assessment put it, this approach "can help demonstrate the difference between the skills you're hearing industry tell you that they need and what's actually being presented in your syllabus. This is a rich way to identify lots of improvements very quickly."

As technology continues to evolve rapidly and impact every corner of the labor market, institutions will need a way to adapt and grow with these changes.

Assessing program-to-market alignment at the skill level is a key step towards a more agile approach.

STRATEGY 3

Take an iterative approach to new program development

In an increasingly competitive higher education landscape, many institutions are feeling the pressure to spin up new programs that can expand (or at least retain) market share. As demographic trends cause the prospective student pipeline to dry up, this pressure will only grow. Institutions will need to identify new program opportunities that meet the emerging needs of new learners and move quickly from concept to delivery — before alternatives flood the market.

Ray Schroeder captures the urgency of this need in another recent article for *Inside Higher Ed*:

"Experimentation must begin now, even as we are losing hundreds of thousands of prospective students to industry-initiated programs such as the Google career certificates. The process to pilot programs must be focused, easily assessed and open to modifications as it expands."

The agile way of iterative development

In response to these challenges, colleges and universities can learn from the agile concept of "iterative development." This relates closely to the incremental improvement discussed in the previous section (the Agile Alliance notes that the two concepts can be "surprisingly difficult to pin down, and are often the subject of heated semantic debates"). But the focus here is on creating new programs vs. optimizing existing ones.

To put it as simply as possible, the big idea of iterative development is that the first version of something doesn't have to be the final version. Therefore, it's good for institutions to dream big, but start small.

For example, even if the long-term vision is to spin up a whole new degree program, it might be strategic to start with a short-term credential or certificate, assess the response from learners and employers, and then iterate from there to expand or adjust as warranted. Because size and speed tend to be inversely correlated, this start-small approach can help institutions get new program ideas to market more quickly, benefitting learners and learning providers alike.

Practically speaking, and depending on an institution's state regulations and accrediting body, a sub-degree credential may require fewer approvals and therefore be able to open for enrollment sooner than a full degree or even certificate program.

As we saw in 2020, this speed matters, especially during times of sudden economic disruption when community members count on their local college or university for pathways to reskill, upskill, and otherwise transition back into the workforce.

For institutions, it means being able to serve these learners earlier while further establishing themselves as go-to providers. This agile approach can even help mitigate risk, as institutions get a chance to "field test" new offerings before deciding whether to invest additional resources in scaling the program.

Putting it to work

But how can this work practically? It must be acknowledged at the outset that not all parts of an institution are equally conducive to this kind of "start small, move fast" approach. But some are (and perhaps more should be). For example, the continuing and professional education division of many universities is an especially strategic place to try this kind of approach, for several reasons.

First, it's where many non-traditional, short-term credentials already live. The CPE division has experience launching, staffing, and managing these kinds of programs. Second, this part of the institution tends to be closer and more responsive to market needs due to the nature of their mission.

And third, in light of demographic trends, continuing education may represent a strategic opportunity for growth in a future where the traditional age student population is shrinking and working adults become an increasingly large slice of the prospective student pie.

DEVELOPING PROGRAMS LIKE A LEAN ENTREPRENEUR

Agile iterative development fits nicely with the concept of a "minimum viable product" or MVP, as popularized by Eric Ries in his landmark book, "*The Lean Startup*." ("Lean" is a philosophical relative of "Agile," though the exact nature of the relationship is subject to much debate. Suffice to say, they share many of the same core values while emphasizing different things).

An MVP is a version (or iteration) of a product that is both "minimum" — stripped of any nice-to-have but non-essential features, so it can be built quickly and cheaply, and "viable" — complete enough that people can actually use it and get the sense of what the full product would be like. The purpose of the MVP is to get real-world feedback as quickly as possible so that developers don't waste time building something no one actually wants.

In higher education, institutions can start to think of short-term credentials as their own kind of MVP — minimum viable programs (you don't even have to change the acronym!). This is not to say that these credentials won't experience long-term success in their own right. They might! But even if they don't, they can serve as a sort of "test run" that informs future versions of that program, or changes that can be made to existing four-year programs.

In this sense, the MVP is a tangible expression of the agile mindset: "When you face uncertainty, try something you think might work, get feedback, and adjust accordingly."

Case Study: University of Virginia

We can see iterative development (and other agile principles) at work in a recent success story at the University of Virginia (UVA). When it became apparent that summer internships, study abroad experiences, and job opportunities were going to be cancelled en masse thanks to Covid-19, Mr. Jefferson's University responded by spinning up a new program in just a matter of weeks. Called "Launchpad," the innovative program was a partnership between the College of Arts and Sciences, the School of Continuing and Professional Studies, and UVA's Summer Session Program. Courses allowed students, particularly in liberal arts programs, to gain in-demand, work-relevant skills while continuing to earn college credits.

The program was a hit. It drew over 100 students, many of whom gave rave reviews.

The successful 6-credit summer program became the template for a 20-credit year-long program called Edge. Whereas Launchpad was designed for already-enrolled undergraduates, Edge serves working adults with at least a high school diploma, but no degree. The first iteration of the program catered specifically to UVA employees (by letting them use their education benefit directly rather than paying first and needing to get reimbursed later), but the program is set to grow to serve other working adults as well.

Notice the iterative nature of UVA's program development success. They started small: a summer program, offering 6 credits, targeted to current students. But that experience, and the partnerships it established, became the launchpad (pun intended) for a larger program that enables them to reach an even larger underserved segment of their community: working adults with no degree.

The human element of APM

It's a sad reality that higher education is not always known for collaboration. As one vice president and chief communications officer put it in a recent article for *Inside Higher Ed*: "We often aren't a team of teams but rather a sprawling landscape lined with fences — and sometimes moats filled with sharks and alligators."

Besides sometimes detracting from a pleasant work environment, the real tragedy is that this lack of cooperation can impact the quality of an institution's programs in at least two ways: 1) by obstructing synergies that could lead to innovative new programs, and 2) by slowing down the process for modifying or creating programs.

In contrast, agile approaches emphasize solving problems through complementary, cross-functional teams that are empowered to get things done.

You can see this emphasis on teamwork in the very first pillar of the agile manifesto and in several of the underlying principles (esp. 4-6 and 11). And the Agile Alliance notes, "one thing that separates Agile from other approaches to software development is the focus on the people doing the work and how they work together." The emphasis is on making sure that "when you get the team together...you have all the right skill sets on the team."

Likewise, applying this principle in higher education means assembling the right stakeholders to make innovative, effective, and efficient program decisions.

At a horizontal level, this might look like deans and department chairs from different colleges exploring partnerships that blend their respective disciplines' domain expertise. These collaborative programs may facilitate the kind of interdisciplinary "problem-based learning" that will prepare today's learners for tomorrow's hybrid jobs (see pages 22-25 of ***Robot-Ready: Human+ Skills for the Future of Work***).

See it in action

UVA's Launchpad and Edge programs demonstrate these principles well. Both programs leverage the combined resources of the College of Arts and Letters and the School of Continuing and Professional Studies, and emerged from the vision and cooperation of the respective deans. The result is a well-rounded curriculum that combines emerging digital skills with timeless human skills.

But don't forget that collaboration can be vertical as well as horizontal. Securing buy-in from senior leadership is key to moving quickly. Note that UVA's new programs have received **enthusiastic support from the institution's president**, which no doubt helped to facilitate their rapid implementation.

We can even find examples of win-win partnerships between peer institutions that leverage their unique strengths and locations to give learners the best opportunities. For example, James Madison University and Virginia Tech recently **announced a joint 4+1 program** that lets JMU computer science majors obtain a masters after one extra year at VT's Innovation Campus in Northern Virginia.

These sorts of partnerships demonstrate an agility that prioritizes collaboration and innovation over the status quo. This willingness to break out of silos and pull together partners will be increasingly important for institutions to develop and maintain programs that keep up with the evolving needs of learners.

Let's Recap the Three Strategies

Continuous market research

It's no accident that continuous, proactive market analysis is the first strategy included in this paper. Note that in the aforementioned quotation from Ray Schroeder of UPCEA, the need to "thoroughly understand the changing environment" precedes the ability to "constantly adjust… curriculum and learning outcomes to match the needs." In many ways, this step is the engine of agility that fuels curriculum improvement and program development.

Incremental curriculum improvement

Equipped with a steady pipeline of traditional and real-time labor market insights, institutions can make incremental adjustments to curriculum that keep programs aligned with the evolving needs of learners and their future employers. This strategy is especially effective when executed at the skill level, filling any gaps that exist between what is taught in the classroom and what is sought in the labor market.

Iterative program development

Even when existing programs are optimized, institutions should still have an eye out for new program opportunities, especially if they hope to grow enrollment. An iterative approach helps institutions get new program ideas launched more quickly, and to adapt (or expand) those programs based on feedback from students and stakeholders. In a competitive higher ed landscape increasingly disrupted by demographic shifts, this speed and adaptiveness will be critical for expanding market share by meeting the emerging needs of new learner cohorts.

Conclusion

Evolution is sometimes pitted against tradition, making it seem like higher ed has to choose between remaining true to its mission or keeping up with the times. But as leaders like Steven Mintz of the University of Texas at Austin have pointed out, higher ed has a long, proud history of adapting to meet new challenges. In one sense, evolution *is* the tradition.

In light of the increasing complexity and change facing higher ed, agile program management is an evolution that makes sense. While not a "silver bullet," agile approaches have a track record of helping organizations work effectively in these kinds of circumstances. It's a philosophy built for our times.

We can't predict the future. But we can predict that it won't look like the present. Establishing agile habits of proactive market research, incremental curriculum improvement, and iterative program development can produce a flywheel effect that helps institutions adapt and thrive for years to come.

ABOUT EMSI BURNING GLASS

Emsi Burning Glass provides colleges and universities with labor market data that helps create better outcomes for students, businesses, and communities. Hundreds of institutions use Emsi Burning Glass to align programs with regional needs, drive enrollment, connect students with in-demand careers, track their alumni's employment outcomes, and demonstrate their institution's economic impact on their region. Visit economicmodeling.com/higher-education to learn more or connect with us.

Appendix A

The original Manifesto for Agile Software Development

We are uncovering better ways of developing software by doing it and helping others do it. Through this work we have come to value:

Individuals and interactions over processes and tools

Working software over comprehensive documentation

Customer collaboration over contract negotiation

Responding to change over following a plan

That is, while there is value in the items on the right, we value the items on the left more.

Appendix B

The 12 Principles of Agile

and their higher ed counterparts

The column on the left contains the original 12 principles of agile software development. The column on the right contains our "translation" of those principles into the higher education context.

	Agile Software Principles	Agile Program Management Principles
1	Our highest priority is to satisfy the customer through early and continuous delivery of valuable software.	Our highest priority is to serve the student through timely and effective delivery of relevant programs.
2	Welcome changing requirements, even late indevelopment. Agile processes harness change for the customer's competitive advantage.	Welcome changing market trends and learner needs. Agile processes harness change for the institution's competitive advantage (and the student's benefit!).
3	Deliver working software frequently, from a couple of weeks to a couple of months, with a preference to the shorter timescale.	Review market conditions and program alignment frequently, from monthly to quarterly, with a preference to the shorter timescale.
4	Business people and developers must work together daily throughout the project.	Faculty, administration, and employer partners must work together regularly throughout the project.

5	Build projects around motivated individuals. Give them the environment and support they need, and trust them to get the job done.	Build projects around motivated individuals. Give them the environment and support they need, and trust them to get the job done.
6	The most efficient and effective method of conveying information to and within a development team is face-to-face conversation.	The most efficient and effective method of conveying information to and within a program development team is face-to-face conversation. But Zoom and email are modern necessities.
7	Working software is the primary measure of progress.	Well-aligned programs that move learners towards their personal and professional goals are a key measure of progress.
8	Agile processes promote sustainable development. The sponsors, developers, and users should be able to maintain a constant pace indefinitely.	Agile processes promote sustainable program management. The faculty and administration should be able to maintain a constant pace indefinitely.
9	Continuous attention to technical excellence and good design enhances agility.	Continuous attention to market conditions and curriculum alignment enhances agility.
10	Simplicity — the art of maximizing the amount of work not done — is essential.	Simplicity — the art of maximizing the amount of work not done — is essential.
11	The best architectures, requirements, and designs emerge from self-organizing teams.	The best programs, courses, and curricula emerge from motivated, inter-disciplinary teams.
12	At regular intervals, the team reflects on how to become more effective, then tunes and adjusts its behavior accordingly.	At regular intervals, the team reflects on how to become more effective, then tunes and adjusts its plans and programs accordingly.

Appendix C

A (Very) Brief History of Agile

Fortunately, higher education is not the first industry to confront the challenge of operating in a complex, unpredictable environment. In the late 90's and early 2000's, the software development industry faced a similar reckoning. Traditional approaches to project management were proving inadequate to deal with the new realities of their industry brought on by rapidly evolving technology and highly competitive business conditions. In response, a small group of developers pioneered a better way to work. They codified their core values in a document called "The Manifesto for Agile Software Development" and an accompanying list of 12 underlying principles.

While many elements of the manifesto are specific to software development, the core values and underlying principles are broadly relevant and highly transferable. In fact, this is one of the unique strengths of agile, having emerged from a group of independent thinkers who actually disagreed on many particulars and points of application. The one thing they all had in common was a desire to work effectively in environments

characterized by uncertainty and rapid change. This is, in fact, why they landed on the name “agile.” As one of the key original signatories explained it, “We considered a bunch of names, and agreed eventually on “agile” as we felt that captured the adaptiveness and response to change which we felt was so important to our approach.”

Describing the impact these practices have had on their industry, *Harvard Business Review* noted: “Agile innovation has revolutionized the software industry, which has arguably undergone more rapid and profound change than any other area of business over the past 30 years.” This legacy is what makes agile worth considering for higher education in general, and program management in particular. If agile approaches have had such a profoundly positive effect on an industry facing such profound disruption, then it’s worth asking: “Can the principles that helped them build better software help institutions build better academic programs?”