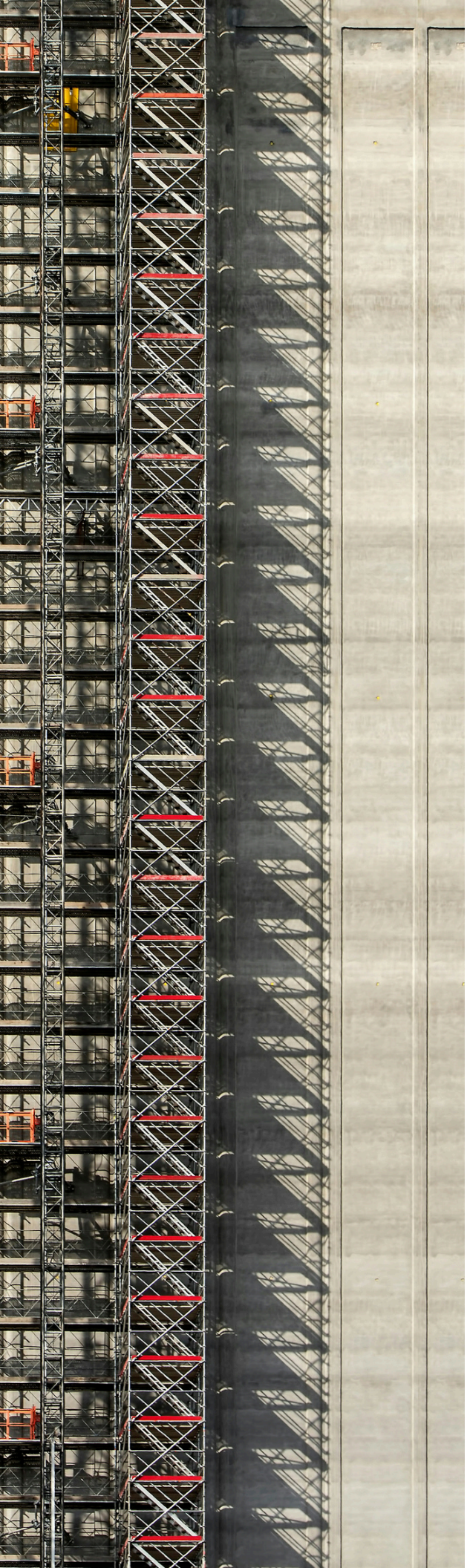

Education and Learning for Longer Lives

Building a National Vision for Human Capital Development and Shared Prosperity

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Executive Summary

Major changes in the organization of education and learning are needed to take advantage of steadily lengthening lifespans in which people will face multiple career transitions and seek continual renewal of skills.

To meet the challenge, the United States must reinvent institutions we inherit from the twentieth century. We can no longer assume that education trails off with the end of childhood, and that employment and education take place in separate organizations and at different phases of life.

The nation must create new pathways for mobility in education and employment; equip its people to navigate multiple transitions across schooling, jobs, and careers; think differently about the pace, rhythm, and sequencing of education and paid work; and save and plan for longer lives.

This Futures Project is charged with developing a framework for discussing how we can build new models of education, learning and work appropriate for our time. It assembles 33 thought leaders from education, venture capital, philanthropy and the public sector and charges them with building a national vision for human-capital development that can inform ambitious cross-sector collaborations over the next 2-10 years. The Project will release its vision for public consideration in Spring 2025.

Our work begins with five imperatives:

1. Reconfigure education in the first quarter of life: We need to lay a firm foundation for all Americans to enjoy lifelong capacity to learn. The task begins in children's earliest years and continues into young adulthood: fostering both the ability and desire to continually adapt to change.
2. Grow talent for the present and future of work: Massive technological changes are transforming the character of work. We need to rethink what kinds of education and learning opportunities should be available, for whom, across all stages of the life course. Many opportunities will best happen in workplaces.

3. Democratize economic mobility: Systemic discrimination in education and employment hinder mobility. We must remove the BA as an entry requirement to well-compensated and career-laddered jobs. We also need dramatic changes in the provision of care work -- the many tasks involved in serving the well-being of others – to enable people to invest in their own futures without sacrificing the needs of loved ones.
4. Sustain prosperity over longer lives for all Americans: Social Security is inadequate for comfortable retirements, yet about a third of working adults do not contribute to any retirement savings plan beyond Social Security. Key to expanding financial security for longer lives is enabling people to increase their incomes, sustain employment, save more, and grow wealth over longer stretches of the lifespan.
5. Support education and career transitions across the life course: Skill upgrades and career transitions are difficult and costly in the United States today. Early career guidance is woefully inadequate, and support for mid-career transitions is nearly nonexistent. Employers, educators, businesses and public agencies must create bridges and brokers to support career transitions across the entire life course.

Meeting these imperatives is a tall order. Getting there will require coherent and well-focused policy conversations. To begin, we offer three big questions to organize these national discussions:

- How should responsibility for building and supporting lifelong human-capital development be distributed among workers, employers, and government?
- How should the nation best leverage business models for education and learning while safeguarding consumers and civil society?
- How can state and federal programs for higher education and workforce development be integrated to better support longer lives?

Valuable assets from our shared national history make equitably prosperous longer lives an achievable ambition. These assets include a shared commitment to education for social mobility; strong desire for education across the life course; a lively education-and-learning entrepreneurial sector; and new data and analytic tools to observe, understand and improve education, learning, and career advancement.

Our primary focus will be on the middle of life — from early adulthood into the fourth quarter of 100-year lives — because this is where current supports for growing talent and enabling transitions are least developed. Yet our vision will explicitly recognize the life course of human capital: from its foundation in early childhood, through K12 education, and across the entire span of longer careers.

Introduction

Major changes in the organization of education and learning are required if the American people are to take advantage of steadily lengthening lifespans. The nation's evolving human capital needs oblige us to support longer working lives, multiple career transitions, and continual renewal of skills.[1]

The basic institutional architectures of schooling and work that we inherited from the twentieth century are organized around the notions that education trails off with the end of childhood, and that education and employment take place in separate institutions, at different phases of the life course. These arrangements now undermine the quality of individual lives and the nation's economic and civic vitality. The next quarter century offers huge potential for human flourishing and material prosperity, but only if people are able and empowered to work and serve throughout the arc of ever-lengthening lives.

This project is charged with developing a framework for catalyzing a discussion about the education and learning[2] opportunities America must build to enable its people to achieve prosperity across lengthening lifespans. A truly plural group of thought leaders from industry, philanthropy, academia, and the public sector will convene over a nine-month period to define a vision for human capital development in the United States for the next 15 years.

Outputs will include vision documents, policy briefs, novel education-and-training programs, peer-reviewed research, and new civic, philanthropic, and business ventures. In hosting this project, Stanford incubates what must be a nationally distributed conversation about how best to support and celebrate human potential in an era of rapid technological and social change. This brief document makes the case for the necessity of this work.

Americans are living longer and increasingly can anticipate longer stretches of functional health. In 1920, the average lifespan in the United States was around 55 years. Revolutionary advances in medical sciences and public health over the last century dramatically extended the lifespan, which now approaches 80 years.[3] This is good news. It means that more of us can anticipate whole new chapters of life, more opportunities for personal growth and change, and more contributions to the vitality of our vocations, loved ones, and communities.

Yet tragically, this gift of longer lives is not yet equally shared. Life expectancy differs by nearly two decades between the most and least privileged Americans.[4] The quality of longer lives varies too. Older Americans who are Black or Hispanic, for example, are more likely than white people to report poor health and chronic medical conditions.[5] Education plays a key role in these patterns. Attainment of a four-year college credential is strongly correlated with longer life expectancy and a variety of measures of health and well-being.[6] In short, longevity is a civic issue: who is able to enjoy longer lives, and who is not, is closely intertwined with how opportunity in America is distributed.

Preparing all of us to take advantage of longer lives will mean creating new pathways for mobility in education and employment. It will mean preparing people to navigate multiple transitions across jobs and careers; to think differently about the pace, rhythm, and sequencing of education and paid work; and enabling them to save and plan for longer lives.

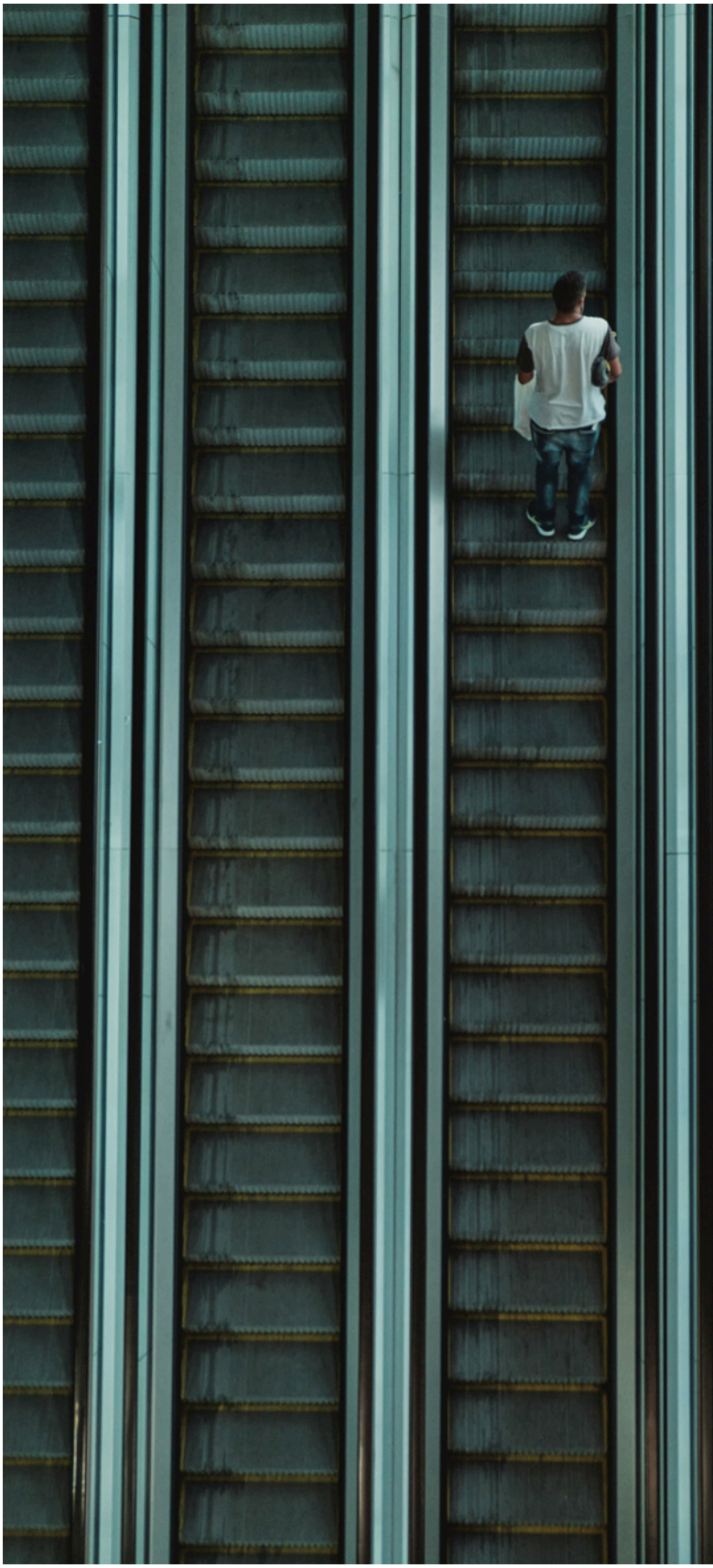
It will require employers to substantially rethink how they source, retain, and grow talent, and for colleges and universities to continually adapt their offerings in light of what promise to be ongoing changes in the character of work.

This massive demographic change comes at a time when our nation is making serious investments in infrastructure and training that will enable us to remain the world leader in manufacturing and technical innovation despite increasingly fierce competition from China and other large economies.[7] Our nation's greatest assets have long been the capacity and character of our people; our incredibly diverse and dynamic economy; and the globally unrivaled diversity of our higher education system. A forward vision for human capital development must strengthen the relationships between workers, industry, and academia through joint ventures that leverage the assets of each for the reciprocal benefit of all contributors. A life-course approach, which recognizes the cumulative returns to investments in human capital from birth and throughout adulthood, will be a crucial component of any forward vision for human-capital development.

By human capital, we refer to several things at once: the skills that human beings offer to employers in labor markets; the capacities that enable personal growth and self-discovery; and the many tasks and talents entailed in attending to the care and flourishing of others. Enabling longer lives that are more prosperous, equitable, and fulfilling will require better nurturing and investment of human capital on all of these dimensions.

Like other forms of value, human capital can be hoarded, squandered, or strategically invested so that it grows. We are convinced that the American people deserve an audacious vision for strategic investment in their capacities.

We first outline five imperatives the nation inherits from recent history. We argue the need to reconfigure education in the first quarter of life to serve longer lives; grow talent for the present and future of work; democratize economic mobility; sustain prosperity over longer lives for all Americans; and support education and career transitions across the life course. Meeting these imperatives is a tall order. Getting there will require coherent and well-focused policy conversations. In the service of beginning those, we offer three large questions to organize national conversations about how best to take them on. We conclude by summarizing the great assets from our shared national history that make equitably prosperous longer lives an achievable ambition.



Five Imperatives for a National Vision

1. Reconfigure education in the first quarter of life

The United States was the first country in the world to provide basic education to all of its citizens as a matter of right. This commitment was something of a civic miracle. Americans have long been skeptical of centralized, "big government" approaches to social problems. Yet the height of the Industrial Revolution at the turn of the last century brought such tectonic changes to the character of work, private life, and the public square that the nation was mobilized to seek bold new ways to prepare children for a new world.[8] That investment paid off handsomely over the long arc of the twentieth century, ultimately enabling the United States to lead the world in economic expansion and technological progress on many measures for serial decades.[9]

The basic architecture of that system has not changed substantially for 100 years: students are placed in age-segregated, hierarchically arranged cohorts; curriculums are designed to offer more or less standardized curriculums at each "level" of instruction; and obligatory public provision of instruction concludes with a high school diploma. This basic "grammar" of schooling, as a team of historians famously termed it, is remarkably durable and has only occasionally been seriously challenged.[10]

Instead of changing the basic structure of educational provision, we grew it. As the nation's human-capital needs evolved over the twentieth century, the nation substantially expanded years of age-graded schooling, offering college educations to steadily larger numbers of students and incrementally encouraging college access as the way to enable mobility and prosperity. This vast organizational inheritance was built to support education for an economic order that no longer exists.

Consider the Higher Education Act of 1965 (HEA), which made college access a realizable goal for millions of Americans and continues to be the omnibus federal program funding postsecondary into the present. HEA was designed to help the nation battle the twin foes of totalitarian regimes abroad and racial and gender inequality at home by growing and diversifying the nation's stock of highly trained workers.[11] At that time, young people faced a fairly clear choice between

entering the workforce directly after high school, or continuing with postsecondary training in pursuit of a career in white-collar jobs and technical professions. Back then, the college path was much less likely. In 1965, fewer than 15 percent of adults between the ages of 25-29 had four-year degrees. Well-compensated jobs, often protected by strong unions, were widely available in manufacturing industries from coast to coast, especially for white men.[12] Whether in industry or at college, young people were encouraged to pursue specific occupations that would be theirs for their entire careers, perhaps within a single firm. Those careers were presumed to end with eligibility for Social Security benefits as workers entered their seventh decade of life, and – at least for relatively privileged workers – were routinely supported by employer-funded pensions.

By the end of the twentieth century virtually all of the circumstances of the economy and people's lives had changed, even while public funding and governance of educational provision remained much as it had been built decades earlier. K12 education was largely organized around a "college for all" idea that presumed college educations were necessary for large domains of employment,[13] but Americans never expanded the social contract to assure the provision and affordability of that additional schooling. Together with the movements to which it responded, HEA succeeded in encouraging swelling numbers of long marginalized groups to pursue college educations, and substantial erosion of long entrenched social hierarchies.[14] Meanwhile the close of the US/Soviet Cold War and the globalization of industrial manufacturing evacuated millions of union-protected manufacturing jobs from the continental United States. A growing emphasis on value to shareholders over corporate stability encouraged a renegotiation of the social contract between employers and workers; with the former making many fewer longer-term commitments about employment and pensions; and workers increasingly taking transactional, short-term orientations to their jobs.[15]

These changes transformed the college calculus that young people and their families made when considering career paths after high school. Steadily growing numbers of people from all demographic groups pursued college educations in bids to compete for what seemed to be ever scarcer numbers of well-compensated, career-laddered jobs. All the while, average lifespan continued to climb. People were increasingly anticipating longer lives, but without the promise of long-term employment and employer-subsidized retirements that many of their parents had enjoyed. The result has been

the pursuit of ever more educational credentials by people from an ever wider array of circumstances and life stages, but little fundamental change in how education is funded and provided. Americans never committed to full public subsidy of any education beyond high school, so steadily growing demand has been sated by people paying for college with their own resources-out-pocket and relying on loans to cover the rest. Education debt has metastasized into a $1.6 trillion dollar national crisis, with no shared understanding about who is responsible for the problem or how it should be remedied.[16] Massive changes in digital technology offer the promise of reducing the cost of instruction via online platforms. By 2021 nearly a third of enrolled students had taken at least one online course.[17] Yet any substantial bend in the college cost curve has yet to arrive.[18] Stubbornly tepid completion rates round out the unhappy picture, with only around 65% of those intending four-year diplomas to complete them within six years.[19]

Yet even if the wave of magic wands were to radically lower college costs and raise completion rates, we still would not be sufficiently prepared to sustain longer lives. This is because the entire project of college expansion in the last century was designed to front-load formal education into the first portion of the life course, and to prepare people for career trajectories within relatively stable sectors of the economy. Education through young adulthood was imagined as a sorting and stratifying process, in which people were placed on paths into specific segments of the labor market and its attendant economic hierarchies, where they were presumed to stay for the rest of their working lives.[20] All was organized around a presumption that education and training would consume the first third of life, paid work in a stable career the second, and pensioned retirement the third. None of this is feasible today. Only some of us would call it desirable.

2. Grow talent for the present and future of work

There is no shortage of evidence that massive technological changes are transforming the character of work. Some call it the fourth industrial revolution, or 4IR: dramatic advances in digital connectivity, computational capacity and artificial intelligence reorganizing divisions of labor in virtually every domain of human activity.[21] 4IR already has transferred myriad tasks that long required human workers to machines, and significantly altered myriad jobs at the human/machine interface. These changes will only accelerate in the coming years. The McKinsey Global Institute recently estimated that up to 30% of hours currently worked by humans in the United

States could be automated by 2030, necessitating some 12 million occupational transitions.[22] The World Economic Forum predicts that 44% of jobs will be somehow disrupted by technology change in the next five years.[23]

While sophisticated robotics and AI platforms capture popular imaginations about the future of work, a lot of the big changes have to do with what might be called basic digital skills: the ability to write and manage e-mail, build spreadsheets, monitor automated data-entry protocols, and maintain digital medical records. Joint research by the Federal Reserve Bank of Atlanta and the National Skills Coalition estimates that up to 92% of all jobs in the United States require one or more of such skills. Yet chronic disparities in educational provision mean that approximately a third of American workers are not adequately equipped to carry them out.[24] The rapid advance of AI technologies means that the future of work also will require human beings to grow the social-interactive and interpretive capacities that are less likely to be absorbed by machines.[25] Longer lives will mean more years of employment in a rapidly changing economy that requires strong baselines of learning capacity and a continual renewal of skills. Any forward vision for education and learning for longer lives must center the fundamental importance of enabling all Americans to participate in the digital future of work. Major changes in the population and culture of the United States in recent years mean that employers will have fresh incentives to cultivate workforce talent over longer stretches of the life course. The huge cohort of Americans born between 1946 and 1964 – the so-called Baby Boom – is now retiring, and smaller subsequent birth cohorts mean fewer younger workers will be available to replace them.

While this fact alone will affect worker availability, it is exaggerated by generational changes in attitudes toward work. Baby Boomers came of age in an era of highly competitive labor markets and the massive entry of women into paid employment; together these factors encouraged a culture that prioritized career-first orientations to work. A post-COVID world of plentiful jobs and general cultural recalibration of work-life balance encouraged many people to moderate their commitments to paid work – a trend that seems to be durable. In the wake of these changes, a recent Lightcast study anticipates a net deficit of millions of workers in coming years that will need to be filled by immigration, offshoring, and retention and retraining of those adults who wish to remain in the labor force.[26]

The good news is that there are a lot of talented people among the ranks of the

currently employed who are eager for upskilling and promotion; the bad news is that most employers don't see them.

An influential study published jointly by Accenture and the Harvard Business School in 2021 called them hidden workers: desirable candidates that remain invisible to employers because of search, recruitment, and promotion routines that eliminate them from consideration.[27] Job descriptions that formally require specific educational credentials; recruitment protocols that return to the same sources over and over again; assumptions that new hires will be more flexible and ambitious than in-house employees; and siloed internal job trees that discourage horizontal movement within firms: all of these conspire to "hide" held talent from the very firms that claim to most need it. Recent joint research by UVA's Darden School of Business and the Burning Glass Institute suggests that over ten million workers might be eligible candidates for managerial roles in their firms were it not for such barriers that preemptively exclude them from eligibility.[28]

Taken together, the transformation of work through technology and the aging of the workforce oblige a fundamental rethinking of what kinds of education and learning opportunities should be available, for whom, and at what stages in the life course. A forward vision for human capital development will also recognize that many of those opportunities will best happen in workplaces, where talent for current and future jobs already resides.

3. Democratize economic mobility

Stubbornly modest rates of economic mobility in the United States in recent decades have undermined the promise inherent in the American Dream: that hard work and perseverance are rewarded by rising prosperity over the life course and across generations. Many varied factors combine to sustain this problem: drastically unequal community circumstances for Americans of different class and racial groups in the first years of life;[29] steadily rising out-of-pocket costs for postsecondary educations, coupled with labor markets which systematically discriminate against people who do not possess four-year college degrees;[30] staggeringly high rates of incarceration, especially for Black men, and the joblessness and wage scars that come with criminal records.[31]

Making progress on income and wealth inequality in this country will require the nation's leaders to redouble efforts to address these issues head-on.

Yet substantial progress can also be made by tackling systemic practices in education and employment that hinder mobility.

For example, the country is finally beginning to reckon with the high social cost of tying so much economic and moral weight to possession of four-year college degrees. Removing the BA as an entry requirement to well compensated and career-laddered jobs is an important first step: a strong signal that educational credentials should serve as ladders for mobility, not "paper ceilings" that block it. Rewriting formal educational requirements for employment is only a first step, and is likely to do little to change deeply entrenched practices of recruitment, screening, and promotion organized around educational credentials.[32] Democratizing social mobility in recruitment, hiring, and promotion will require fundamental changes in how employers think about, identify, and reward human capital.

Significant variation across the vast landscape of corporate America offers a sort of field test in just how much employers can do to either enable or inhibit mobility in the workplace. The American Opportunity Index, a joint venture between the Harvard Project on Workforce and the Burning Glass Institute, traces the career trajectories of some 5 million workers in the nation's largest firms. It shows that employers differ substantially on factors that are implicated in who has access to jobs and mobility. How often do firms hire and retain people without college credentials? How much intramural mobility and earnings growth do retained workers enjoy? How likely are employers to promote from within? AOI data indicate substantial differences on such dimensions, even among firms within a single industry – suggesting a very strong role for employers in shaping opportunity.[33]

Any serious commitment to democratizing economic mobility will require dramatic changes in the organization and compensation of care work in America. By care work, we refer to the many tasks involved in serving the health, well-being, and prosperity of others.[34] Wherever it is performed – in homes, hospitals, schools, childcare centers, houses of worship, retirement facilities or community agencies – care work is chronically underpaid and very demanding of the time and attention of those who perform it.[35] Millions of ambitious, hard-working Americans daily face a cruel decision: either attend to the essential human needs of loved ones or pursue paid employment or school. Reorganizing the relationship between care work, paid work, and education/training to eliminate this tradeoff is essential for truly shared prosperity.

Literally every institutional domain must be enlisted in a forward vision for human capital development.

Schools, government agencies, legal/carceral systems, civic organizations, and employers all are implicated in how opportunity is hoarded and distributed in American life. Changes in all of them will be required for substantial expansion of the promise of the American Dream.

4. Sustain prosperity over longer lives for all Americans

Too many are not financially prepared to support their own flourishing across lengthening lifespans. Social Security, the nation's public retirement insurance program, was created in 1935, when people over age 65 comprised a mere 6% of the population. Today that proportion is approaching 20%, and declining birth rates in recent decades mean that proportionally fewer younger workers are making tax contributions to the program.[36] Social Security was neither built nor funded to fully pay for comfortable retirements.[37] Even so, the numbers don't add up. The Social Security Administration reports program costs to rise such that the government will only be able to pay 80% of benefits from designated reserves and tax revenue after 2034.[38] Political exigencies are likely to ensure that Washington will figure out how to make up the difference. Yet Social Security alone will never adequately allow Americans to sustain comfortable lives in retirement.

The financial gap between Social Security benefits and comfortable retirement was long bridged by pensions provided as benefits of employment in public-sector jobs and large corporations. Yet employer provision of pensions, also known as defined benefit plans, has been declining for decades; in 2023 only 15 percent of private-sector workers enjoyed them. For the relatively fortunate, defined benefit plans have been replaced by defined contribution plans, in which workers and employers jointly contribute funds to retirement savings accounts. Yet such programs are not universal. Today, fewer than 70 percent of workers have access to defined benefit plans and fewer than 49 percent opted to participate.[39] About a third of working adults do not contribute to any retirement savings plan beyond Social Security.[40] One result is a big gap between projected cost of comfortable retirements and the necessary savings to pay for them. The median income for Americans between the ages of 55-64 is $82,000, and the median savings for this group is $182,000 – about 2.3 times annual income. Yet the current rule of thumb is that people need approximately eight times their income in savings to retire comfortably – a difference of half a million dollars for the median late-career earner.[41]

So high rates of poverty among the older population should come as no surprise,

with over ten percent of adults over age 65 – 5.9 million adults – reporting earnings below the official poverty threshold in 2022.[42]

Key to expanding financial security for longer lives is enabling people to increase their incomes, sustain employment, save more, and grow wealth over longer stretches of the lifespan. This is how the gift of longevity, the promise of financial well-being, and the need for ambitious new forms of human-capital development go hand in hand.

5. Support education and career transitions across the life course

Human capital accrues over a long arc, from early children's earliest years forward into late adulthood. The longer the life course, the longer the arc. And the faster the speed of skill change and job disruption, the more likely that arc will include multiple transitions between school and work across multiple jobs and career stages. Unfortunately, the nation's current organization of education and employment makes these transitions difficult and costly.

Today Americans are left to navigate school-to-work and career transitions on their own, with little or no formal guidance. They lack information about where the best job opportunities can be found and about the capacities or credentials those jobs require. Transitions between school and work or from one career to another are much more likely when there are strong bridges and active brokers to help people navigate them.[43] Yet those we inherit almost exclusively benefit the already wealthy and well-connected. Consider for example the elaborate ties that reliably deliver graduates of admissions-selective colleges and the most lucrative occupations.[44] Enabling lifelong learning and work requires the creation of bridges and brokers for all of us.

Students know that the patchwork career guidance systems available to all but the most privileged are woefully inadequate. Nearly half of Gen Z youth in K-12 schools say they don't have enough information to make plans for after high school.[45] A Strada Education Foundation study found that only 20 percent of students in public four-year colleges receive quality education-to-career coaching.[46] Fully half of recent college graduates took jobs that did not technically require a four-year college degree; over 80 percent of them were underemployed a decade later.[47] Similarly, for those going straight to work from high school, some starting jobs make graduates four times as likely to be in the top 20 percent of earners by the time they are 40 while other starting jobs make graduates four times as likely to wind up in or near poverty – even though many of these jobs have the same starting pay.[48]

Yet high school students are unlikely to have access to such information. Only 30 US states require schools to have any guidance counselors.[49] Where counselors are available, caseloads are heavy. The average ratio is 385 students for each counselor, and much of their focus is on college guidance rather than career planning.[50]

When it comes to mid-career transitions, guidance is not so much deficient as nonexistent. The average American worker has 12.7 jobs over a career.[51] Each transition is an opportunity to advance, but many workers accrue only marginal benefit in switching, even when better roles are technically available to them. In fact, a third of those who switch occupations or sectors wind up with lower earnings the following year.[52] Workers don't know what best opportunities exist or don't view them as possible. They may suspect that moving to a better job may require training but have little information on precisely what training is needed or how to obtain it. Training providers have a vested interest in bringing students in the door, but have little accountability for how well their graduates place upon completion. Meanwhile, few employers provide their employees with clear maps of opportunities to progress within the firm, managers resist losing their best employees to other units, and corporate leaders may see little reason to support worker mobility. This leaves workers to navigate a dizzying array of training options at their own risk. A recent study by the Harvard Project on the Workforce cataloged over 75,000 eligible programs within the public workforce system alone, with 40 percent of them leading to jobs paying less than $25,000 per year.[53] Even for those programs well aligned to high-paying jobs, outcomes vary widely and there are neither standards for measurement nor public reporting requirements to inform prospective students. The stakes are rendered yet higher by the fact that most workers must finance training themselves. That same study estimates that the federal government spends 50 times more on Pell grants to low-income college students than on workforce training programs. Further, at present these programs are completely disarticulated from one another and are carried out by entirely separate bureaucracies.[54]

Demographic trends and the fast pace of skill change are pressures that could shift the relationships between firms, workers, and education. Substantial change will likely require tangible incentives for employers, educators, and government agencies to create the bridges and brokers to support the transitions essential to economic vitality and human flourishing.

Three Big Questions

Meeting these imperatives will only be possible through coalitions among a wide array of government agencies, educational providers, employers, businesses, and philanthropies. In a nation as large and diverse as the United States, building these coalitions will be a formidable task. Yet the promise of enabling widespread prosperity across longer lives is a strong motivator – as is the opportunity for a new Presidential administration to craft a vision and lay a foundation to realize it.

We believe that the task is well served by organizing policy conversation around three core questions. Mobilizing to answer them will take the nation a long way toward a shared vision.

1. How should responsibility for building and supporting lifelong human-capital development be distributed among workers, employers, and government?
In the twentieth century, the United States became the first nation in the world to provide free education to all citizens as a basic civil right.[55] The hallmark of this provision was the rise of a general cultural presumption that responsibility for failure to finish high school rested not with students, but with schools. This was a powerful idea. It assured that schools, courts, and legislatures could be obliged to provide basic educational opportunity to all Americans regardless of their social origins or life circumstances.

While the nation dramatically expanded access to education beyond high school in decades following World War II, our nation has never come to an agreement about what – if any – postsecondary opportunities should be assured to all Americans by right of citizenship. College and university educations have been elaborately subsidized by state and federal governments and also by private philanthropy. Yet even after serial decades of "college-for-all" and "free college" movements, only about a third of U.S. adults have four-year bachelors' diplomas and college loan debt has become a serious social problem and international embarrassment. There is just as much ambiguity about who is responsible for learning after high school outside the college gates as within them: vocational and technical training is provided by a crazy-quilt of public, private, philanthropic, and hybrid enterprises under the varied jurisdiction of government labor agencies, trade and craft unions, and professional associations.

Employers vary widely in the extent to which they subsidize education after high school, provide it themselves, or leave workers to absorb the time and cost of skill development on their own.

Americans pay a high price for this ambiguity. Much has been written about how for-profit schools have taken advantage of Pell grants, guaranteed student loans, and the aspirations of millions of people seeking better lives in pursuit of college diplomas which they never manage to obtain.[56] Millions more face a bewildering array of programs and certifications in the burgeoning "alternative-credential" sector with little or no systematic information about the quality and value of their options.[57] Meanwhile, employers' common presumption that workers, rather than workplaces, are responsible for human-capital development means that they often squander the potential talent they already have in house.

Given the increasingly urgent need to equip Americans for varied and changing jobs over longer lives, we believe it is essential to develop a narrative of shared responsibility for lifelong education and learning that can be used to mobilize public investment in human capital, create fair rules of play for private-sector education providers, coordinate and perhaps integrate disparate government agencies, and enlist workers and employers alike in investing in skill development throughout adulthood.

2. How should the nation best leverage business models for education and learning while safeguarding consumers and civil society?

A great asset of the U.S. postsecondary enterprise is its openness to different forms of capital support and organizational forms. Consider that "public" provision of college educations and technical training is often contracted in whole or in part to private firms (publishers, learning-management, data-analytic, and consulting services) and "private" schools from Caltech to the University of Southern New Hampshire are substantially underwritten by tax exemption and direct government subsidy. An explosion of education businesses, buoyed by a growing wellspring of venture capital, promises an ongoing flow of innovative, technology-enabled services to catalyze education and learning in new ways.

While all of this brings reason for optimism, the current moment also poses very large questions about governance and consumer protection. How can we create a true education-and-learning ecosystem in which different kinds of providers have a shared investment not only in their own flourishing but in the

health of the postsecondary enterprise as a whole? How can we encourage providers to experiment, iterate, and – yes – fail at novel enterprises while protecting the investments and self–esteem of learners who absorb the risk? How can we take advantage of the goal orientation and financial discipline of business models for educational provision while preserving the essential civic missions of schools to mold citizens, nurture shared identity, and sustain democracy?

3. How can state and federal programs for higher education and workforce development be integrated to better support longer lives?

State and federal agencies remain organized on an industrial-era model that separately built labor force and higher education programs. Such a division may have seemed sensible in an era when a vast majority of jobs did not require postsecondary credentials; when labor unions were primary intermediaries between workers, employers, and government; and when massive public subsidy for higher education was relatively new. That America no longer exists. Today we live in a world where virtually everyone will be seeking education and learning opportunities after high school. Union membership now comprises 10% of the adult workforce (down by half since 1983).[58] What sociologists call the labor relation – the social contract between employers and their workers – is now much more individualistic and instrumental. Employers tend to presume they are hiring "talent," rather than "people," and rarely make commitments to the long-term well-being of those on payroll.[59] And public subsidy of higher education is ubiquitous, touching the lives of the majority of Americans who graduate from high school.

In this new world, the inherited agency structure brings many problems and inefficiencies. It forces people to navigate entirely separate bureaucracies when they are applying for unemployment insurance or skills training versus when they are applying for financial aid for college. It has created substantially separate statistics and accounting divisions informing labor versus higher-education funding and policy-making. We suspect that it also has engendered competition among units of government whose missions might be better served by collaboration. Perhaps most perniciously, the division we inherit from administrative decisions made half a century ago has created a hierarchy of status and worth, in which pursuit of so-called "higher" education is often perceived to be more noble and enabling than pursuit of employment and skill development outside of college. Moreover, because public funding and administration of

higher education programs is usually entirely separate from workforce-development programs and unemployment relief, available resources and services are rarely integrated for optimal benefit.[60] Few believe that college/workforce-training partnerships in their current form are up to the enormous human-capital challenges facing the nation.[61] An urgent near-term priority is to devise ways in which these different domains of public investment can be bridged for reciprocal efficiencies and the general benefit of US workers and employers.

"We believe it is essential to develop a narrative of shared responsibility for lifelong education and learning that can be used to mobilize public investment in human capital, create fair rules of play for private-sector education providers, coordinate and integrate disparate government agencies, and enlist workers and employers alike in investing in skill development throughout adulthood."

Building From Assets

The challenges are formidable and the questions are large, but so too are the assets Americans bring to them: a shared commitment to education for social mobility; strong desire for education across the life course; a lively education-and-learning entrepreneurial sector; and new data and analytic tools to observe, understand and improve education, learning, and career advancement.

An enduring commitment

Throughout U.S. history, Americans have serially invested in educational provision to meet grand challenges: providing technology, expertise, and manpower to wage and win serial world wars; building scientific capacity to make major advances in healthcare; and enabling intergenerational social mobility for millions.[62] Lawmakers and everyday citizens have reciprocated by providing tax subsidies, direct public investment, and philanthropy to sustain the livelihood of thousands of schools throughout the county's vast geography. The scale and diversity of the educational world we have built to serve Americans in the first quarter of their lives is unrivaled anywhere in the world.

Of course, we must not neglect the growing skepticism and mistrust of educational institutions across a broad political spectrum in recent years. We concur with widely shared concerns about the unabated rise in college costs and stubbornly modest rates of timely degree completion. And we also believe that the nation went too far in its celebration of four-year postsecondary degrees as the privileged mechanism of opportunity and mobility in recent decades, which unjustly limited the livelihoods of those without college diplomas.[63] At the same time, the sheer number of colleges and universities, and Americans' enduring regard for them, are incomparable civic assets. The big task is to leverage those assets in fresh, flexible, and timely ways to better meet the needs of our time.

A desire for education throughout adulthood

Large proportions of Americans retain the desire and motivation to continue their education throughout their adult lives. A recent study found that in a nationally representative cohort of adults who were high school sophomores in 1980, 60% reported pursuing formal educational opportunities in their 30s and 40s, with 40% earning some sort of postsecondary credential in midlife.[64] Other research

shows how tenacious adults can be in pursuing college degrees even while they juggle the demands of paid work, parenting, and eldercare.[65] Forward efforts to create new forms of education and learning opportunities should honor and reward this enthusiasm. In doing so, educators and policymakers alike must remember how easily people's enthusiasm for postsecondary learning can make them susceptible to exploitation – especially among historically disadvantaged groups that are routine targets of predatory behavior.[66] Good business practice as well as good policy will attend to both the opportunities and the risks afforded an enduring American enthusiasm for "going back to school."

Entrepreneurship and innovation

The same entrepreneurial spirit that brought the founding of thousands of schools in the nineteenth and twentieth centuries[67] is now fueling enormous growth in a burgeoning education business sector. Technological developments over the past two decades – a rapid rise in computational power, a revolution in AI, and lowering retail costs of such tools among them – have created a great deal of optimism for new solutions to enduring problems of educational affordability and access.[68] New forms of private and philanthropic capital are supporting the development of new tools and business models that many believe will transform education and learning as we currently experience them. The United States has seen steady growth in edtech venture funding, with $2.5 billion in venture capital committed in 2020 – more than double the amount in 2016.[69] And even despite a substantial decline in education V/C with the waning of the COVID 19 pandemic, the World Economic Forum estimates that the education sector globally will absorb $10 trillion in investment over the next decade.[70] It is thus little wonder that the ASU GSV venture summit has become a must-go on the annual calendars of growing numbers of educators, businesspeople, philanthropists, and civil servants.

The rise of this new business sector has brought many talented people and fresh ideas to education and learning, and we enthusiastically embrace it. Yet we also realize that the growth of education business raises large questions about the governance and meaning of education in American life.

The public sector has never had a full monopoly on educational provision in the United States, but our governance models have been built on the premise that education is primarily a civic endeavor, not a business enterprise. One of the key challenges of the current moment is to develop new models of oversight and public input that make sense for the new world of education and learning currently under construction.

Data and analytics

The last two decades have witnessed an explosion of new data describing education, learning, and career trajectories and powerful computational tools for turning this information into actionable insight. In the twentieth century, policymakers, educators, and employers could make only vaguely informed estimates about how different kinds of human-capital investments might pay off for specific individuals or groups. Ongoing advances in data integration and analytics will enable much more informed and judicious decision making.

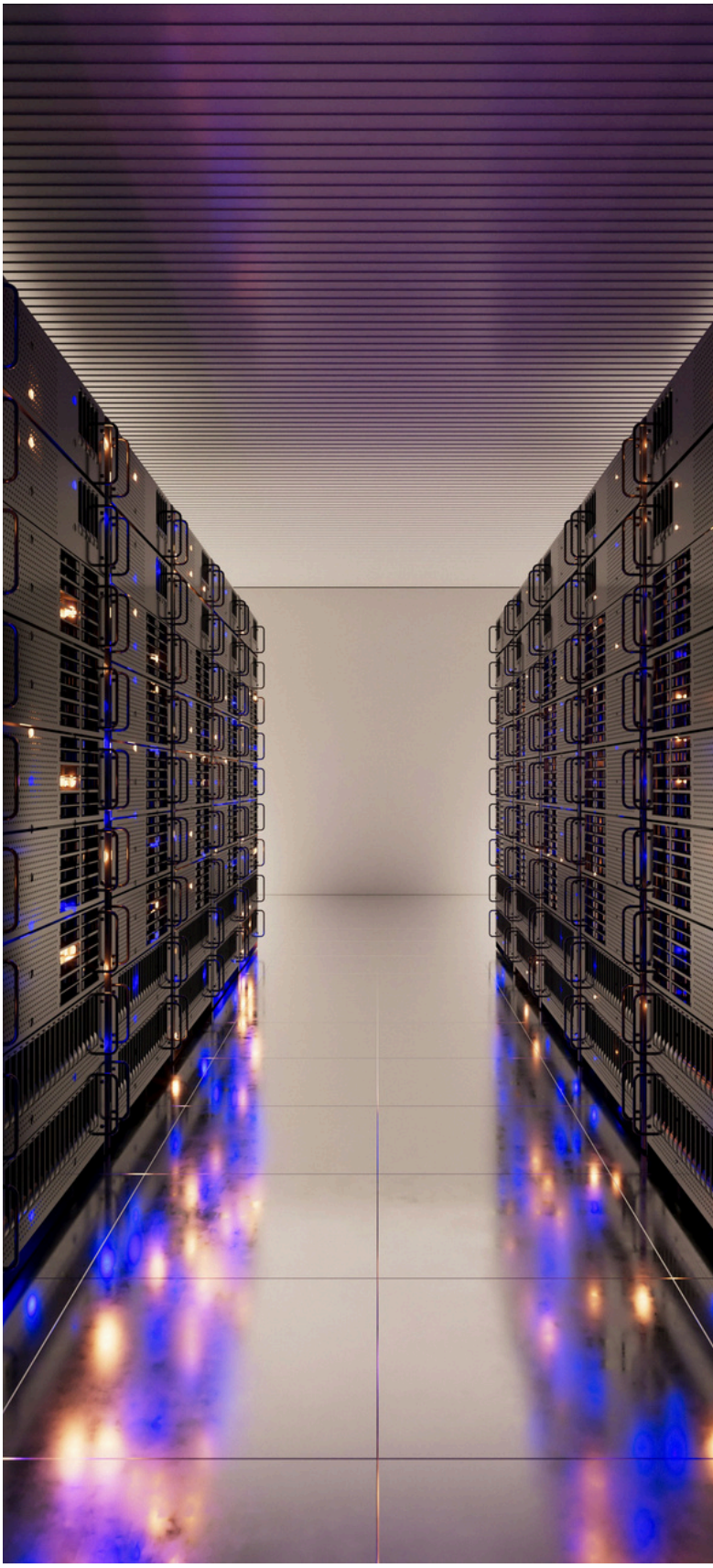
The revolution in the mining of what social scientists call administrative data produced by government agencies provides definitive information about population-level social dynamics. Researchers affiliated with Harvard University's Opportunity Insights, for example, leverage federal-government tax, education, and demographic data to paint fine-grained pictures of variation in rates of social mobility across neighborhoods[71] and between universities.[72] Stanford's Educational Opportunity Project compiles comprehensive information on essential characteristics of every school, district, and neighborhood in America to precisely measure the distribution of childhood educational opportunity.[73] The University of Michigan's IRIS project links demographic, educational, and government-funding information to portray how research universities translate public subsidy into individual career advancement and regional economic development.[74]

Whole new sources of information also are yielding rich insights. The growing ubiquity of web-based career profiles on platforms such as LinkedIn enable researchers to capture information about work and workers unavailable through legacy data systems. The non-profit Burning Glass Institute, for example, compiles detailed education and work trajectories of millions of Americans that include information about certificates and credentials not yet captured by government agencies and offer insight into economic and other returns to new forms of education and training.

In addition, growing numbers of social scientists and funders are investing time and resources in the long-term implications of education and learning throughout the life course. Where twentieth-century models of education and occupational attainment tended to focus attention on the trajectory from childhood to midlife, longer-term processes and outcomes are now receiving the attention they deserve. A prime example is the Education Studies

for Health Aging Research (EdSHARe), headquartered at the University of Wisconsin, which freshly observes two cohorts of U.S. adults first included in major federal-government longitudinal studies decades ago, when the participants were in high school. Follow-ups include detailed survey information, interviews, and bio-marker data that make it possible to specify the wide ranges of ways in which educational investments and work experiences influence prosperity and health well into late life.

“Technological developments over the past two decades — a rapid rise in computational power, a revolution in AI, and lowering retail costs of such tools among them — have created a great deal of optimism for new solutions to enduring problems of educational affordability and access.”



The Futures Project

A joint effort of Stanford's Center on Longevity and the Center for Advanced Study in the Behavioral Sciences, the Futures Project assembles 33 thought leaders from the civil sector, education business, academia, and philanthropy to consider these big questions together. We seek to understand the magnitude of the challenges and opportunities represented by the gift of longer lives in a rapidly changing economy; recognize and describe concisely how current institutional arrangements in education, government, and the private sector inhibit the creation of a more prosperous and equitable future; and connect currently disparate activity to seed the coalitions that will be necessary to bring that future into being.

Together we will lay the foundation for a shared vision for human capital development in the United States over the next 2-15 years. Our primary focus will be how to nurture human capital during the middle of life – from early adulthood into the fourth quarter of 100-year lives – because this is where current supports for growing talent and enabling transitions are least developed at present. Yet our vision will explicitly recognize the life course of human capital: from its foundation in early childhood, through K12 education, and across the entire span of longer careers. We will offer the fundamentals of this vision to our colleagues nationwide in the Spring of 2025, and provide ongoing opportunities for dialogue forward.

We recognize that ours is an audacious task, especially in a nation as complex and dynamic as the United States. Enabling economic prosperity and civic flourishing here must be a joint venture that includes business firms, philanthropies, civic and labor organizations working in concert with federal, state, and local government agencies. A distinctively American strategy for human capital development must be plural and flexible – a tall order. But that strategy can also harness the extraordinary capacity of our entrepreneurial economy, the richness of our civil society, and the intelligence, strong work ethic, and compassion of our people. We embrace the challenge and the promise of the work ahead.

2024-2025 Stanford Center on Longevity Futures Fellows

Tara Behrend, Michigan State University
Kathy Booth, WestEd
Stefanie DeLuca, Johns Hopkins University
Richard Desjardins, University of California, Los Angeles
Andrew Frishman, Big Picture Learning
Matthew Greenfield, Rethink Education
Rebecca Hanson, SEIU UHW-West & Joint Employer Education Fund
Kristen Harknett, University of California, San Francisco
Isabelle Hau, Stanford Accelerator for Learning
Anika Heavener, The SCAN Foundation
Su Jin Jez, California Competes
Michal Kurlaender, University of California, Davis
Rachel Lipson, Project on Workforce at Harvard
Iris Litt, Stanford University
Taylor McLemore, Human Potential Capital
Doug Pietrzak, Freshcognate
Phyllis Stewart Pires, Stanford University
Faye Sahai, Telosity Ventures
Avanish Sahai, University of California, Los Angeles
Marlena Sessions, NOVAworks
Rick Settersten, Oregon State University
Abby Jo Sigal, NYC Mayor's Office of Talent and Workforce Development
David Soo, Jobs for the Future (JFF)
Myra Strober, Stanford University
Jason Tyszko, U.S. Chamber of Commerce Foundation
Christian Valdez, Building Skills Partnership
Michelle Van Noy, Rutgers at the State University of New Jersey
Ruth Watkins, Strada Education Foundation

About the Stanford Center on Longevity

Stanford Center on Longevity (SCL) is dedicated to reshaping the way we live longer lives. We aim to accelerate the application of scientific breakthroughs, technological innovations, and cultural shifts to ensure that a century-long lifespan is both healthy and fulfilling. Our mission is not about addressing old age in isolation, but about nurturing a lifetime of well-being—from early education and habits to multigenerational connections and lifelong purpose. By collaborating with Stanford faculty, industry leaders, cultural influencers, and policymakers, we are redesigning the traditional life course to embrace new norms that support longer, more vibrant lives. Our goal is to create a future where the promise of longevity benefits both individuals and society.

About the Center for Advanced Study in the Behavioral Sciences

The Center for Advanced Study in the Behavioral Sciences (CASBS) at Stanford University is a place where great minds confront the critical issues of our time, where boundaries and assumptions are challenged, where cross-disciplinary thinking is the norm, where extraordinary collaborations become possible, and where innovative ideas are in pursuit of intellectual breakthroughs that can shape our world. CASBS brings together deep thinkers from diverse disciplines and communities to advance understanding of the full range of human beliefs, behaviors, interactions, and institutions. A leading incubator of human-centered knowledge, CASBS facilitates collaborations across academia, policy, industry, civil society, and government to collectively design a better future.

About Learning Society

Anchored at Stanford, Learning Society is a distributed narrative and research initiative advocating a paradigm shift in how the United States invests in people: from school models that center early-life classroom experiences leading to academic credentials, to learning models recognizing that human talent grows everywhere — at work, at home and at play, as well as at school — across the entire arc of lengthening lives.

Learning Society supports applied science to better identify, measure, and enable human learning wherever it occurs; fosters experiments and innovations that blur the boundaries between educational and other life experiences; and encourages strategies for sharing investment in human learning among all who benefit.

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