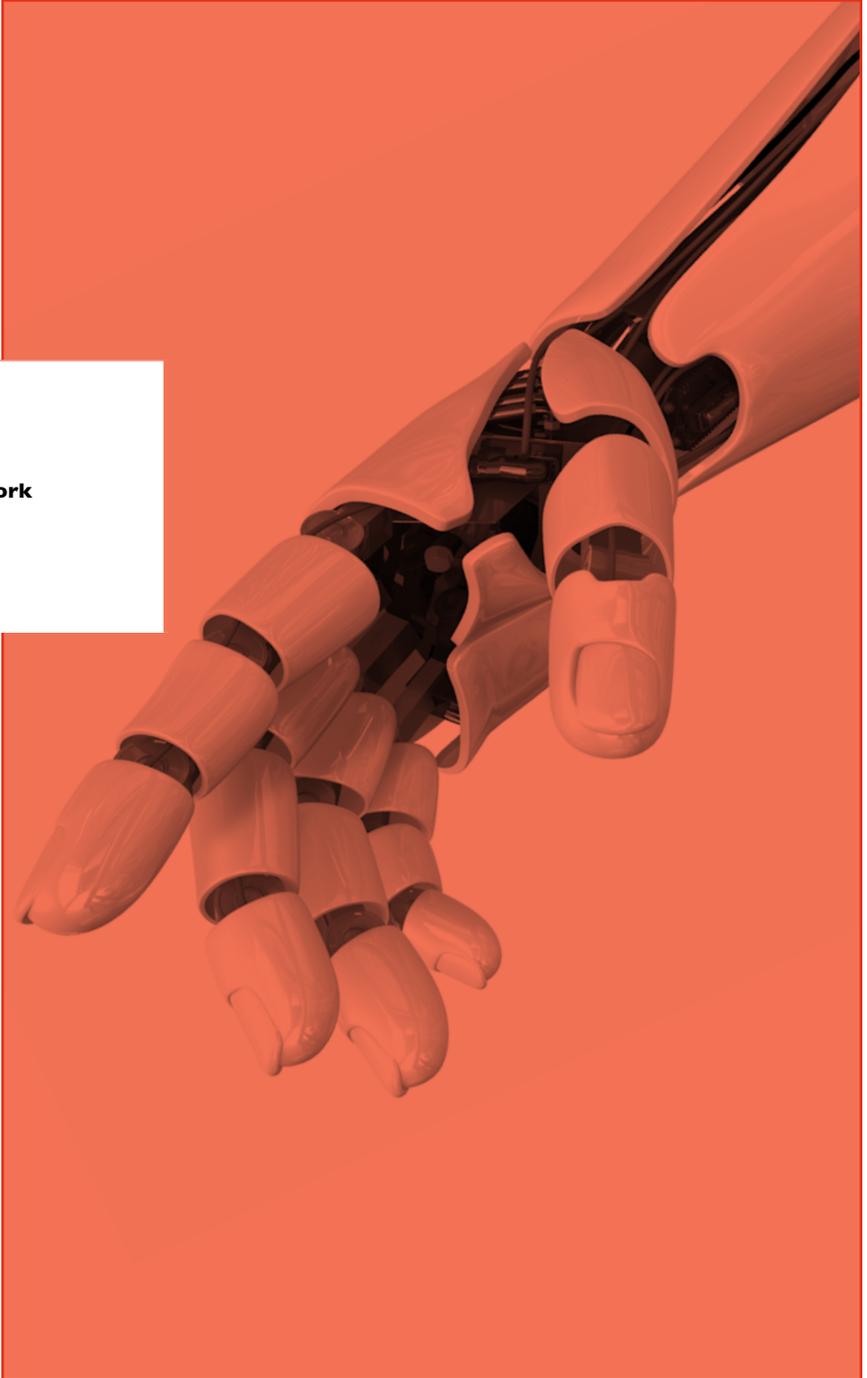


Future Work



Few who came of age in the 1960s can escape the image of two compellingly different visions of the future.

One, taken from the iconic nineteenth-century novel by Mary Shelley and popularized through films (and, satirically, the TV sitcom *The Munsters*), featured a human-created, sentient creature named Frankenstein; the other was the syrupy 1960s cartoon fantasy about the future called *The Jetsons*.

The creature Frankenstein emanates from the genius of his creator, a doctor of the same surname. Said doctor believes that he can harness natural resources, such as lightning, blend them with biological and mechanical elements, and create a new being. But Dr. Frankenstein does not fully appreciate what will be the reaction to his crafty work. Rather than marvel and exclaim, his neighbors—and he himself—react with fear and disgust. They want nothing to do with the grotesque creature, which they perceive as threatening and ungodly. In the end, Shelley's monster scared his contemporaries and the novel served as a cautionary tale about humans trying to act godlike by creating new, intelligent, cognitive beings.

The Jetsons offered a gentler, utilitarian vision of the future. Rather than combining human DNA with mechanical elements, Rosie, the Jetsons' helpful helper, is unquestionably a machine. She exists to serve and please her owners, albeit with a pointed sassiness. While surly, she is neither threatening nor scary.



Frankenstein was a dystopian forerunner of the idea of the Fourth Industrial Revolution.

Rosie offers a more gentle vision of the future.

Literary and cartoon versions of the future are seldom a match for actual human creativity. Frankenstein was a forerunner of the idea of the Fourth Industrial Revolution.¹ This revolution promises to marry the mechanical, the digital, and the biological, with humans creating new beings for human advancement. The fully humanized robot often imagined comes to us in popular culture in many forms. There is the weaponized *Terminator*; the pleasure purveyors (or at least wish fulfillers) in *Westworld*; and Data, *Star Trek's* loveable Android, so given to conversation about what it means to be human. They join a plethora of movies that broadcast the dark fear that we have created beings we can no longer control.

Today none of the images culled from the past or manufactured by Hollywood is an honest reflection of where we are. People might still fear the robotic entities to come, but they nonetheless buy cleaning bots, employ robotic work helpers, and fantasize about drone deliveries. Cognizant of the massive reorganization of labor that has seen manufacturing jobs decline from 27 percent of the workforce in 1960 to about 8 percent in 2010, some manufacturing owners and workers can also imagine a workable coexistence with new robotic tools.² In Ramsey, Minnesota, for example, a molding manufacturer, hurt by price competition from abroad and squeezed by declining sales during the Great Recession, turned to robots to save his plant *and* the jobs of those workers he had retained. What had once taken four men, working in tandem to produce, can now be done efficiently and effectively by one person and one robot, with a lot less waste due to human error. The result has been an increase in productivity and work—and in this case, without the sacrifice of more human jobs.³

But that's not true across the manufacturing sector. Nationwide, according to published accounts, factories are producing even more products than before

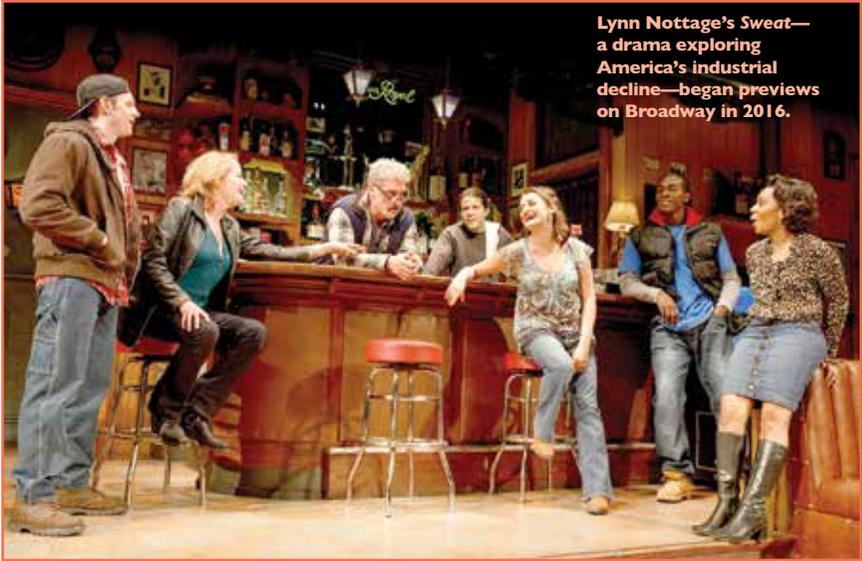
the Great Recession with 10 percent fewer workers. And this moment of automation has surfaced a new period of angst about work. The upper classes have always been defined in relation to the middle and working classes. Yet what are we to make of the working classes if the jobs they long held disappear—if they have no more work? Training as a nurse or in the health and patient care industries may offer future employment options, but in white or pink collar occupations rather than the blue collar jobs long the symbol of America's workers.⁴ Will New York City, for example, need as many taxi cab drivers if Google and other companies succeed in perfecting driverless cars?

This is no idle question, but a realistic query about a generational shift in the nature of work—and it points to another crucial question: are we prepared to solve the dual dynamics of the global movement of capital in pursuit of cheap labor and the introduction of new technologies that may combine to heighten unemployment? Until recently, social analysts in the United States worried about the movement of jobs to cheap labor zones in South America, Asia, and potentially Africa. Today, there is growing recognition that technological unemployment may be as devastating as transnational competition. Ponder, for example, the headline “Chinese Factory Replaces 90% of Human Labor with Robots.”⁵ The robots require no wages, won't organize or strike, and have proven highly efficient. Will they constitute the new proletariat?

Economic Dislocation

A combination of macroeconomic forces and technological transformations suggest that notwithstanding what a range of politicians may profess, the process of deindustrialization continues at a formidable pace. Mellon Foundation-supported artist Lynn Nottage dramatized the consequences of disappearing jobs in her highly acclaimed new play *Sweat*. The play's events are set in Reading, Pennsylvania, a town that came of age in the industrial phase of American history. By the time we meet the characters, three generations have worked in the town's surrounding mills and factories. Grandfathers, often skilled craftsmen, migrated from Europe, found work as machinists, made a decent wage, raised families, and took satisfaction in the dignity of their labor. All knew that their hands enabled them to produce items in demand elsewhere.

These grandfathers passed on their experiences and networks to their children, grandchildren, and in a few cases great-grandchildren, such was



Lynn Nottage's *Sweat*—a drama exploring America's industrial decline—began previews on Broadway in 2016.

the symbiosis between jobs and opportunity. Over about seventy years, work in the factories took on a kind of rhythm. The workers struck for better wages and improved working conditions. Management fought back, at times bringing in new workers from different ethnic or racial groups to break a strike, only to compromise in the end. The ebb and flow of labor-management conflict had its own choreography, and to some, predictability.

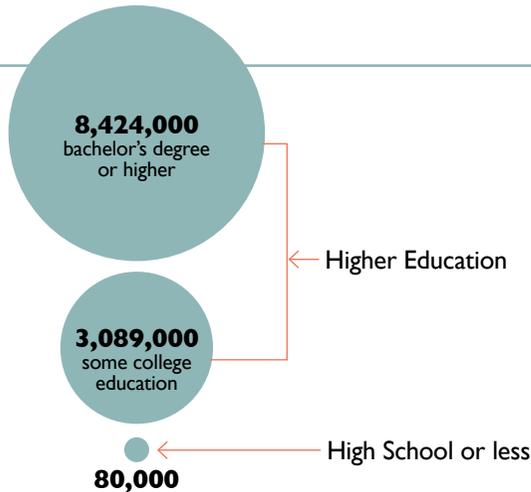
But, caught in the midst of a seismic transformation, the men and women who worked in the factories of Reading, as characterized in the play, had entered a new order. Faced with geopolitical competition of grand significance, companies found wage concessions not only desirable, but imperative. Following the traditional choreography, labor worked toward a compromise that never materialized. Why? Companies, faced with shareholders asking for ever more secure profits, fled old locations in search of cheaper labor, fewer taxes and regulations. Meanwhile, workers, many of whom pined for the good ol' days, professed a dislike of school, eschewing any possibility of retraining and instead developed a growing dependence on opiates and a blistering bitterness that their loyalties had been sold to new arrivals, foreign interests, corporate profits, and indifferent elites.

The economic dislocation in Nottage's play came before the Great Recession of 2008 but its effects were no less devastating. Those who lost their jobs in the

first wave of closures attack friends more fortunate. Racism, ethnic hostility, substance abuse, stupid decisions, all the effects of human misery, follow. As time passes, even those friends find themselves without the security of a decent wage and a dignified job. The only thing that remains are memories of how it used to be, and a bar, now owned by a Latino newcomer, that offers them a place to confront the ghosts of previous poor decisions.

Bear in mind that the play ends in 2008, just as conditions worsened nationally. Between 2008 and 2013, millions more Americans joined the ranks of the unemployed or underemployed. As important, the economy sorted winners and losers differently than in the past. Without question, educational attainment had a new significance in our economy and a new importance to individual and collective wellbeing. According to a recently released study by Georgetown University's Anthony Carnevale and colleagues, of the 11.6 million jobs created during the recovery from the Great Recession of 2008, 8.4 million went to individuals with a bachelor's degree or higher. Notably three million jobs went to those with some college education. High school graduates and those who never finished high school fared poorly, claiming a meager 80,000 new jobs.⁶

According to a recently released study by Georgetown University's Center on Education and the Workforce, 8.4 million of the 11.6 million jobs created during the recovery from the Great Recession of 2008 went to individuals with a bachelor's degree or higher. Only 80,000 new jobs were gained by those with a high school education or less.



As we look ahead from today, many more may be cruelly sifted into winners and losers on the job market. Prognostications insist the semi- or autonomous vehicle will hit the long-distance trucking industry first. Currently between seven and nine million Americans earn a working middle-class wage in

that industry.⁷ But changes in the transportation industry would not affect only truck drivers; cab drivers, limousine companies, delivery businesses, and others will ultimately be reshaped. For a time some may find work rebuilding the nation's infrastructure, assuming policy makers can agree on this imperative and find the resources to make it happen. But as we learned from the stimulus package introduced during the first term of the Obama administration, those dollars have a temporary, albeit important, impact. To stave off fundamental changes in the composition of the workforce for even a decade buys us some time but not a permanent solution. The current driving jobs may be replaced by an entirely new industry, but that will undoubtedly require workers with different skills and expertise. What happens if, in the name of progress, we abandon the millions of people who currently drive for a living?

Dignity of Labor

For some observers, the potential changes prompt images of a dystopic future, where human labor has been replaced, a technological class prevails, and the poorly educated skirmish over the discarded remains. Others hope that the dignity of labor will have been reconsidered, that music, art, and literature will experience a renaissance, and we will think anew about what it means to be human.⁸

Others hope that we will think anew about what it means to be human.

Almost five decades ago the intrepid social observer and writer Studs Terkel embarked on a marvelous journey of discovery that resulted in his bestseller, *Working*. The men and women he interviewed and recorded talked about jobs, friendships, work, heartache, disappointment, accomplishment, dreams, and aspirations. Jobs could be stultifyingly monotonous, managers could be unjustly arbitrary, but getting up in the morning and going off to work registered worth and dignity. The men and women of the 1970s wanted to work because it allowed them to take care of families and responsibilities, to be sure. Jobs also signaled they had full rights as adults in the labor economy; it anchored them in communities, bestowing importance and status.

Conversely, loss of a job or a downward drift was notable and noticeable. Take, for example, the story of Tim Devlin. Devlin had a nervous breakdown, spent several months in the hospital, and lost his job in sales. When he spoke

to Terkel he had found work as a janitor. Though working, his fall from social grace bothered him a lot, especially because he had moved from the assembly line to the sales floor before ending up as a janitor. He remarked, “Right now I’m doing work that I detest. I’m a janitor. It’s a dirty job. You work hard.” Devlin had grown up with the attitude that such jobs were for certain people—blacks, hillbillies, others without options—and now he was one of them. Without hesitation, he labeled himself a “bum.”⁹

Devlin demonstrates that unemployment and underemployment takes its toll on the psyche and sense of individual wellbeing, which new research continues to find. In *Flawed System, Flawed Self*, sociologist Ofer Sharone reports that white collar workers in America blame themselves for periods of unemployment, while, by contrast, Israelis blame the system. When workers blame themselves, they change and limit other steps they might have taken. Studies point to delays in marriage, homeownership, parenting, and other markers of adulthood. Once interlaced with questions about the future, economic insecurity often leads to more than a loss of one’s way; it can bring a profound worry about dignity and place in the social order.

**“Work keeps
away three great
evils: boredom,
vice, and need.”**

VOLTAIRE

The fundamental notion that work provides more than money and security—that it provides a sense of self-worth—can sometimes be lost in highly technical, macroeconomic analyses. Among the hundreds of people Studs Terkel interviewed was Barbara Terwilliger, then a financially comfortable woman in her thirties. After musing about love and financial independence she commented, “I really feel work is gorgeous. It is the only thing one can depend upon in life. You can’t depend on love. Oh, love is quite ephemeral. Work has a dignity you can count upon.”¹⁰

As we ponder future work, numerous questions emerge. For example, how do we understand the dignity of work? If work equals dignity, and humans want to work, yet the number and kinds of jobs don’t align with skills and abilities, what’s the solution? These are different questions from “Can we project X number of jobs in Y industry in Year 20XX?” Researchers will work really hard to make such predictions. But what about the French philosopher Voltaire’s observation, “Work keeps away three great evils: boredom, vice, and need.” A universal income may stem the need to work, adherence to social

norms may blunt excessive indulgences, but will there always be the desire to work? Are we, as some would suggest, neurologically hardwired to work? Is the specter of boredom our greatest challenge? Moreover, is this propensity to equate work with dignity, worth, and wellbeing a cross-cultural, universal human trait, or a socially informed, learned interpretation of the world?

Role for Higher Education

In the years ahead, colleges and universities will be called on to prove themselves as continued escalators for social mobility. Based on today's research, there is every reason to believe education will sort more and more into categories of winners and losers. Since we know nearly thirty million American adults currently lack a high school diploma¹¹ and even those with a diploma will need access to expanded education and training in the years ahead, we can anticipate many will seek additional schooling or training. Some will confuse education with training, and insist all universities should turn out job-ready products. Many colleges and universities will have to work hard to explain the difference and not conflate the roles.

Nonetheless, demand for access to seats can be expected to grow. Higher education will be asked to admit more students as members of entering freshman classes. We know a mismatch currently exists, with demand



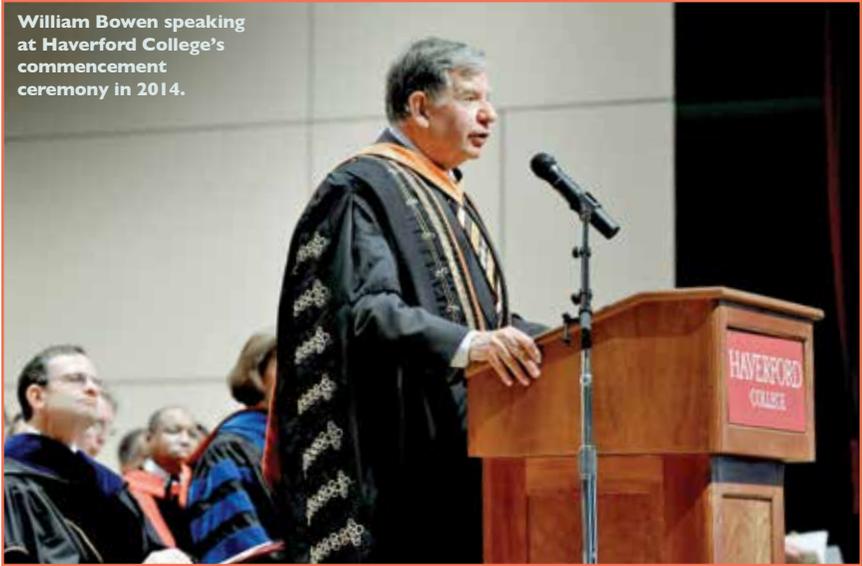
Chetan Kapoor, former chief scientist of robotics at the University of Texas at Austin, develops software at Yaskawa Innovation that allows more workers without high-end technical expertise to operate robots.

greater in many places than available seats, even as some smaller liberal arts colleges struggle to meet annual enrollment projections. Yet if the close to thirty million potential adult learners opted for college, the available seats would be hugely insufficient. Some schools may therefore experiment with hybrid delivery models, and others may completely revisit the robustness of their continuing education platforms. Perhaps one or two may decide to completely revamp the academic year, asking why we start in September and end in May when our fixed costs and complexes have the capacity to run year-round. Conceivably, an entire new term could be added, affording a 25 percent increase in the student body.

Future work debates will also put new pressures on colleges and universities to offer solutions to the technology-labor conundrum. The complexity of the problem means solo teams of specialists will be insufficient. Complex problems require diverse teams. Universities can help by assembling cross- or interdisciplinary groups to develop across-the-board solutions. Artists, humanists, and social scientists must work with scientists, engineers, business leaders, and technologists. Together they may ask if a universal wage frees workers of the need to work or saddles them with a sense of lethargy and confusion about the purpose of life. Alternatively, they may ask if each digital turn is an advance or a trap that produces chaos. Or they may want to know how to rethink categories such as structural unemployment, gross domestic product, underemployment, and models of efficiency. More important, new groups will be called on to tackle the interplay between education, training, and retooling. All of these questions, alone or in combination, beg for the thoughtful, intelligent approach of scholars prepared to ask difficult questions and propose sensible, workable solutions. That is the demand of future work if we are to devise a world that is neither Frankensteinian scary nor Jetsonian cartoonish. And if we are to create a world in which we tackle the vexing elements of “Grand Challenges”—those gnarly, difficult issues that demand new solutions.

Our Future Work

The Foundation continues its future work as well. At the board level, we continued the generational shift with the election of L. Rafael Reif, the seventeenth president of the Massachusetts Institute of Technology (MIT), as the newest trustee. An electrical engineer by training, Reif began his academic career at MIT in 1980; over the course of more than three decades he has



been a faculty member, department head, provost, and, since 2012, president. He has dedicated his presidency to addressing how best to effectively educate students in the twenty-first century.

In adding one institution's president to the Foundation, we sadly said farewell to another. William G. Bowen, the fourth president of The Andrew W. Mellon Foundation as well as president emeritus of Princeton University, died on October 20, 2016, after battling cancer. Bill Bowen is remembered for his enlightened leadership at Mellon and for his willingness to think big. He oversaw a period of profound growth in the size of the staff and the endowment. A catalogue of initiatives undertaken during his tenure reads as a document of philanthropy in the service of society. Made aware of the discrepancy between the removal of racial barriers for inclusion and the diversification of the professoriate, he partnered with Henry Drewry to launch the Mellon Minority Undergraduate Fellowship Program (MMUF; later renamed the Mellon Mays Undergraduate Fellowship Program) in 1988. Now in its twenty-ninth year, the MMUF program has selected more than 5,000 fellows, produced more than 700 PhDs, added more than 100 tenured faculty to the higher education system and 300 faculty overall, and has another 600 students enrolled in doctoral programs. Concerned about the escalating costs of scholarly journals and interested in the ways technology

could be harnessed to aid the distribution of scholarship, Bill invested in the creation of JSTOR, a global academic journal distribution system. Today JSTOR and ARTSTOR, a program to distribute authoritative art images through a digital platform, are a part of ITHAKA, a research and social solutions company, on whose board he served for many years. It was Bill's indefatigable embrace of the possible that steered him and the Foundation during his tenure. He authored or coauthored seminal texts on educational opportunity, sports and academics, and governance, always insisting on research's role in improving the human condition.

As was true during Bill's time, research continues to inform decision-making at Mellon. We didn't begin the year focused on future work, but our grantmaking nonetheless supported those who did. Programmatically the future includes new grantmaking to universities in Africa outside South Africa. By most demographic projections, the continent will be home to more than two billion people by midcentury,¹² this after the devastating scourge of HIV/AIDS. Tech start-ups recognize that talent is globally distributed even as access to education and employment is not. One such company has made a practice of identifying coders across Africa and connecting them with employers elsewhere. As this example suggests, the demand for education and opportunity will likely increase as additional demographic changes occur.

Our International Higher Education and Strategic Projects (IHESP) area, wanting to prepare a professoriate for those future populations, initiated a pilot in Uganda and Ghana. The pilot aims to produce a new generation of scholars, educated in the arts and humanities, to service the two countries and others across the continent. The partnerships planned with Makerere University in Uganda and the University of Ghana-Legon augment longstanding work with seven South African universities. To further enhance this work, we moved our ongoing involvement with the American University in Cairo and the American University of Beirut from the Higher Education and Scholarship in the Humanities (HESH) program area to IHESP. At the same time, we made new grants to The Arab Council for the Social Sciences (ACSS), the Council for the Development of Social Science Research in Africa (CODESRIA), and the African Research Universities Alliance (ARUA). Saleem Badat, IHESP's program director, believes the combination of support for specific African research universities



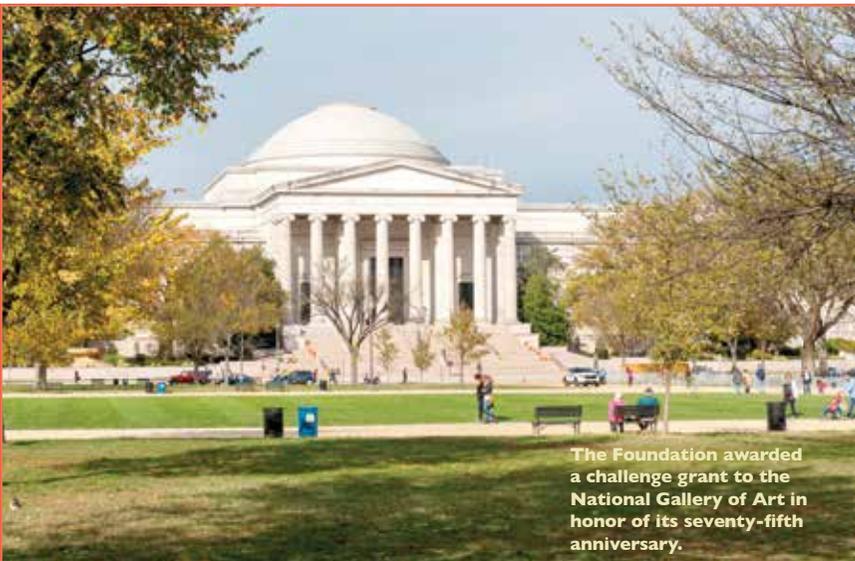
and nongovernmental organizations will densify relationships, thereby increasing the likelihood of exporting best practices across the continent.

After several years of planning, the first volume in a book series on the relationship between diversity and prosperity appeared. The book bore the name of the overall series, *Our Compelling Interests*, and was edited by Nancy Cantor, chancellor, Rutgers University-Newark and myself, with essays from William H. Frey, Brookings Institution, Thomas J. Sugrue, New York University, Danielle Allen, Harvard University (and Chair of the Mellon Board), Anthony Carnevale and Nicole Smith, Georgetown University, and commentaries from Kwame Anthony Appiah, New York University, Patricia Gurin, University of Michigan, Ira Katznelson, Columbia University, and Marta Tienda, Princeton University. Noting the coming demographic transition that, on current trendlines, should produce a nonwhite majority by midcentury, the volume and the series ask, how do we define diversity, leverage it for the common good, and value its importance for fostering a flourishing and prosperous democracy? Feedback from events at the National Press Club in September and the New York Public Library in December suggest the series is not only timely, but a critical component of an emerging awareness that numerical diversity is not the same as sustaining a diverse, democratic society.

In 2016 the Foundation also formally launched the first of four possible research fora. Called the Mellon Research Forum, the initiative seeks to grapple with a difficult question, and aided by an external advisory board, develop a plan to support teams of researchers over several years to independently research critical aspects of the question. The inaugural forum seeks to explore the value of a liberal arts education.

A select number of grants linked the past to the future. Before his death in 1937, our Foundation's namesake, Andrew W. Mellon, engineered the creation of the National Gallery of Art (NGA) in Washington, DC as a private-public partnership. Over the years, the Foundation has supported time-limited projects at the NGA, and at seminal moments, larger efforts. In 2016, the National Gallery of Art marked one of those seminal moments: its seventy-fifth anniversary. The Mellon Foundation was pleased to support the NGA's future through a \$30 million dollar grant with a matching component. We also supported projects to highlight the importance of the National Endowments for the Arts and Humanities on the occasion of their fiftieth anniversaries.

Elsewhere in this report you will find more detailed accountings of grantmaking in each programmatic area. Generally, several overarching observations can be made. The integration of the formerly parallel research



The Foundation awarded a challenge grant to the National Gallery of Art in honor of its seventy-fifth anniversary.

university and liberal arts colleges program is complete. HESH continues to support research universities and liberal arts colleges, but more than ever, we see grants that address cross-sectoral alignments. A third-quarter grant to the University of California at San Diego and the San Diego Community College District and a fourth-quarter grant to the Community College System of New Hampshire and the University of New Hampshire to forge new partnerships are indicative of this. We have found that on many campuses as many as 40 percent of the humanities graduates began their postsecondary education at two-year institutions. Linking two- and four-year schools is a way of cementing new alliances and smoothing the pathway for students seeking to major in the humanities. As important, new pathways to a college degree may factor in preparing more students for the demands of work in a technologically driven knowledge economy.

Community colleges offered one new pathway for us, prison education another. Such programs combine exposure to the arts and humanities with training for post-incarceration employment possibilities. Most notable was a first-quarter grant to the Opportunity Institute. Here we partnered with the Ford Foundation and seven others to support a prison-education initiative in California by the community college and California State University systems. The United States has only about 5 percent of the world's population but more than 20 percent of the world's prisoners.¹³ That means more than two million people are incarcerated and another 4.7 million are on probation. Study after study shows recidivism decreases and successful reintegration into society increases when prisons allocate resources to educate and not just punish. The Renewing Communities initiative provides support for college readiness courses, academic placement, financial and career counseling, re-entry services, and evaluation.

The theme of diversity and capacity building found additional expression in this year's grantmaking and speaks to a particular kind of future work for the Foundation and its grantees. Predicted changes in the composition of the workforce require planning, today. During the second quarter, the Arts and Cultural Heritage (ACH) program renewed a grant to the Los Angeles County Museum of Art for the Mellon Undergraduate Curatorial Fellowship. Across town, at the University of California at Los Angeles (UCLA), we supported piloting workshops and internships between the Getty and UCLA to expose more diverse communities of students to archeology and conservation. In

September ACH aided the Smithsonian with a grant that further expanded opportunities for diverse candidates in the conservation area.

Diversity has not only been examined in terms of people and backgrounds but in terms of institutions and viability. In December the ACH team recommended augmenting a previous Comprehensive Organizational Health Initiative by adding a new group of grantees. The project's goal remains the same: broaden access in underserved areas, create more equitable systems of support for artists, preserve creative accomplishment, and strengthen community participation. They also called for more attention to emergency preparedness in the arts world, protections for the world's artistic patrimony, and concern for intergenerational talent development in a range of artist areas.

This essay began with a nod to the confluence of factors that stem from the expansion of digital tools and devices. Scholarly Communications (SC) sits at the nexus between an older analog approach and a newer, ever changing digital approach. Grants in March to Cornell and Stanford Universities illustrate the challenges and opportunities. Many campuses have robust collection guides for circulating and noncirculating materials. Yet there is no easy way at present to take the specialized content at one university and link it to materials about the same author found elsewhere on the web. There is the problem of authentication, making sure that the John Smith in one collection is the same John Smith found at another site. By utilizing linked open data (LOD) technologies, the schools hope to lead an effort that makes aggregating such sources and sites possible in the future.

**Work in the future
will necessitate
a new exploration
of knowledge
production.**

A good deal of work in the future will necessitate a new exploration of knowledge production. SC continues to explore the best ways of publishing scholarly work in electronic form. A spate of grants in December underscore our sense that continued experiments are warranted. Support to the University of Connecticut helped launch the Greenhouse Studios/Scholarly Communications Design, which moved projects from conception to design to product through an iterative process. In the meantime, the Foundation partnered with the National Endowment for the Humanities to produce a research pipeline for university presses through a fellowship program designed to invite and validate new kinds of academic publishing.

While diversity has emerged as a crosscutting focus area for the Foundation, the Diversity program area continues its stellar work in several domains. The MMUF program remains a stalwart example of the systemic benefits derived from staying the course, and generating successive cohorts of PhD holders prepared to join the ranks of the professoriate. In addition, the program teamed with colleagues in HESH to underwrite faculty diversity plans at a number of universities—for example, the University of Chicago, Dartmouth College, and Brown University. For years hiring decisions have rested with faculty. With faculty turnover averaging between 3–7 percent per year, notwithstanding universal pronouncements that diversifying the faculty is a priority, few schools have made the progress they profess to seek. Cluster hiring, assistant professorships paired with entry postdoctoral appointments, curricular innovations, and renewed discussions of institutional priorities have emerged as new approaches garnering Mellon support, with each suggesting workable, replicable solutions.

What is the Future of Work?

Progress is at times an elusive pursuit. We can measure improved productivity, greater efficiency, expanded opportunity and equality—but is that progress? In the stories we have told over several generations, progress seems wedded to new tools that spare humans of the need for mundane duties. Those stories and themes also unearth a fear about continued relevancy and purpose. From the chores we assign the young child to the first job held by a teenager to the first paycheck earned by a high school or college graduate, we have rehearsed the value of work. So as we look to the future, imagine a decade or two from now, what is the future of work? This is a question demanding serious attention now. In all likelihood, this future will be neither utopic nor dystopic but rather reveal a complex set of choices that cleave at the social fabric, threatening to fracture the body politic. Perhaps now is the time to ponder future work so that we can be the architects of the world we seek to inhabit rather than the victims of the future we casually create. The Mellon Foundation seeks to work with others poised to design that future.

Earl Lewis

- 1 Klaus Schwab, *The Fourth Industrial Revolution* (New York: Crown Business, 2016).
- 2 See Martin Neil Baily and Barry P. Bosworth, "US Manufacturing: Understanding Its Past and Its Potential Future," *Journal of Economic Perspectives* 28, no. 1 (Winter 2014): 3–26.
- 3 Kim Tingley, "Learning to Love Our Robot Co-Workers," *New York Times Magazine*, February 23, 2017, <https://www.nytimes.com/2017/02/23/magazine/learning-to-love-our-robot-co-workers.html>.
- 4 For a broad treatment of this subject, read Barbara Ehrenreich, "Divisions of Labor," *New York Times Magazine*, February 23, 2017, <https://www.nytimes.com/2017/02/23/magazine/american-working-class-future.html>, as well as Gideon Rose, "Hi, Robot," *Foreign Affairs* 94, no. 4 (July/August 2015): 2–35.
- 5 Mihai Andrei, "Chinese Factory Replaces 90% of Human Workers with Robots; Production Rises by 250%, Defects Drop by 80%," *ZME Science*, February 3, 2017, <http://www.zmescience.com/other/economics/china-factory-robots-03022017/>.
- 6 Anthony P. Carnevale, Tamara Jayasundera, and Artem Gulish, *America's Divided Recovery: College Haves and Have-Nots* (Washington, DC: Center on Education and the Workforce, Georgetown University, 2016).
- 7 According to the American Trucking Association, approximately 3.5 million truckers move cargo and goods annually; a total of 8.7 million work in some capacity in the industry. See "Truck Drivers in the USA," <http://www.alltrucking.com/faq/truck-drivers-in-the-usa/>. These numbers are roughly supported by figures from the Bureau of Labor Statistics. See the *Occupational Outlook Handbook, 2016–17 edition*, "Heavy and Tractor-Trailer Truck Drivers," <https://www.bls.gov/ooh/transportation-and-material-moving/heavy-and-tractor-trailer-truck-drivers.htm>; "Delivery Truck Drivers and Driver/Sales Workers," <https://www.bls.gov/ooh/transportation-and-material-moving/delivery-truck-drivers-and-driver-sales-workers.htm>.
- 8 For an overview of Artificial Intelligence, its history, and its implications, see "One Hundred Year Study on Artificial Intelligence (AI100)," Stanford University, <https://ai100.stanford.edu>.
- 9 Studs Terkel, *Working: People Talk about What They Do All Day and How They Feel about What They Do* (New York: Avon Books, 1974), 340.
- 10 Terkel, *Working*, 553.
- 11 *Educational Attainment in the United States: 2016*, "Table 1. Educational Attainment of the Population 18 Years and Over, by Age, Sex, Race, and Hispanic Origin: 2016," (Washington, DC: United States Census Bureau, 2016), <https://www.census.gov/data/tables/2016/demo/education-attainment/cps-detailed-tables.html>.
- 12 *World Population Prospects: The 2015 Revision* (New York: United Nations, Department of Economic and Social Affairs, Population Division, 2015), <https://esa.un.org/unpd/wpp/>; *2016 World Population Data Sheet* (Washington, DC: Population Reference Bureau, 2016), <http://www.prb.org/pdf16/prb-wpds2016-web-2016.pdf>.
- 13 Roy Walmsley, *World Prison Population List*, 11th ed. (London: Institute for Criminal Policy Research, February 2016), http://www.icpr.org.uk/media/41356/world_prison_population_list_11th_edition.pdf; Danielle Kaeble and Lauren Glaze, "Correctional Populations in the United States, 2015," *Bureau of Justice Statistics Bulletin*, (Washington, DC: US Department of Justice, Office of Justice Programs, December 2016), <https://www.bjs.gov/content/pub/pdf/cpus15.pdf>.