The New Rules of AI for Student Success

**A Higher Education Leader's Guide to
Navigating Uncharted Territory**

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Foreword: Fusing AI and Human Ingenuity: A New Era of Student Success

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At a time when pundits and policymakers lament the siloing and polarization of global communities, it's not often — with the possible exception of Taylor Swift album releases — that you hear the same conversation taking place across nearly every facet of society

But attend just about any conference or talk to any industry leader these days and you'll hear something similar: we need to figure out what to do with AI.

This isn't the first time that technological disruption has captivated the national discourse. The story of innovation and ingenuity is as old as the human race — or at least as old as my own great-grandfather, a professional ice harvester whose job lasted until the advent of refrigeration. In a way, then, the implicit question everyone's asking about AI is: "is now really different? Is this disruption 'real' in a way the other ones weren't?"

The world of higher education, where I have spent my career, is no stranger to these conversations. Every decade or so, a new technology comes along that captivates institutional leaders and their teams, promising reduced cost, improved student outcomes, and all sorts of other practically miraculous results. Often, the promise of these technologies is quite great. But fulfilling that promise has not always been easy, either for the technologies themselves or the humans who operate them. In many cases, our work has fallen short of the lofty vision of solving higher education's most pressing challenges. In others, it has exacerbated a persistent **digital divide**[1] that prevents many students from even seeing any of the benefits technology can offer.

That gap between promise and impact is particularly important to consider right now, as generative AI becomes ubiquitous around the world (more so given **announcements like Apple's**,[2] which will embed the

1 https://learn.mainstay.com/newrules23
2 https://learn.mainstay.com/newrules24

technology even deeper into everyone's smartphone). Suddenly, and not for the first time, billions of people have access to an unfathomably powerful tool that they can use however they like. Strada's own research shows that a growing number of students are using digital tools to seek out career advice and guidance on educational pathways. But in these early stages of AI adoption, we've seen that the actual advice these students are getting isn't always helpful, accurate, or aligned to the actual needs of the labor market where they live. Once again, the promise is great, but the execution has a lot of catching up to do. What role must higher education leaders play in closing that gap — and doing so without perpetuating existing digital divides?

Complex human problems do not bend to technology alone. And if we've learned anything throughout the past decade of tech-driven student success "revolutions," it's that technology and data, on their own, don't make the impact we hope they will. Fulfilling the promise of AI will mean keeping humans in the loop, and considering how to leverage this incredibly powerful technology not as a set-it-and-forget-it silver bullet, but as a thoughtfully and carefully implemented strategic priority for higher education institutions.

This isn't just about improving metrics like persistence and completion, as important as those are. Knowing how to engage with technology, and to continue learning as it develops, will be a fundamental part of living in tomorrow's

> **Right now, the gap between understanding AI and implementing it is the widest it's ever been.**

world. If higher education's ultimate aim is to help its charges prepare to navigate that world, it's incumbent upon institutions to learn how to use new technologies effectively so that they can teach their students to do the same. Simply put, as many other priorities as they balance, higher education leaders have the responsibility to become fluent — or at least conversant — in the nature of AI, and specifically in the ways it can be deployed to help students succeed both in their education and beyond.

That's what this paper aims to do — to draw on the experiences and insights of college and university leaders around the country and serve as a guide as their fellow leaders step forward into largely uncharted territory. It's a crucial contribution to a developing conversation. But the conversation is only just beginning.

Ruth Watkins, the former President of the University of Utah, now serves as President, Postsecondary Education at Strada Education Foundation.

A Note from Mainstay's CEO & Co-Founder, Andrew Magliozzi

It may sound like a bold prediction, but I think that when we look back on this period in history, the advent of generative AI models like ChatGPT will resonate much farther than even the pandemic of Covid-19.

November 30, 2022 will be remembered as the spark that officially ignited the AI revolution.

The spread of ChatGPT was viral itself: the tool famously reached 1 million users within just five days of its launch and hit 100 million users just two months later. It wasn't long until the original AI model that had captured the world's imagination (GPT-3.5) was obsolete — but by the time a more sophisticated iteration rolled around, ChatGPT had already sparked a global AI arms race with the largest companies in the world each pouring billions into research and development. We're now seeing the fruits of that arms race in the form of an accelerating series of breakthroughs in text, image, audio, video, material, and even biological generation.

As someone who has worked in AI at the intersection of higher education and economic mobility for more than a decade, I'm frequently asked: how will AI impact the higher ed landscape in the next ten years?

My answer is always the same: nobody knows. There are optimists and pessimists all making valid points and predictions. The utopian visions and the dystopian ones have one thing in common: they're equally uncertain.

One thing we can say for certain, though, is that we have agency in the matter. AI is a tool — a very powerful one — but a tool nonetheless. It is neither good nor bad, but it can do great or terrible things depending on how we use it. It's unique in that it isn't constrained by the physical world; we don't need to lay tens of thousands of miles of railroad tracks or power lines for our new AI engines to operate. But like any tool, it brings risks and opportunities. Our choices and actions will determine how the future plays out.

Here, it's instructive to remember Amara's law, which states: "We tend to overestimate the effect of a technology in the short run and underestimate the effect in the long run." While there is significant short-term hype surrounding AI, it is crucial for us to look beyond this horizon and consider the profound long-term impacts AI will have on industry, our economy, and even our culture. Leaders in higher education have a unique imperative to consider the long-term – particularly as colleges and universities continue to be America's most important economic engines.

In a world where AI appears likely to disrupt how we all work, it's all the more important for higher education institutions to play a leading role in helping students navigate this changing landscape. And what makes AI so unique is that it can be both the medium and the message. It's possible to teach students *about* AI by *using* AI — and, in many ways, that's the best way to teach this particular lesson, since interacting with AI-enabled tools is one of the most effective paths to understanding them.

When I talk to higher ed leaders, I often ask what skills they believe will be most valuable in an economy where all of our work is done in collaboration with AI. What I hear is,

> **"The university of the future will not look like the university of today.... In the wake of ChatGPT and the AI explosion, we have likely reached a generational, fast and furious change across education. Universities need to find, create, and sustain their differentiators — their best-in-class programs and advantages that attract students — or risk losing market share in an increasingly transparent and AI-enabled world [as] younger students (and lifelong learners) are getting smarter about their learning options, costs, and returns. They will be aggressive voters with their time and money."** — *Mary Meeker,* [2024 Special Report on AI and Education](#)[3]

in many ways, heartwarming. Nearly everyone agrees that what students need now more than ever are skills like critical thinking, discernment, logic, creativity, ethics, and the ability to learn and adapt continuously. Put another way, the skills we need to navigate an AI-driven world are the ones already at the core of a liberal arts education. In a world where AI performs much (or, at least, more) of the work, the potential value of higher education is enormous if we can figure out how to inspire, motivate and teach the skills of collaboration between people and AI.

We are on the cusp of a transformative era in higher education. In the years to come, it's almost inevitable that your strategic plans will leverage AI to unlock new possibilities. Institutional leaders looking to fulfill the promise of AI will likely focus on two distinct types of improvement:

- **Efficiency and Cost Reduction**
  The simplest and most common application of AI is to automate tasks that save time and reduce your operational costs. Whether it's answering FAQs, grading assignments, or automating course scheduling, the ultimate goal is to spend less time on repetitive activities.

- **Improved Experiences in Support of Better Outcomes**
  The second (and more challenging) strategy is to deploy AI to elevate the effectiveness of your staff and level the playing field for your students. This approach enhances educational quality and support, better preparing graduates for future success.

While efficiency is important, the rise of this new technology offers an unprecedented opportunity to do something more: to bring about a new era of student success that advances outcomes and closes equity gaps.

At Mainstay, we know this future is possible, because we've been building it for nearly a decade in deep collaboration with higher education institutions, researchers, college access organizations, systems and states across the country who have made that vision a reality. The next steps in harnessing AI's potential will be an equally collaborative effort, and we hope this guide shines a light on both new possibilities emerging on the horizon — and helps to spark innovative ideas for you to achieve better outcomes in your campus communities as well.

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3 https://learn.mainstay.com/newrules25

TL;DR: What's In This Paper

- The first section of the paper takes a brief tour through the emergence of technology — and particularly AI — in higher education.

- The next section describes the new rules of AI for student success: five guidelines for higher ed leaders seeking to refine their policies and practices about artificial intelligence.

- The following section focuses on key questions for leaders to ask, and concerns that may be raised (as well as responses to those concerns).

- After the conclusion, the paper's appendices offer a framework (styled as a "worksheet"), a chart (measuring level of impact vs. degree of human involvement), and a set of questions for leaders to foster a conversation on how best to use AI at their institutions.

Introduction: A Changing Landscape
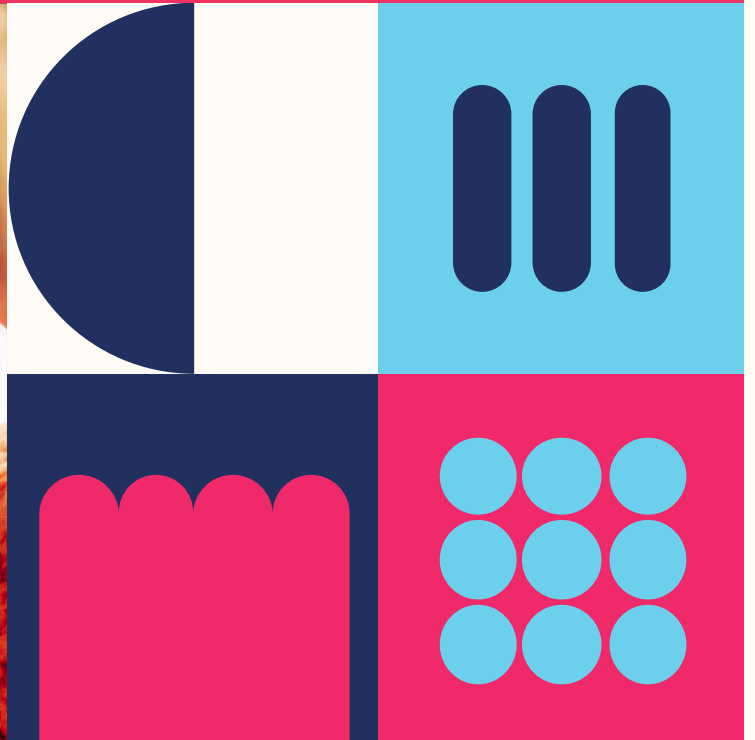
A decade ago, the arrival of emerging technology like big data promised to revolutionize student persistence and success in higher education.

It seemed like anything was possible with the advent of new tools and strategies that claimed to create personalized solutions for every obstacle that gets in the way of a student's path to graduation. Common issues like lack of access to (or utilization of) supportive services, and miscommunications between professors and students, were meant to be an issue of the past.

But as a decade of research has made increasingly clear, it wasn't quite so simple. The truth is that student success technology is only as effective as the tools and processes that allow institutions to make sense of all that data — and take action. And for the last decade, despite big promises, those tools haven't had the sophistication or discernment to make an impact.

Consider the fact that at some institutions, where many students are still recovering from the social effects of the pandemic, risk factors like anxiety and stress have become much more commonplace. "These days, far more students are coming to college who report having anxiety, depression, or other mental health concerns, compared

with the years before the pandemic. Because of that increase, the technologies we've used in the past to identify 'at-risk' students who may need extra support are now just flagging the vast majority of students – rendering those tools more or less useless." said Elizabeth Adams, Dean of California State University, Bakersfield's Antelope Valley campus. Simply put, if the whole point of those big data tools was to separate out the students who needed extra support, flagging the majority of students won't help very much.

The good news is that the technological landscape is changing — and with it, new opportunities are emerging for higher education institutions. Thanks to recent developments in artificial intelligence and new research highlighting the potential of AI-driven interventions, institutions increasingly have the resources and tools at their fingertips to actually fulfill the promise of personalized support. In the words of Lee Lambert, Chancellor of the Foothill-De Anza Community College District in California, "while AI has existed in various forms for decades, the rapid rise of generative AI like ChatGPT

has increased the urgency — and the opportunity — of considering the potential for AI to transform higher education." From AI-powered writing tutors to student success platforms, the AI revolution is creating profound opportunity for institutions to reimagine how they help students navigate the path to completion.

But just like ten years ago, navigating this new landscape will mean creating a roadmap with the necessary steps to realize the full potential — and potential pitfalls — along the way.

"In many ways, AI implementation is not too different from any other type of institutional change. Adding any new tool to a college requires thinking carefully about staff capacity, whether there are existing programs or systems that need to change, and building buy-in," says Katharine Meyer of the Brookings Institution, who has studied the implementation of AI to support student success. "With AI tools, however, the buy-in phase can sometimes be met with greater resistance because the technology is relatively new and feels mysterious to faculty and staff without a technical background."

Meyer's point highlights a fundamental point to remember about the implementation of AI on campus. The rise of AI is indeed unprecedented — but the fundamental challenge of implementing new technologies to support students remains the same. How can institutions match the capabilities of AI to the needs of their community? Or, put another way, what are the new rules of AI for student success, and how can institutions make use of these new tools to realize a decades-old vision of technology that can help more students persist and succeed in higher education?

This paper will identify and merge best practices from student success experts across higher education, and the technologists at the frontier of these emerging technologies, to provide a playbook for how institutional leaders can meet the moment of AI to support students. It is not meant to be a comprehensive overview of AI in higher education. Instead, its goal is to illuminate the steps — and milestones — toward effectively leveraging AI to promote student success, in ways that help institutional leaders take action.

> "These days, far more students are coming to college who report having anxiety, depression, or other mental health concerns, compared with the years before the pandemic. Because of that increase, the technologies we've used in the past to identify 'at-risk' students who may need extra support are now just flagging the vast majority of students — rendering those tools more or less useless." — *Elizabeth Adams, Dean of California State University, Bakersfield's Antelope Valley campus*

Setting the Stage
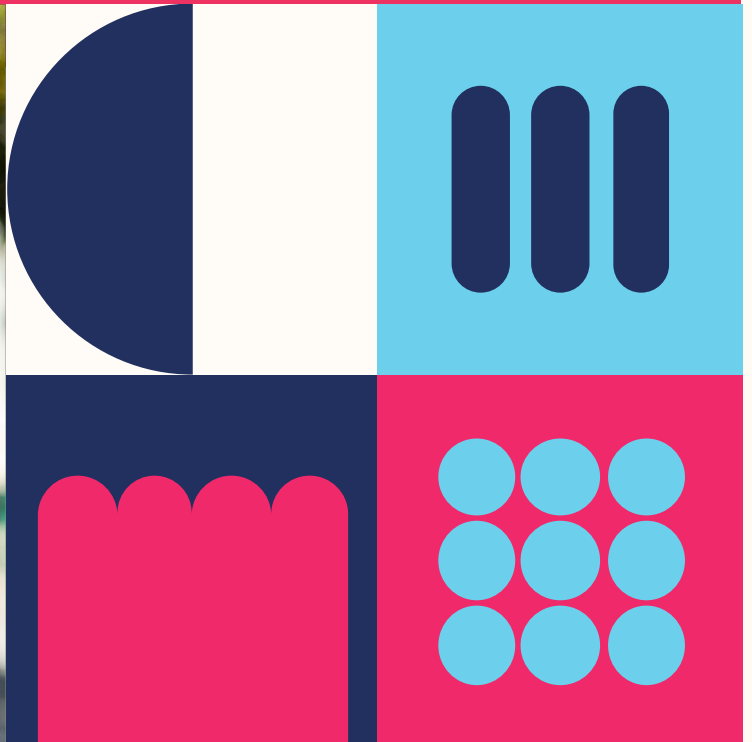
> **[F]or the growing number of students who don't know what they don't know, AI tools can't wait for them to ask questions they may not realize they need to ask. "**

Over the past few years, colleges and universities have begun to recognize the role that AI can play in streamlining processes and systems, facilitating communication with students, and providing support to busy enrollment and student affairs teams.

Each institution is searching for ways to use AI for good — while also avoiding the risks that so often accompany the arrival of powerful new technology on campus. Some are building **their own versions of ChatGPT**[4] for students to use — or even **creating AI students**[5].

"Our experiences through gaming and tech, literature, and film during the twentieth century taught us that AI can, perhaps counterintuitively, actually bring greater empathy and connection to human interactions," said Aashir Nasim, incoming Provost at Prairie View A&M University. "But that depends on how it's used. AI that drives conversations and listens at scale, by collecting perspectives from thousands

of students in real time, can enable institutions to foster a sense of belonging on campus — making the most of a new technology while also recognizing the importance of the human interaction that is at the center of any educational experience."

A body of research already demonstrates how effective even rudimentary Q&A chatbots can be for higher education. They help institutions reduce wait time for advising and mentorship conversations, cut down on staff fatigue from answering the same questions over and over, and answer common questions more efficiently. But institutions are missing the real opportunity if they aren't

4 https://learn.mainstay.com/newrules1
5 https://learn.mainstay.com/newrules2

thinking about AI as a tool for deeper student engagement and support. And at a time when students are already engaging with AI on a near-daily basis, the need for thoughtful approaches to AI is more important than ever.

"Today's students will enter a labor market where AI is central to how they will work. Most have already encountered AI in the classroom or in their day-to-day interactions with technologies like smartphones," said Seth Harris, the former top labor advisor to President Joe Biden and a Senior Fellow at the Burnes Center for Social Change. "That means higher education institutions need to help students understand AI, how it works, and its potential applications in a way that's structured, smart, and welcoming of experimentation and exploration. If AI is not a core component of students' in-school experiences, there is a real risk of a widening relevance gap between those experiences and their real-world work experiences."

Forward-thinking institutions are coming to understand that when looking for a technology partner, there's more to it than a set of features. The best uses of AI aren't just about technological upgrades — they also help institutions do their jobs better by enabling them to better engage certain student populations, communicate with them, and listen to their needs at scale. Effective AI relies on proactive communication, too: for the growing number of students who don't know what they don't know, AI tools can't wait for them to ask questions they may not realize they need to ask. That sort of work takes not just technology, but also thought partnership, a commitment to empathetic and intentional design,

attention to research about effective communication strategies, and a willingness to study its impact on essential student success outcomes.

But as anyone paying attention to the headlines could tell you, the hype around AI isn't all positive. Concerns about bias, privacy, alignment, and inaccuracy continue to plague even the most advanced AI tools on the market. For higher education institutions charged with protecting their students' well-being, those concerns – rightfully – have a significant impact on how they approach procurement and implementation.

"Like so many new technologies before it, AI is generating enormous hype — which leads to optimism and skepticism," said Michael Sorrell, President of Paul Quinn College. "As with so many other technologies, the truth is probably somewhere in the middle. The better question is how colleges and universities will break through that noise and deploy AI to make a real impact for their students."

In short, the story of AI in higher education today is one of both great promise and great uncertainty. The decisions that institutional leaders make in the coming months and years will determine whether we fulfill the potential of AI as a lever for helping students engage, persist, and succeed in their journey through higher education.

Fortunately, a growing number of colleges and universities are finding a path forward that balances that uncertainty with human-centered design and a commitment to practical application. That's where the new rules of AI for student success come in.

How Does This All Work Again? An AI Refresher

> **[K]eep in mind that the AI is always just completing a pattern. Though for convenience we say things like 'the AI knows this' or 'the AI thinks that,' it neither knows nor thinks anything."**

If you're reading this paper, you likely have some understanding of how AI is commonly defined and how it works.

But at a time when the pace of technological change is this fast, there's no harm in a reminder.

At its core, artificial intelligence is about prediction. In fact, so is human intelligence. So much of our daily lives is about predicting the future based on past experience — think of any time you remember to take an umbrella when you see clouds outside. Our brains have evolved to become expert at spotting patterns, and AI can do the same thing. Whenever you engage with an AI-enabled tool, it's drawing on its past training data to make a prediction. And just like people, the more prior examples AI gets, the better it gets at predicting.

The new wave of so-called "generative AI" is, in essence, AI with an uncountably vast number of prior experiences. One form of Generative AI is known as a Large Language Model (or "LLM" of which ChatGPT is the most famous), which is trained on trillions of sentences to make predictions about the next sequence of words to follow any user input. Large language models (LLMs) produce text by predicting sequences of words based on vast amounts of internet data, making them more like an infinite Magic 8 Ball than an encyclopedia. They generate plausible but not always accurate responses, as their outputs are statistically derived,

leading to potential hallucinations. According to Andrej Karpathy, a computer scientist and co-founder of OpenAI, LLMs essentially "learn to dream internet documents. These models have become incredibly effective at imitating things that have come before — right now they can summarize a book or mimic a particular tone or style, but can't yet tell an original joke."

In the words of **one recent overview**[6] in *TechCrunch*, "Just keep in mind that the AI is always just completing a pattern. Though for convenience we say things like 'the AI knows this' or 'the AI thinks that,' it neither knows nor thinks anything." All it's doing is predicting. Knowing the limits of that model is key to unlocking its opportunities so that we as humans can use this growing abundance of predictions to make the best decisions possible. While the machines will make increasingly accurate predictions, we need to decide on the policies, guidelines, and guardrails to keep it aligned to our specific goals for delivering positive outcomes and closing — rather than exacerbating — equity gaps.

For more, check out Mainstay and AASCU's recently released **AI glossary**,[7] which explores the nuts and bolts of AI in greater detail.

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6 https://learn.mainstay.com/newrules3
7 https://learn.mainstay.com/newrules21
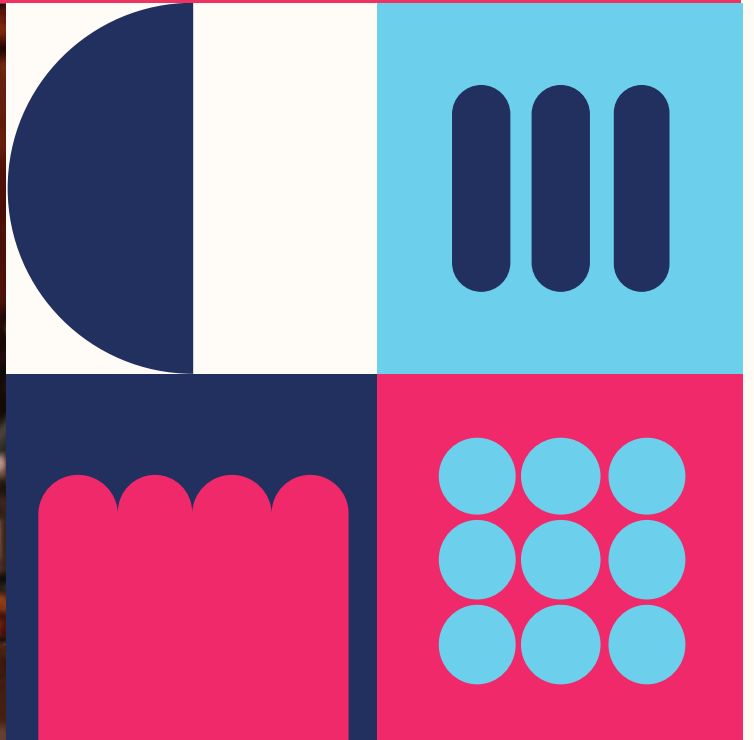
The New Rules of AI for Student Success

First and foremost, it's important to note that no set of rules could ever fully capture the unique priorities, needs, and context of an individual college or university.

A two-year institution serving primarily working adult learners will indeed have a unique experience developing and implementing AI tools relative to a public flagship with tens of thousands of students under age 21.

It's also important to note that despite the hype, AI may not be the right tool for every circumstance. "There's always a bit of a hammer-and-nail reaction when a new technology or student success strategy emerges — and especially now that AI is more accessible, there's a temptation to think it's the solution to every problem a college faces," notes Katharine Meyer of Brookings. "These new technologies have massive potential, but it's essential for institutions to

do the deep work outlining what their students need, what barriers they face, and which tools are best suited to different margins of success."

Against this backdrop, there are a few fundamental principles that apply to any institution, no matter its size or the students it serves. The following section aims to equip institutional leaders and decision-makers with key concepts and priorities when considering how best to leverage AI on campus. It is not meant to be an exhaustive list, but rather a reference point to inform the ongoing and evolving conversation about how best to fulfill AI's potential.

1 **Keep a human in the loop.**

It's an increasingly common refrain, particularly among AI skeptics, that human guidance — and intervention — are critical to ensuring that AI doesn't go off the rails. But it's not just about avoiding risks. Making the most of AI's significant upside also depends on careful, intentional, human-centered design and engagement.

Consider the ways that Cal Poly Pomona uses AI to support its student body of nearly 27,000. The institution's AI Coach, Billy Chat, regularly and proactively communicates with students about everything from financial aid deadlines to academic advising. But what has made Billy so effective is not just the conversational AI that speaks with students; it's also the way the humans of the institution's Student Success Office enable and deploy AI to coach and support them.

"What makes Billy Chat work so well for CPP's students is that our approach is always focused on being human centered and collaborative," said Cecilia Santiago-Gonzalez, AVP of Student Success at Cal Poly Pomona. "Billy Chat helps us engage with the CPP student community in a timely and thoughtful way, which allows us to learn about their needs. In turn, our team helps Billy to refine and adjust its messaging to best support our students. That sort of partnership between people and technology is moving the needle in meaningful ways for student persistence and success."

2 **Don't set it and forget it.**

Technology providers often tout AI's capacity to learn over time, which is undeniably one of the most profound and powerful aspects of any artificially intelligent tool. But learning capacity doesn't remove the importance of strategic guidance. In order for AI to work well, it needs to be implemented with the same level of hands-on support and structure that any technology requires — and it needs to be treated not as a fun novel addition, but as a strategic priority across the institution.

When the use of AI makes a significant impact, it's because institutions are bringing together a range of stakeholders — from student success teams to faculty to administration — to ensure that it's furthering their strategic priorities. When it doesn't, it's often because those responsible for its implementation aren't treating it as a strategic priority. While placing a chatbot on a corner of your website can be an important first step in implementing AI for student success, it's just the beginning of a journey toward deploying technology to support students in ways that wouldn't have been possible without it.

"AI gets more sophisticated by the minute and the more often you use it. It can both do the work that you don't want to do for you, making your work life easier, and help you get things done better and more efficiently than ever before," said Bridget Burns, CEO of the University Innovation Alliance. "If AI isn't changing the way you work, then you're not taking full advantage of it."

3 **Be proactive.**

It's easy to think of AI as something like an on-demand butler — there whenever you ask. But treating AI as a reactive, "just-in-time" intervention that only replies at the moment of need is not enough. AI can, and should, engage with students proactively however possible.

"In the early days of AI for student success, we were initially impressed by the ability to answer questions automatically — that is, taking work away from human staff and directing students to information sources," notes Tim Renick, Executive Director, National Institute for Student Success at Georgia State University. "What we've learned is that AI can play a much more strategic role, acting more as a proactive coach and even helping to cultivate a relationship between the student and the institution. This strategic approach has consistently led to improvement in persistence and student success."

This is particularly important given the growing population of students who were once called "non-traditional" — like those who balance work and family commitments along with their studies, or who are the first in their families to go to college. These students are often **less likely to know how to ask for help**,[8] and as a result, more frequently struggle to persist in their education.

That's where AI can be uniquely helpful. By reaching out to provide empathetic guidance and support before students realize they need it, AI-powered tools can actually help guide them toward the steps they need to take to help stay on track.

Hillsborough Community College in Florida provides a powerful example of proactive communication through AI. The institution **implemented an AI-enabled coach**[9] to engage proactively with "near grads" — students who

had just a few credits left to complete their degree, but hadn't taken a class for over a year. Students received text messages from the coach, nicknamed "Gwen," reminding them how close they were to completing their degree and offering tailored support throughout the re-enrollment process. The result of Gwen's first semester was that nearly 200 students re-enrolled for the next term, and HCC saw a record-breaking number of completions — thanks to the power of proactive outreach.

> **66** The result was that students got targeted, proactive support overcoming each of these smaller challenges — and that the rate of on-time FAFSA completion increased threefold.**"**

8https://learn.mainstay.com/newrules4
9 https://learn.mainstay.com/newrules5

4 **Balance structure and substance.**

One of the things that makes AI so unique is that it can help with both "structure" – that is, the how/when/where of delivering information – and "substance" – that is, the information itself. What does that mean and why does it matter?

Consider the way that Georgia State University has used AI to provide students with both academic and administrative support. The institution's well-known chatbot Pounce got its start as a tool to **reduce "summer melt"**[10] by helping students meet deadlines and complete forms. More recently, though, the institution applied the same AI-driven approach to helping students through the coursework for an introductory class, with **impressive results**[11] (including a full letter-grade increase for first-generation students). Pounce was helping with "structure" by delivering the information students needed when they needed it, through a medium (text messaging) that was sure to reach them and around topics relevant to their progress along their journey. But it was also helping with substance by providing them an opportunity to engage with their course material, giving students a unique opportunity to practice and master concepts that helped them improve academic performance.

Just using AI to support with logistics, or just with substance, is missing the full picture of its capabilities. The institutions making best use of AI technology are the ones doing both.

5 **Embrace the journey.**

If you've read this far, it's probably clear to you that AI isn't (and will probably never be) a silver bullet for student retention and success. But as a tool to help students take the next step in their educational journey, it can be invaluable.
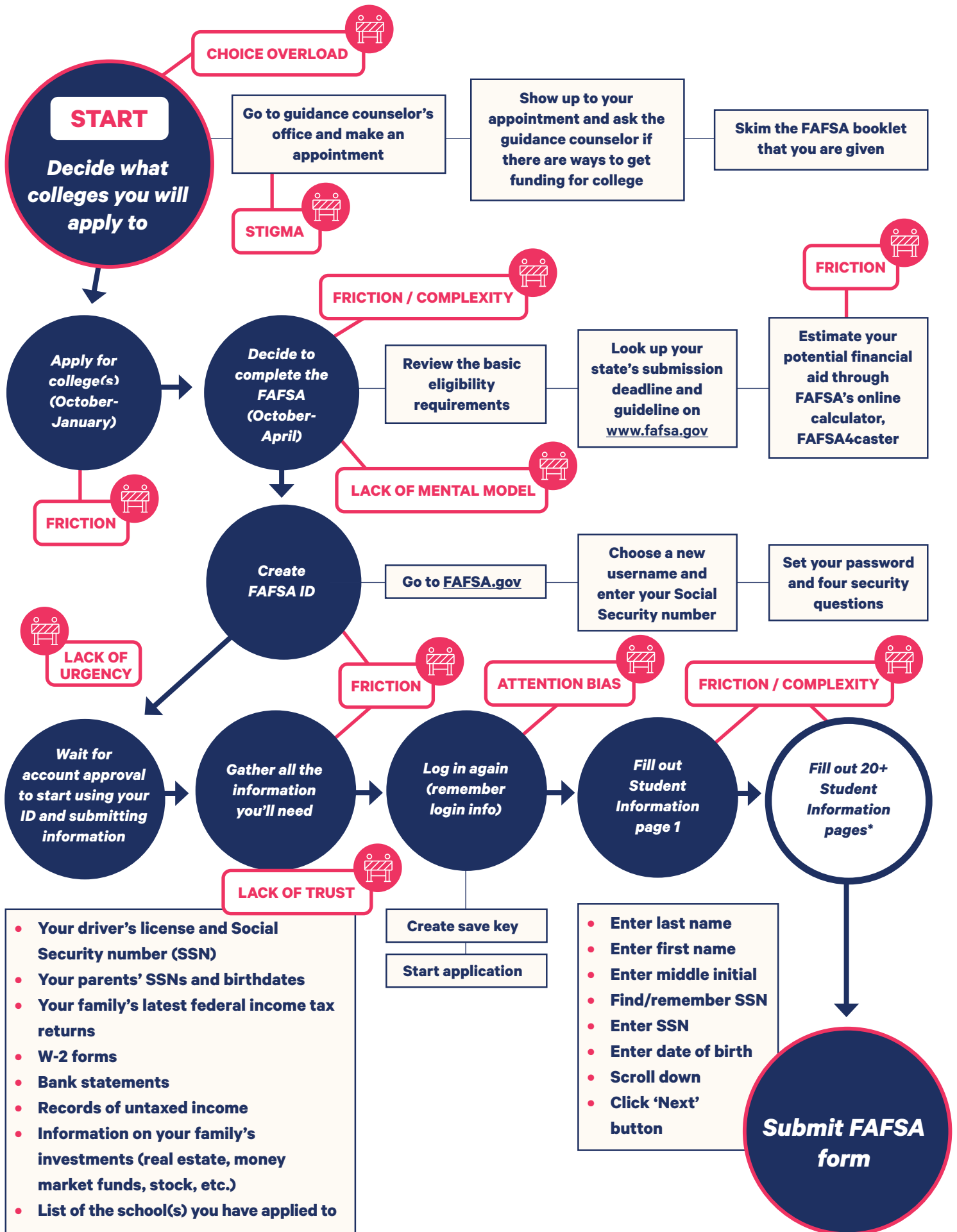
Some of the most effective ideas about how to use AI have come from "journey mapping" — that is, laying out each step in a given process, understanding the friction points, and identifying how AI tools can help turn barriers into meaningful milestones. That's because AI is most effective when it's being used to solve specific, discrete problems. When an institution is able to break down a big challenge into smaller, distinct roadblocks, it can harness AI to address each of those barriers in turn — and, in doing so, solve the bigger challenge.

West Texas A&M, for instance, recently teamed up with Irrational Labs to explore the application of AI to support FAFSA completion. Even in the best of times, filling out the FAFSA is a notoriously complex process, involving not just gathering significant amounts of family information but also meeting deadlines and navigating questions that may not be easy to parse, particularly for first-generation students and their families. The first step of the effort was a **journey map**[12] that walked through each step (from "decide where to apply" all the way to "fill out student information"), and documented the psychological and logistical barriers that could face students along the way. Then, West Texas A&M and Irrational Labs designed an AI Coach with specific prompts and approaches to help students and families address each of those smaller barriers in turn. The result was that students got targeted, proactive support overcoming each of these smaller challenges — and that the rate of on-time FAFSA completion increased threefold.

10 https://learn.mainstay.com/newrules6
11 https://learn.mainstay.com/newrules7
12 https://learn.mainstay.com/newrules8

START

Decide what colleges you will apply to

CHOICE OVERLOAD

Go to guidance counselor's office and make an appointment

STIGMA

Show up to your appointment and ask the guidance counselor if there are ways to get funding for college

Skim the FAFSA booklet that you are given

Apply for college(s) (October-January)

FRICTION

FRICTION / COMPLEXITY

Decide to complete the FAFSA (October-April)

LACK OF MENTAL MODEL

Review the basic eligibility requirements

Look up your state's submission deadline and guideline on www.fafsa.gov

FRICTION

Estimate your potential financial aid through FAFSA's online calculator, FAFSA4caster

Create FAFSA ID

Go to FAFSA.gov

Choose a new username and enter your Social Security number

Set your password and four security questions

LACK OF URGENCY

FRICTION

ATTENTION BIAS

FRICTION / COMPLEXITY

Wait for account approval to start using your ID and submitting information

Gather all the information you'll need

Log in again (remember login info)

Fill out Student Information page 1

*Fill out 20+ Student Information pages**

LACK OF TRUST

Create save key

Start application

- Your driver's license and Social Security number (SSN)
- Your parents' SSNs and birthdates
- Your family's latest federal income tax returns
- W-2 forms
- Bank statements
- Records of untaxed income
- Information on your family's investments (real estate, money market funds, stock, etc.)
- List of the school(s) you have applied to

- Enter last name
- Enter first name
- Enter middle initial
- Find/remember SSN
- Enter SSN
- Enter date of birth
- Scroll down
- Click 'Next' button

Submit FAFSA form

Key Questions

What does it look like to put these rules into practice? Asking, and answering, the following questions before beginning any initiative can help institutional leaders lay the foundation for a more strategic and outcomes-oriented approach to AI.

What problem do I want to solve — and how can AI help?
It might seem obvious, but it's a question worth asking. Before jumping in to explore AI-enabled solutions, it's critical to define the problem and the outcomes you hope to achieve. Any new technology is just a means to an end — a fact that's especially important to remember amidst all the hype around AI as a silver bullet. At the end of the day, though, what matters isn't whether you use AI or not. It's the results that you get from how you decide to use it.

In the **words**[13] of Desmos' Chief Academic Officer Dan Meyer, too often "technologists are building towards generative AI's strengths rather than teacher and learner needs." By starting with the problem and then considering how AI can play a role in the solution, institutions can better match the strengths of the technology with their areas of greatest need.

Even within the context of AI, of course, different tools produce different outcomes. If the goal is primarily to save staff time by answering common questions, it may make sense to invest in a web-based chatbot (e.g., one that sits on the institution's website). If the goal is to proactively engage with students to guide and retain them, there is ample research that a tool that communicates proactively via text message is the most effective — if not the only — way to achieve those outcomes.

With all of that in mind, let's review a sample of problems that strategic leaders might explore solving with AI.

1 **Academic Affairs — Curriculum Optimization:**

Develop an AI system that analyzes student performance data to recommend personalized course sequences for better learning outcomes. Leveraging AI could also help to accelerate alignment of coursework to future careers by mapping the skills learned in a given course with those needed for a job.

2 **Research - Grant Matching:**

Create an AI tool that matches faculty research interests with relevant grant opportunities, optimizing the grant application process, and facilitating previously overlooked interdisciplinary collaboration.

3 **Registrar — Course Enrollment Predictions:**

Use AI to predict course demand, aiding in optimal scheduling and efficient resource allocation. The work of **Ad Astra**[14] has been particularly effective on this topic.

4 **Financial Aid — Automated Financial Counseling:**

Implement an AI coach to guide students on paying for college, helping them understand tuition, fees, and payment options as well as manage their personal budget during and after college to ensure successful loan repayment and responsible money management overall.

5 **Career Services — Coaching:**

Leverage an AI coach to provide students with real-time guidance on the career search progress, including identifying potential career opportunities, building a resume, and navigating the job application process.

6 **Admissions — Applicant Scoring and Selection:**

Create an AI system to help in assessing and scoring applications to support decision-making in the admissions process. A sophisticated enough AI (with appropriate human intervention) could even help implement an instantaneous **direct admissions process**[15] at scale.

7 **Facilities — Energy Use Optimization:**

Employ AI to analyze campus energy use patterns and optimize heating, cooling, and lighting for sustainability and cost savings.

8 **Alumni Relations — Engagement Scoring:**

Use AI to score alumni interactions and predict potential donors or volunteers, enhancing engagement strategies.

9 **Registrar — Transfer Credit Evaluation:**

Implement an AI system that accelerates the evaluation of transfer credit equivalencies, speeding up the process for students transferring between institutions.

10 **Procurement — Facilitation:**

Leverage AI to support with the "nuts and bolts" of procurement to reduce strain on university staff and streamline the rote elements of the process (e.g., templatized paperwork). For example, Coverbase.ai is a new company that automates third-party risk assessment.

11 **HR — Onboarding:**

Use AI coaches to support **recruitment and retention**[16] of early-career workers. One recent pilot program at a major manufacturer in the northeastern U.S. resulted in increased recruitment yield and reduction of new hire "ghosting" that resembled the summer melt results achieved by Georgia State University.

14 https://learn.mainstay.com/newrules10
15 https://learn.mainstay.com/newrules11
16 https://learn.mainstay.com/newrules12

What are my desired outcomes? How will I measure those outcomes?

A growing number of colleges and universities have implemented AI tools in ways that are tailor-made to the needs of their student population. Below are a few examples of measurable outcomes that can come from utilizing AI tools:

Enrollment: Some AI platforms have been proven to significantly reduce "summer melt" by helping more students access, and navigate, the resources they need to meet requirements for enrollment (e.g. vaccination forms, housing deposits, etc.).

Retention: Other studies have found that AI technology can drive year-over-year retention by creating a "judgment-free" space for students who have already begun their educational journey to receive support — whether that's preselected resources or directly connecting students to the appropriate advisors.

Academic Success: AI tools can be programmed to send students proactive timely reminders for exams and upcoming deadlines, with the aim of helping them stay on track with their studies. Evidence shows that these reminders can impact academic performance, with one study finding an increase of an entire letter grade for first-generation students in a large lecture course.

Which departments are involved in this project? Who will be in charge?

The most effective implementations of any AI technology start with buy-in from senior leadership, and include collaboration across institutional teams (e.g., enrollment management, student affairs, student success, and IT). It's also worth considering whether you will dedicate staff to working with the particular technology or tool. In the case of AI tools, some institutions assign individual team members to draft responses, liaise with the AI developer, and solicit feedback from students to ensure continuous improvement.

As an alternative to dedicating staff internally, some AI providers offer expert services to help institutions more intentionally manage the process of leveraging AI for student success. One advantage is that this can ensure adherence to best practices that boost the tool's effectiveness while aligning with an institution's strategic goals.

How will the content be developed?

What makes any AI-enabled communication tool effective depends as much on what it says as on what it does. A growing number of developers work with institutions to create content (e.g., proactive outreach to motivate students to visit an advisor, or common responses to student questions) that draws on principles of behavioral science and motivation. The first-of-its-kind research paper **How You Say It Matters**,[17] developed by Alejandra Acosta and her team at New America, provides some examples of the type of messaging that has been proven to be most effective in encouraging students to take action.

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17 https://learn.mainstay.com/newrules13

Common Concerns — and Responses

AI is evolving at an incredibly rapid pace, so it's only natural to have concerns and fears when adopting AI-powered tools at your institution.

Below are a few common objections and concerns we've heard from institutional leaders, along with recommendations that we hope will help you respond when such questions arise.

Concern: AI will replace jobs at my institution.

- While AI may automate certain tasks, it's also creating new job opportunities. Consider the way in which some institutions have built dedicated positions for managers of AI platforms. The best AI tools are those that supplement and augment the more empathetic, deep engagement that only humans can do.

Concern: AI systems may be susceptible to data breaches and misuse of private information.

- Protecting personal information should be paramount for any organization starting or already on their AI journey. Mainstay, with consultation with external experts in the data privacy field, has implemented best in class security and data protections that can **serve as a model**[18] for other organizations to follow. For the highest level of protection, ensure your data is protected at rest and transit, that any PII is removed before sending to outside services or Gen AI APIs and that any vendor you work with is performing regular security audits.

Concern: AI algorithms may perpetuate or amplify biases, leading to unfair treatment and discrimination.

- Research — and experience — show that any new technology, especially AI (which is of course built by humans and designed to replicate human behavior), tends to replicate the implicit biases of its developers. The good news is that a growing number of technology solutions recognize this fact and are proactively investing in building more inclusive AI models that reduce the risk of bias.

- Ask any potential provider how they're working to avoid the risk of bias and actually help close gaps in access and opportunity for students. And make sure to give frequent feedback if their approach — or the content in their AI model — does not align with your or your students' goals, priorities, and needs.

- Norfolk State University has emerged as an example of an institution taking a proactive approach to addressing this challenge. In partnership with the Yale Center for Emotional Intelligence, the Virginia HBCU **built an AI-enabled communication tool**[19] designed to provide students with culturally and contextually relevant information. By working directly with students themselves during the design process, Norfolk State ensured that rather than exacerbating biases, their AI tool could actually anticipate and navigate them.

18 https://learn.mainstay.com/newrules14
19 https://learn.mainstay.com/newrules15

Concern: AI systems may become too autonomous, leading to a lack of human control and accountability for their actions.

- Emphasize the importance of human oversight and monitoring of AI systems to ensure they align with ethical standards and institutional values. Consider creating regulations and guidelines to hold developers and users of AI accountable for the systems' actions and outcomes, or ask the solution provider you work with to be transparent about their own approach to ensuring human oversight and engagement.

- A growing number of research projects are examining what these regulations and guidelines should look like in the case of

AI-enabled tutors and coaches in the education context.

- One **recent report**[20] developed by technologists at Google proposes a set of evaluation metrics for generative AI tutors in particular, including clarity and accuracy of responses; contextual relevance to students' specific needs; effectiveness of engagement and motivation; error handling and feedback quality; and considerations related to ethics and bias mitigation.

- These principles may form a useful foundation for institutions seeking to develop their own tailored policies and principles around AI adoption and implementation.

20 https://learn.mainstay.com/newrules22

Conclusion: From Theory to Practice

A <u>**recent working paper**</u>[21] **developed by social scientists at Harvard, Warwick Business School, and MIT coined the idea of AI's "jagged technological frontier."**

The concept describes the shifting border that defines what tasks are easy for an AI tool to accomplish, and which ones are still outside its capability.

The idea of the jagged frontier provides a helpful reminder of something that anyone who's experimented with ChatGPT can easily tell you: there's so much that AI is capable of, but also so much further that it has to go. Consider how effectively ChatGPT can provide a recipe for chocolate chip cookies, compared with how much trouble it has doing basic math.

What the paper also found, though, is that AI and humans together make a uniquely powerful pair. When given a set of tasks to complete, people who used AI to help **performed significantly better**[22] than those who acted without AI. (Notably, though, the report found that it required an average of 14 hours using ChatGPT before a worker's productivity increased, showing that it takes deliberate effort and practice for humans and AI to work together most effectively.) That finding reflects something many in higher education already know: the combination of AI technology and human support can have a transformative impact on college persistence and completion. In many cases, success depends less on *what* the technology is and more on

how it's used and *who* is overseeing, refining, and supporting it.

These findings should be encouraging for institutional leaders hoping to expand their use of AI. They also highlight the urgency of designing and implementing AI on campus — not to mention creating the context and structure to help students and staff invest time in learning how to use it effectively. Technology is changing quickly enough, and having enough of an impact, that those who don't take action soon may end up left behind.

During this time of rapid transformation, institutional leaders should have a bias toward action when it comes to AI. For the time being, experimental approaches are better than analytical approaches. Testing, iterating, learning, and improving is the only way to determine how to make the most of AI's potential in higher education. Colleges and universities, which in so many ways have been at the vanguard of innovation throughout history, are in a unique position to explore and experiment with the role of AI. Doing so thoughtfully, and with a focus on achieving specific and measurable outcomes for students, will enable higher ed institutions to write the next chapter in the ongoing story of technology's transformative impact on society.

21 https://learn.mainstay.com/newrules16
22 https://learn.mainstay.com/newrules17

Appendix A:
A Higher Ed Leader's Problem-Solving Framework

What is the problem to be solved?	*Identify the large-scale challenge (e.g., enrollment, persistence, academic success) that needs to be addressed.*
What are the specific barriers that create this problem?	*Break down that large-scale challenge into smaller roadblocks (e.g., enrollment -> missed deadlines; ineffective communication modalities)*
Which of these barriers could be removed or reduced by AI?	*Identify which smaller roadblocks could be addressed or alleviated by AI tools. Is more accurate prediction or hyper-personalization essential to solving this particular problem? If so, AI could be the solution.*
How might AI transform barriers into milestones?	*Develop a detailed, strategic plan for how AI could help to address those roadblocks.*
Where will the institution access the AI tool needed to solve this problem?	*Identify the source of the AI technology (e.g., third-party vendor, in-house team).* *If it's a substantial problem with a significant return-on-impact (ROI), has someone solved it yet? Can you use their solution? Will it be more expensive and time-consuming to build your own AI tool or to partner with a provider who has developed the tool you need?*
How does the use of AI in this project align with the university's broader principles around AI?	Many institutions are in the process of developing guiding principles or policies around their use of AI. Mainstay's **Hippocratic Oath of AI**[23] is one such example. Consider how this project would relate to your institution's guiding principles.
Who from the institution will be involved in this project? Who will lead the project?	*Figure out who will do what and when. Identify the departments or leaders who should be involved in this work, and assign an executive sponsor to ensure everyone understands this project is a priority.* *Rather than building AI "for" certain groups — students, faculty or staff — it's essential to design and build AI solutions "with" the populations you're seeking to serve. AI, in particular, is prone to perpetuating rather than eliminating bias, and inclusive design is the best way to mitigate issues early-on.*
How will outcomes be tracked and measured?	*Develop a clear strategy to determine how to gauge the effectiveness of this AI solution. This could include both progress in solving your large-scale challenge and progress in addressing smaller roadblocks (e.g., enrollment increases, but also fewer missed deadlines and more responses to university-student communication)*

23 https://learn.mainstay.com/newrules18

Sample Worksheet

What is the problem to be solved?	*Increasing enrollment*
What are the specific barriers that create this problem?	*FAFSA & financial aid procedures* *Application updates and checklists* *Standardized test score submission* *Scholarship resources* *Final Transcript submission* *CSS profile support* *Open house and campus visit details* *Key Enrollment deadlines* *Intent-to-enroll communications*
Which of these barriers could be removed or reduced by AI?	*Missing key enrollment deadlines; late submission of transcripts and test scores; lack of access to or awareness of scholarship resources; ineffective intent-to-enroll communications; attendance at open houses or other campus visits*
How might AI transform barriers into milestones?	*AI could provide proactive nudges to help students submit paperwork on time; access scholarship resources; meet key deadlines.*
Where will the institution access the AI tool needed to solve this problem?	*Third-party vendor (e.g., conversational AI provider)*
Who from the institution will be involved in this project? Who will lead the project?	*Enrollment management team, admissions team, student success team, president's office*
How will outcomes be tracked and measured?	*We will track both enrollment changes and shifts in the above barriers (e.g., reduction in late submissions and missed deadlines; increased attendance at campus visits)*

Worksheet

What is the problem to be solved?	
What are the specific barriers that create this problem?	
Which of these barriers could be removed or reduced by AI?	
How might AI transform barriers into milestones?	
Where will the institution access the AI tool needed to solve this problem?	
Who from the institution will be involved in this project? Who will lead the project?	
How will outcomes be tracked and measured?	

Appendix B: Measuring Effort Versus Impact

Significant human involvement required

Pilot Programs:
These initiatives require significant human resources but may yield smaller impacts. Ideal for institutions that are cautious about AI adoption and want to start with manageable, low-risk projects.

Moonshot Efforts:
Large-scale, ambitious projects that require significant human involvement but have the potential for substantial impact. Suitable for institutions ready to invest heavily in AI to yield a significant ROI — "return on impact."

Low return / smaller impact

High return / significant impact

Incremental Improvements:
Small-scale, low-risk AI implementations that require minimal human resources and yield smaller impacts. These can be initial steps to integrate AI without substantial investment.

Strategic AI Implementations:
High-impact AI initiatives that can be implemented with relatively low human involvement. These are optimal for institutions looking for ways to leverage AI for significant efficiency improvements.

Low human involvement required

College and university leaders are constantly balancing a host of competing, and often equally important, priorities.

In many cases, that means making judgments about which initiatives or strategies are worthy of further investment of time, energy, or financial resources — which are likely to yield the greatest return on that investment.

With that decision-making framework in mind, the above chart may provide a helpful starting point for institutional leaders as they determine how to get started with implementing AI-related initiatives or strategies. We encourage readers to map various AI efforts (like those mentioned in this paper) according to this chart, which we hope will be a useful aide in the decision-making process.

It's important to note that the best next initiative depends on the circumstances of your institution. Sometimes a small pilot that has high human involvement is the right first step toward AI innovation if there is trepidation about this new technology. For a more ambitious campus, a large-scale "moonshot" effort may be the most effective way to consolidate a groundswell of enthusiasm around the potential of AI. In short, this 2x2 matrix is just a tool to help start a conversation about the AI strategy that is right for your campus right now.

Appendix C: Critical Questions for Institutional Leaders

Every century or so, the emergence of new technologies fuels a set of foundational questions about the future of society and the economy.

As Arizona State University president Michael Crow has noted, the last time these questions emerged may have been the dawn of the industrial age — and our answers then formed the basis of the higher education system as we know it.

While the time frame is certainly shortening as the pace of technological change accelerates, it's increasingly clear that the emergence of AI is an opportunity to ask those big questions. Of course, AI has already also sparked a series of shorter-term strategy questions for institutional leaders, some of which were introduced earlier in this paper.

This appendix is designed to surface more of those questions, which are meant as conversation starters with no one answer. In fact, the diversity of answers and strategies is critical given the unique needs of higher ed institutions and the regions they serve — and the ways that institutions respond may well shape the world of higher education for the century to come. We hope these questions provide a helpful way to extend the ideas as leaders discuss the impact of AI on their institutions in the short, medium and long term.

Near-Term Questions (2-5 years)

- What aspects of the institution are going to change first?
- What actions should we take now to prepare for this change?
- What is the best place to begin — and where will we go next when we've succeeded?

- How can we begin to responsibly and ethically integrate AI into student success today?
- How are students actually going to use AI?
- How do you move beyond literacy in AI to fluency?
- What does it mean to teach and learn in a world where AI exists?

Medium-Term Questions (5-10 years)

- How will AI's impact on the labor market affect the way that colleges and universities prepare students for the world of work?
- If our assumptions are wrong and these changes happen much faster — or slower — than we expect, how might we adjust or adapt?

Long-Term Questions (10+ years)

- What does it mean to have a research enterprise where AI is central?
- What will the knowledge economy look like in a world where AI is ubiquitous?
- How might learning and work continue to evolve and what skills are relevant in the context of AI that is dramatically more intelligent than human beings?
- How might the enterprise of education change fundamentally to meet civilization's needs in the next 50 years?

Further Reading

From Mainstay

The Road to Inspiring Student Engagement[24] (Mainstay's "maturity model" framework for technology adoption)

AASCU's & Mainstay's **AI Glossary for Higher Education Leaders**[25]

Podcasts

Ezra Klein interviews
- **Interview with Dario Amodei, Co-CEO of Anthropic**[26]
- **Interview with Ethan Mollick, Author of Co-Intelligence**[27]
- **Interview with Demis Hassabis, co-founder of Google's Deep Mind**[28]

Plain English with Derick Thompson
- **Interview with Kevin Roose, NYTimes Tech columnist**[29]

Hard Fork, NYTimes Tech Podcast
- **Kevin Roose on AI friends**[30]

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34 https://learn.mainstay.com/newrules34
39 https://learn.mainstay.com/newrules39

Other Internet Resources

Situational Awareness[31]
- A tech-insider's look at the trajectory of Artificial Intelligence and its implications from the vantage point of Silicon Valley

OneUsefulThing.org[32]
- Ethan Mollick's ongoing Blog about AI and education as new models and discoveries emerge.

Designing for Education with Artificial Intelligence: An Essential Guide for Developers[39]

Educause **Resource Library on AI**[33]

Mary Meeker's 2024 Annual Report on Education and Technology[34]

> "In the wake of ChatGPT and the AI explosion, we have likely reached a generational, fast and furious change across education. The ramp in artificial intelligence—which leverages the history of learning for learning—affects all forms of learning, teaching, understanding, and decision making. This should be the best of times."

> Meeker said, "Actions taken in the next five years will be consequential" and American higher ed institutions, which she called "bastions of technological progress," should take leadership roles, in combination with industry and government.

> "Universities need to find, create, and sustain their differentiators—their best-in-class programs and advantages that attract students—or risk losing market share in an increasingly transparent and AI-enabled world that has already received a COVID-related remote work booster," she said. "The reality is that younger students (and lifelong learners) are getting smarter about their learning options, costs, and returns. They will be aggressive voters with their time and money."

Books

The Coming Wave: Technology, power, and the twenty-first century's greatest dilemma by Mustafa Suleiman[35]

- A phenomenal description of the progression of AI over the last 20 years in particular followed by the profound implications of two fundamental breakthroughs happening simultaneously in Artificial Intelligence and synthetic biology.

Co-Intelligence: Living and working with AI by Ethan Mollick[36]

- A fantastic description of Generative AI as it's emerged and we have discovered new and exciting applications of this technology in education, work, and life.
- Mollick describes his personal journey with the technology and its implications for how he teaches and how his students learn in his Wharton School courses
- For ongoing analysis and understanding of Gen AI breakthroughs as they emerge, we strongly encourage you to also follow Mollick's blog at oneusefulthing.org

Brave New Words: How AI will revolutionize education by Salman Khan[37]

- A very accessible read about AI and its implications on education for all ages written by the creator of Khan Academy who continues to push boundaries for ways technology, specifically AI, can solve structural challenges of access and equity in global education.

Power and Prediction: The disruptive economics of artificial intelligence by Ajay Agrawal, Avi Goldfarb, and Joshua Gans[38]

- A practical guide for leaders to understand and enable the critical infrastructure changes needed to take full advantage of AI within their organizations.
- This book builds off their previous book, Prediction Machines, and corrects a self-avowed error in their thinking about how to best leverage AI to innovate within an organization.

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