DESIGNING NEW YORK'S FUTURE

New York City graduates twice as many students in design and architecture as any other U.S. city, but the city's design schools are not only providing the talent pipeline for New York's creative industries— they have become critical catalysts for innovation, entrepreneurship and economic growth

The **Center for an Urban Future** is a New York City-based think tank dedicated to independent, fact-based research about critical issues affecting New York's future, including economic development, workforce development, higher education and the arts. For more information or to sign up for our monthly e-mail bulletin, visit www.nycfuture.org.

CONTENTS

DESIGNING NEW YORK'S FUTURE

The genius of Mayor Bloomberg's plan to develop a new applied sciences campus in New York City is that it acknowledges the increasingly pivotal role of academic institutions as drivers of local economic growth. At a time when large corporations may not be the reliable job producers they were in the past and cities like New York badly need to generate new sources of job growth, universities are critical local anchors that employ thousands, spin out new businesses and train the workers needed by growing industries.

But it is not just scientific research institutions and engineering schools—like the one that Cornell and Technion are building on Roosevelt Island—that provide this kind of spark. In New York, design and architecture schools arguably have been as, or more, important to the city's success in the innovation economy.

New York design universities such as Parsons The New School for Design, the Fashion Institute of Technology, Pratt Institute and the School of Visual Arts have been critical catalysts for innovation, entrepreneurship and economic growth. Their graduates have produced dozens of start-up companies that set up locally—something that has eluded most of the city's scientific research institutions. Graduates of the city's design and architecture schools founded many of New York's most visible and influential design firms, including Studio Daniel Liebeskind, Diller Scofidio Renfro, SHoP Architects, Smart Design, Ralph Applebaum Associates, Calvin Klein, Marc Jacobs and Donna Karan International.

They also provide the talent pipeline for New York City's creative industries—including the city's fast-growing design and architecture sectors. Indeed, New York City graduates twice as many students in design and architecture than any other city in the U.S. And enrollment at New York's design universities has been growing at a faster rate than other universities in the city.

Thus far, the "innovation economy" initiatives advanced by city and state officials have largely overlooked design universities. This is a missed opportunity in a city that is arguably more of a creative hub than a high-tech center. As this report demonstrates, New York's design universities are already a key piece of the city's innovation infrastructure. But at a time when designers are having a growing influence on everything from smart phones to the delivery of health care services, these institutions are poised to play an even more central role in New York's economic future.

In 2009, the Center for an Urban Future published *Building New York City's Innovation Economy*, a major report that examined how to better harness the city's high-caliber scientific research institutions for local economic development.[1] The report found that most of the city's research institutions, though successful in generating revenues from patents, had an underwhelming record of turning their research discoveries into local start-up enterprises.

Although important differences abound, this report tackles a similar subject from the perspective of design and architecture. Drawing from a wide range of institutional data, survey results, and extensive interviews with more than 50 academic leaders, educators, entrepreneurs and business executives in New York's design and architecture communities, the report documents the contributions of design and architecture schools to the New York City economy. Funded by the Rockefeller Foundation, it assesses the breadth of programs and educational assets and evaluates trends with respect to enrollment, employment, spending and, like our science report, business creation.

In contrast to engineering and scientific research institutions, design and architecture schools have not traditionally been thought of as important contributors to innovation and competitiveness. But, as we show in this report, that is a mistake.

New York City is home to ten prominent design and architecture schools, as well as a half-dozen other organizations that offer rigorous programs in design or the business of design.[2] These schools attract creative talent from across the country and around the world to New York, provide the city's many design and architecture firms with a pipeline of talented workers, supply jobs to professionals who teach part-time and act as important anchors for the circulation and exchange of ideas. Importantly, they also produce a steady stream of locally-based start-up companies. An astounding one third of the 386 members of the Council of Fashion Designers of America, a national association with members around the country, attended FIT, Parsons or Pratt. Overall, nearly 20 percent of all Pratt, Parsons and SVA graduates went on to start their own businesses.[3] In contrast, the city's leading scientific research

Design and Architecture Degrees by City: 2010
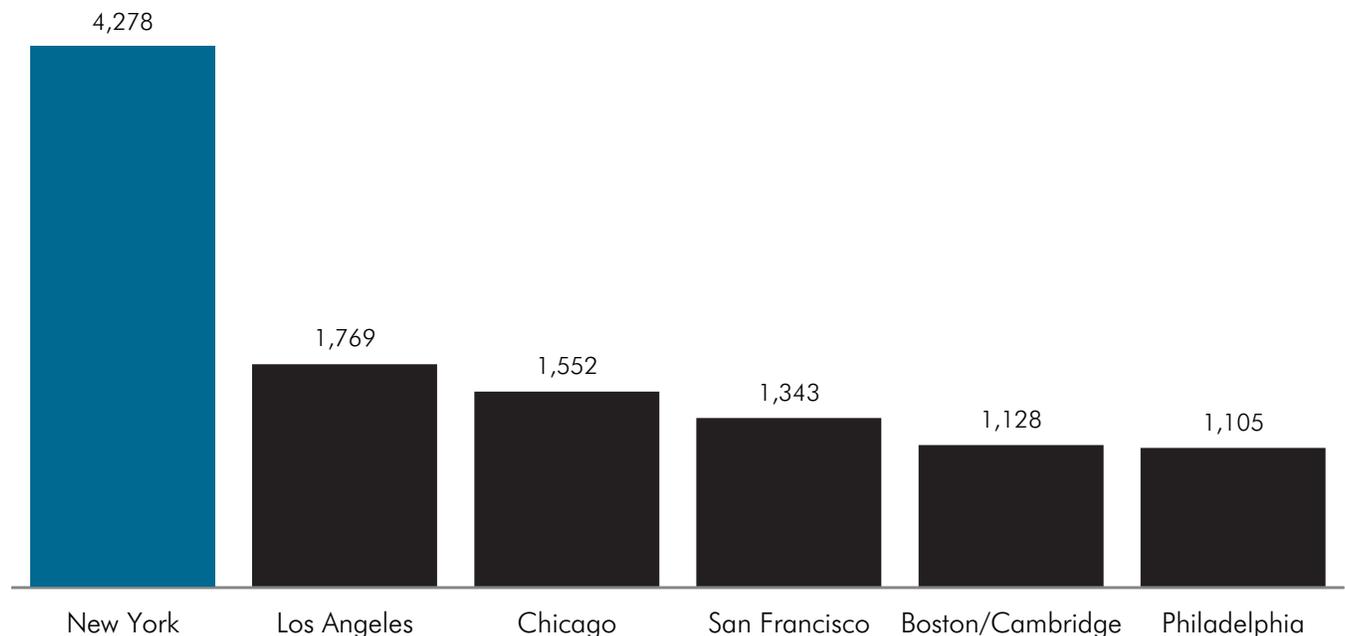
Source: IPEDS. Includes all degrees awarded by four year colleges and universities located in the city limits. Boston/Cambridge refers to the cities of Boston and Cambridge.

institutions—including Columbia, NYU, Mt. Sinai School of Medicine, the Albert Einstein College of Medicine at Yeshiva University and Memorial Sloan-Kettering Cancer Institute—generated 21 technology startups in 2007.[4]

"Design schools are incredibly important to New York City," says Tom Vecchione, a principal in the New York office of Gensler, one of the city's largest design and architecture firms. "They're a big part of making New York the premier design-focused city in the world."

"We have about 1,200 employees at Parsons, and that's just faculty; another 400 or so employees work at the school," adds Joel Towers, executive dean of Parson The New School for Design. "We also benefit the city from the creative activity from our students and faculty. And about 88 percent of our graduates remain in the New York City area."

New York graduates more students with degrees in design and architecture than any other city in the U.S. by a large margin. In 2010, New York graduated 4,278 students in these two disciplines, while the city with the second most, Los Angeles, graduated less than half as many (1,769).[5] New York has four design schools in the country's top ten by the number of degrees awarded every year: the Fashion Institute of Technology (FIT) (#1), Parsons The New School for Design (#4), the Pratt Institute (#6) and the School of Visual Arts (SVA) (#8). And it has two architecture schools in the top ten by the number of degrees awarded: Columbia's Graduate School of Architecture Planning and Preservation (GSAPP) (#5) and Pratt (#8).

In addition, the number of design and architecture graduates in the city has been increasing rapidly over the last five years: Between 2005 and 2010, architecture and design degrees increased by more than 40 percent citywide. By comparison, the total number of degrees in all majors rose by only 20 percent, while degrees in many other traditional disciplines such as fine and studio arts (16 percent) and economics (18 percent) rose even more slowly.[6]

In terms of educational quality and prestige, quite a few New York-based schools stand out from the pack. Parsons and FIT are among the top five fashion schools in the world, according to Fashionista.com; no other American school was in the top 12.[7] According to *U.S. News and World Report*, Pratt has the nation's top-ranked interior design program, while the New York School of Interior Design (NYSID) is ranked fourth. Three New York schools—SVA (#6), Pratt (#9) and Parsons (#12)—have highly regarded graphic design programs. Similarly, among multimedia and visual communications programs, SVA and NYU's Tisch School of the Arts are both national leaders. Pratt and Cooper Union are among the country's most prestigious undergraduate architecture schools and *U.S. News and World Report* ranks Columbia's GSAPP as the country's fourth best graduate architecture program.

Meanwhile, NYU's Interactive Telecommunications Program, Pratt, Parsons and SVA have all been featured in rankings by *Bloomberg Business Week* of the top schools around the world that teach "design thinking," an emerging practice and educational philosophy that links design with broader business and innovation strategies.[8] (The rankings, which were published in 2007 and 2009, include business and engineering schools, but no business or engineering schools in New York City made the list either year.)

Top schools like Columbia's GSAPP, Cooper Union, FIT, Parsons, Pratt, and SVA attract talented students from all over the country and globe. In 2010, 4,945 foreign students were enrolled at the city's seven largest design and architecture schools—a 42 percent increase over 2001.[9] Although Cooper Union and FIT enroll a high number of in-state students too, a majority of students at Columbia, Parsons, Pratt and SVA come from out of state, while 19 percent or more come from abroad. Furthermore, institutional survey data made available to the Center for an Urban Future suggest that a vast majority of students at these schools end up staying in New York City after graduation; many intern at prominent design firms before securing a permanent position or going on to work for themselves.

According to David Rhodes, the longtime president of SVA, the prospect of studying design in New York is extremely attractive to students. "The schools are competitive," Rhodes says, "but they

also have a symbiotic relationship. New York's dynamic creative community is what all the schools share, and a lot of the prospective students will choose another New York school if they don't get into their top choice."

Professional designers clearly see New York's design schools as critical to New York's status as a leading design center. This was reflected in the results of a month-long survey we conducted in late 2011 of more than 300 designers, all professional members of trade associations. Among the results of our survey:

- Of those respondents who indicated that they were a principal or executive of a local firm or business—a group that made up 23 percent of all respondents—80 percent said New York's design schools were either 'extremely important' or 'important' to the local economy and 82 percent said they were important local resources for their businesses.
- 81 percent of the principals and executives said they had hired at least one New York City design school graduate in the last five years.

- 43 percent of the principals and executives said they had taught at a local design school and 39 percent said they had themselves attended one of the schools.

Ed Schlossberg, founder of a prominent New York design firm called ESI Design, says that the local schools are an extremely important asset for professional designers, because, among other things, the students they attract make it possible for firms to rapidly evolve with the latest technologies and tools. "If I get a project and it needs three user experience designers or three interface designers," says Schlossberg, "I have no worry that I'll be able to find them here. That means I can take the work and expand the business. The schools make that possible."

Out of 45 full-time designers at Schlossberg's firm, 14—or 31 percent—graduated from New York City schools, with 8 designers coming out of NYU's Interactive Telecommunications Program (ITP) alone. Many of the city's most prestigious fashion and architecture firms also draw heavily from local schools. The figure is even higher at Rockwell Group, a large architecture and design

Growth of NYC Degrees by Major: 2005-2010
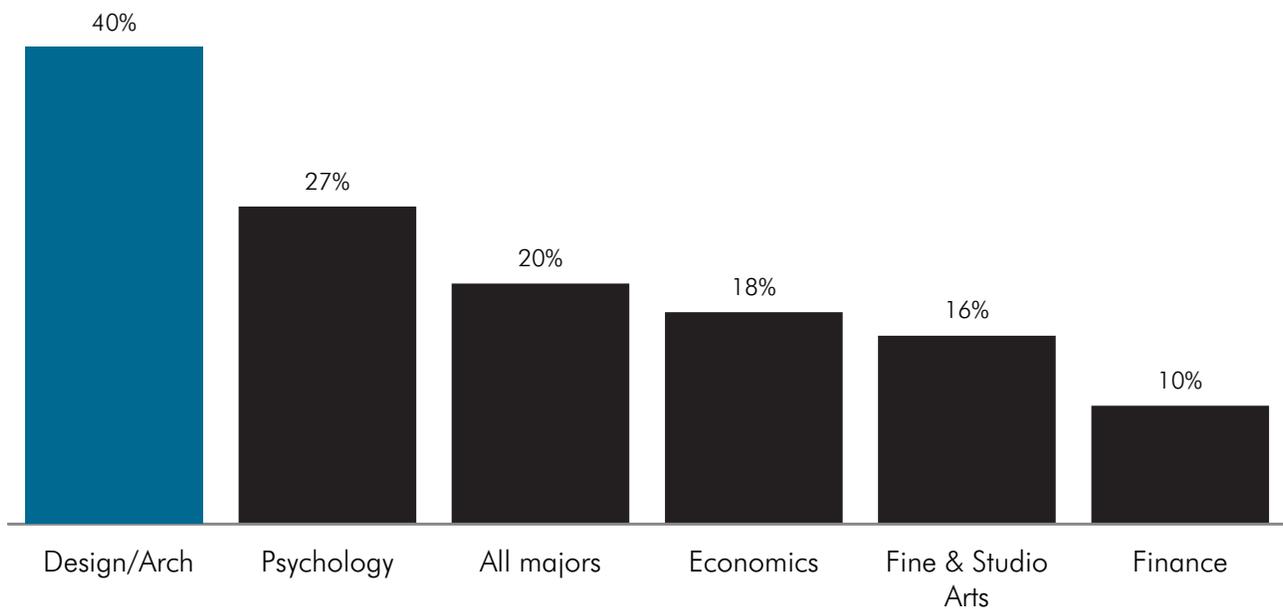
Source: IPEDS. Includes degrees awarded by all postsecondary institutions in New York City, including two year colleges.

firm. According to company founder David Rockwell, 50 percent of the firm's professional employees went to New York City design schools. Meanwhile, 30 percent of the designers in Gensler's New York office studied at local design schools, while 29 percent of the designers at Nanette Lepore, the fashion house, studied locally.

New York's design schools have also been quietly achieving something that has eluded the city's applied sciences universities: Year after year, they have been producing graduates who are not only inclined to stay in the city and contribute to one of the world's most competitive design economies, but risk serious financial and opportunity costs to start their own businesses. To be sure, data on alumni who start their own businesses are extremely hard to come by, since so many of them do so only years after graduating, but several surveys and a wealth of anecdotal information suggest the number for New York is fairly high. For example, a 2009 survey from the Strategic National Arts Alumni Project (SNAAP) found that 19 percent of all Pratt, Parsons and SVA graduates, including non-design graduates like performing arts majors, went on to start their own businesses; the average for all the art schools surveyed by SNAAP was 14 percent. Meanwhile, of the respondents in our own survey who founded their own businesses, 39 percent indicated they were graduates of New York City schools.

Fashion seems to be an especially fertile terrain for these businesses. Our analysis shows that 129 of the 386 members of the CFDA attended either FIT, Parsons or Pratt, and nearly all of them run their own fashion brands and employ other designers. In fact, prominent alums like Calvin Klein, Donna Karan, Marc Jacobs, and Michael Kors all run fashion companies with hundreds of millions, if not billions, in annual sales.

Of course the vast majority of new businesses will never grow that large. But, in design, small firms—even sole-proprietorships—are often major sources of innovation and dynamism. They not only create jobs and encourage innovation by developing new products and services, they are more likely to challenge established business practices and break down industry silos.[10] Pamela

Ellsworth, director of FIT's Global Management Program, believes that New York has been able to reposition itself as one of the leading fashion centers in the world in no small part because it is relatively easy to start a business here. Although it isn't common, even young designers right out of school have been able to launch their own brands and businesses. For example, in 2002, two young Parsons graduates were able to turn their senior thesis project into a high-end fashion brand—Proenza Schouler—that is now widely considered to be among the most innovative in the business.

Another good example is Situ Studio, a Brooklyn-based architecture firm specializing in high-tech modeling and fabrication services. In 2005, the firm's four principals, all graduates of Cooper Union's architecture program, decided against apprenticeships at major New York offices so that they could continue their research into highly technical, computer-controlled fabrication technologies. Whizzes on computers, the four young designers were able to parlay their skills into important consulting contracts with major firms like Kohn Pederson Fox and are now in high demand among not only architects but interaction designers and anyone else looking to bridge the gap between digital modeling and digital fabrication. "Recently, we've been asked to work on digital fossil reconstruction for an archeologist at Princeton," says co-founder Brad Samuels.

Designers and architects have long been willing to forgo traditional career paths in order to start their own ventures, but as the whole industry grows and more small firms get work on major projects, often in collaboration with other small firms, there has been an undeniable trend toward even more entrepreneurialism. Instead of joining established organizations, young designers are increasingly opening their own studios and competing for their own contracts. A number of them have been able to raise hundreds of thousands of dollars on Kickstarter in order to develop products they dreamed up in grad school—hanging window gardens, for example, which recently raised over $250,000 on Kickstarter, or an iPad stylus, which raised $134,000. One of Kickstarter's founders recently told the *New York Times* that

over half of the site's blockbuster projects—those attracting $100,000 or more in investments—are design related.[11]

One big factor contributing to this entrepreneurial impulse in design are the students themselves and the entrepreneurial values that they're beginning to pick up from professionals. For example, Vishaan Chakrabarti, an architect and professor of real estate development at GSAPP, says that "it is no longer a badge of honor among students to be stupid about money." Students want to learn everything there is to know about realizing a project, Chakrabarti says, and not just the traditional "design" elements such as a project's look and functionality. However, undoubtedly, design schools are playing an important role in this cultural transformation as well, especially in New York where there is so much professional involvement in the pedagogical process.

Fashion Forward

129 of the 386 members of the Council of Fashion Designers of America (CFDA) attended New York City design schools, especially Parsons and FIT. They include:

CFDA Member	School
Narcisco Rodriguez	Parsons
Betsey Johnson	Pratt
Calvin Klein	FIT
Thakoon Panichgul	Parsons
Tom Ford	Parsons
Behnaz Sarafpour	Parsons
Anna Sui	Parsons
Marc Jacobs	Parsons
Ralph Rucci	FIT
Michael Kors	FIT
Isaac Mizrahi	Parsons
Donna Karan	Parsons
Nanette Lepore	FIT
Jason Wu	Parsons
Derek Lam	Parsons

Source: Analysis by Center for an Urban Future based on CFDA website, gathered in August 2011.

For example, while still in school, students are learning to turn their attention to a much wider array of subjects than is traditional in a design education, so not just products, books or buildings, though all of those are still important, but customer service and supply chain systems, food delivery infrastructure, and zoning practices. Furthermore, at all the major schools, design students are learning how to identify problems along the entire development process, from the inception of an idea to its reception as a physical, marketable object—and then they learn how to do rapid prototyping and testing. "They're encouraged to actually build things," says Red Burns of her students in NYU's ITP program, "and to not be afraid or embarrassed if they fail." One grad student in the Designer as Author program at SVA developed an entirely new prescription drug bottle and labeling system—designed to reduce confusion among older, same-household users—and the market research the student did was so convincing the whole product line was subsequently picked up by Target.

Many of those we interviewed believe that design—and the city's design schools—will play an even more important role in New York's economic future. One reason for this is that design clearly plays to New York's strength as a creative center. Additionally, major companies in technology, manufacturing, health care and other leading industries are increasingly looking to designers to help them solve challenges and come up with innovative solutions. As one example, New York-based Internet companies such as Foursquare, Tumblr, Gilt Groupe and Kickstarter have relied on innovative designs to turn already established technologies into entirely new tools and services.

However, while the city's design and architecture schools are clearly succeeding on a number of fronts, there are still plenty of opportunities to evolve and improve. Most of the schools have not yet fully explored opportunities to integrate programs that teach students basic business and entrepreneurial skills, for example, including drawing up basic business plans and other financial documents. In our survey of New York design professionals, only 12 percent of respondents said that the schools provided significant oppor-

tunities to develop these sorts of business and entrepreneurial skills; 43 percent said the schools provide some opportunities; and 44 percent said it was not a major focus.

In addition, the schools have not yet managed to build the kind of interdisciplinary programs that can be found in a handful of top programs in other places. For example, Stanford's d.school, a post-graduate, one-year certificate program, attracts a large number of business school students to its classes and studios; in fact, according to Ryan Jacoby, a d.school graduate and director of the New York office for IDEO, a large and innovative design firm based in Palo Alto, prospective business school students will oftentimes pick Stanford over other top schools just so they can participate in the d.school. Similarly, a four year-old, post-graduate program in London called Design London draws on the resources of three schools, at two major universities, to build interdisciplinary teams around projects with the potential to launch new businesses. Nothing quite like either of these programs exists in New York yet. Rather, many of the academic leaders we spoke to for this report say that building even modest bridges across different disciplines and schools has been a major challenge.

Now that Cornell and Technion Universities have been given the go ahead to build a 2,000-student applied sciences campus on Roosevelt Island, the school should consider developing a design component to one or more of their research programs. The Carnegie Mellon proposal for the Brooklyn Navy Yard was designed to capitalize on New York City's creative community, particularly with respect to the film and digital media sectors. The Cornell/Technion partnership—or for that matter, Columbia and NYU—might consider doing something similar, or else they could build off of other local strengths like New York's vaunted medical research institutions in Midtown. At a time when the returns on geographic proximity appear to be larger than ever, particularly in the knowledge and innovation economies, it seems like a big lost opportunity that so many new design contracts on medical products—a big and growing industry in its own right—go to firms in New England and California.

Over the last two years, economic development officials in the Bloomberg administration have pursued a number of important entrepreneurship initiatives. Besides the contest for a new applied sciences campus, they've supported a number of different incubators and work-share spaces, sponsored a high-profile competition for locally-based food manufacturers, and established several new programs to provide immigrant entrepreneurs with the linguistic help and training they need to get to the next level. However, with a few notable exceptions, they have not yet tapped into the entrepreneurial energy of the city's design and architecture sectors or thought about how to leverage the more than half-dozen schools that supply those sectors with new talent.

But there's a lot the city could be doing to capitalize on these strengths. For example, the city's Economic Development Corporation (EDC) could take a leading role in bringing the different schools, museums and trade-show organizers together for a citywide and cross-disciplinary promotional event, something like London's Design Festival, which links together hundreds of small venues and events in communities all over the city. The EDC could expand efforts to create work-share and incubator spaces: The agency has supported a number of these spaces in the high-tech and digital media sectors, but with the exception of a new fashion design incubator at the CFDA, it has not yet offered architects and designers the same support.

Creative businesses in the design and architecture sectors play a crucial role in the city's economy, even when they don't turn into multi-billion dollar corporations. In fact, even the smallest firms are capable of generating goods and services with a large number of applications. They keep older, larger firms honest by innovating new organizational structures and business practices and by breaking down industry silos. With a strategic plan centered on the city's growing design and architecture schools, New York could encourage even more of this innovation and lay the groundwork for keeping the city's whole creative economy among the largest and most dynamic in the world.

NYC'S DESIGN ENGINE

New York's design and architecture schools are growing at a rapid clip and are having a growing impact on the city's economy

New York is without question a national and international leader in design and architecture education. In terms of the sheer number of students who graduate with design and architecture degrees, the city surpasses every other U.S. city by a large margin. In 2010, design and architecture schools based in New York awarded 4,278 undergraduate and graduate degrees in those two disciplines, compared to just 1,769 in Los Angeles, 1,552 in Chicago, 1,343 in San Francisco, and 1,128 in Boston/Cambridge.[12]

In design alone, 3,693 degrees were awarded in the city in 2010, which was more than double the second and third placed cities, Los Angeles and Chicago. In architecture, New York-based schools awarded 585 degrees in 2010, which came in second to Boston/Cambridge at 681 degrees, but ahead of every other city in the nation, including Los Angeles (392), Philadelphia (313), and Chicago (235).

Because of their quality and proximity to one of the most vibrant creative communities in the world, New York's design and architecture schools have been attracting record numbers of new students. Between 2001 and 2010, full time student enrollment at the city's 10 largest design and architecture schools increased by 34 percent, going from 18,002 students at the beginning of the decade to 24,065 students ten years later.[13] LIM College, a school in midtown that trains students in the business of fashion, grew 344 percent in that time, while the New York School of Interior Design (NYSID) grew 104 percent and Pratt's School of Architecture grew 50 percent. Among the city's largest design schools, Parsons has grown by far the most: Between 2001 and 2010, full time student enrollment went from 2,386 to 4,237, a 78 percent increase.

Even in the context of big enrollment spikes at other universities in New York, these are truly impressive numbers. For example, full time student enrollment at all institutions of higher education in New York City grew 27 percent between 2001 and 2010.[14] NYU's full-time enrollment was up by 25 percent during this period, while Columbia grew by 27 percent.

The enrollment increases at New York's design schools also outpaced the rate of growth for other major design schools in the U.S. The largest design schools in the Association of Independent Colleges of Art and Design (AICAD), a national consortium that includes the Rhode Island School of Design and the School of the Art Institute of Chicago, grew by 28 percent in the ten year period between 2001 and 2010.[15]

When it comes to attracting new students, New York's design and architecture schools are clearly excelling, and as one might expect, those big increases have been fueling ambitious new investments in educational programs and building initiatives. Total spending on salaries, vendors and maintenance has grown tremendously over the last decade. Between 1999 and 2009 (the latest date for which data is available), total spending at nine of the city's largest design schools grew 100 percent.[16] In the 1999/2000 school year, total spending for these institutions was $269 million, but by the end of the 2008/2009 school year that number had grown to $537 million. Total spending at Pratt rose 129 percent in that time, from $54 million a year in 1999 to $123 million in 2009. Last year, the school's total operating budget was $194 million, with 25 percent of that going to employee wages.

Major capital investments have included a new campus building for Parsons in Manhattan, a new architecture school and 6-story administration building for Pratt in Brooklyn, and a new eight-story academic building designed by Pritzker Prize-winner Thom Mayne for Cooper Union. All four projects were major multi-million dollar investments that provided new amenities for stu-

dents and benefited the urban fabric of the surrounding neighborhoods.

However, traditional schools have not been the only ones to benefit from high demand for design education. A few non-traditional competitors have started to spring up recently as well. For example, 3rd Ward, a multidisciplinary design center in Williamsburg, Brooklyn, started out in 2006 as a workshare space for professional furniture designers, printmakers, and photographers; it offered 35,000 square feet of affordable studio space, a wood- and metal-working shop and multimedia center. But the project quickly evolved into a school as well and now offers over 100 courses every three months in a variety of design related disciplines.

Another, similar organization called General Assembly (GA) is located in the Flatiron district of Manhattan. Like 3rd Ward, GA offers affordable workshare spaces—in their case, for young businesses in the digital media, social media and e-commerce sectors—but the organization has been quickly branching out into course offerings in a variety of fields, including programming for non-programmers, game design, branding, and start-up law. According to co-founder Jake

Schwartz, a lot of the people who participate in the GA community have backgrounds in design fields like interaction and graphic design but are looking to pick up new skills in coding and business management. GA now offers 65 classes per month with an average class size of 25 people, he says. "We're hitting a weird pocket of demand. We're building six more classrooms to be able to keep up with the demand from students."

In our interviews, educators pointed to several important factors behind all this design school enrollment growth. Many say that the visibility and impact of design has increased dramatically in the broader culture, stimulating a revival of interest among young people. For example, Joel Towers, the executive dean at Parsons, points to the popular reality TV show Project Runway as a major catalyst of interest in fashion design. "We've seen a big uptick in the number of students wanting to study fashion," says Towers. "Our fashion courses have always been competitive and rigorous but even more so now." The phenomenon of so-called "starchitecture" in the late 1990s and 2000s—the canonical example being Frank Gehry's Guggenheim Museum in Bilbao and the countless magazine articles and TV commercials

Full-time Student Enrollment Increases: 2001-2010
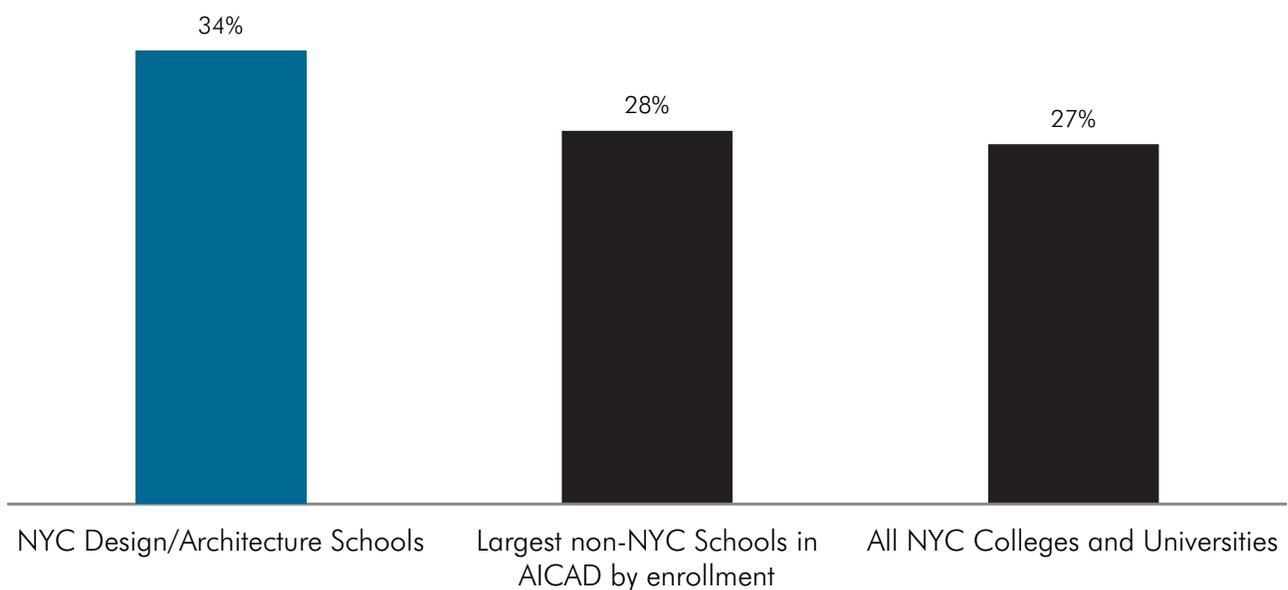
Source: IPEDS & institutions. For NYC Design/Architecture Schools, we analyzed enrollments for ten of the city's most prominent schools. For All NYC Colleges & Universities, 35 schools were considered. For non-NYC AICAD schools, the largest seven schools outside of NYC were considered.

it inspired—has no doubt had a similar effect on architecture enrollments. Meanwhile, popular consumer products such as the iPhone and iPad are just now starting to spotlight the work product and interaction designers do.

Educators say that another big factor in student enrollment growth is the increasing complexity and specialization of the different design fields. Over the last decade, traditional fields like interior design have branched out into specialties like health care, while also integrating more sophisticated computer aided design platforms and techniques. Once upon a time it was extremely common for people to enter the field with backgrounds in neighboring disciplines like architecture or even with no formal design training at all, but many practitioners today say that is much less common now. Other fields like interaction design have come into existence only in the last few years, as mobile devices and companies like Apple and Amazon have revolutionized the media and retail industries. "The social life of technology and the thinking around that has changed dramatically in a short amount of time," says Liz Danzico, the director of SVA's MFA program in interaction design. "We've developed a coding class for our first semester students where the goal is to teach them how to read the world as code, how

it works, its grammar and philosophy. That's a radical shift since 2007."

Ed Schlossberg, founder of the exhibition design firm ESI Design, says that video game design is another good example of a rapidly burgeoning field requiring complicated skill-sets in a variety of different disciplines. In fact, NYU's Tisch School of the Arts recently launched a new MFA program in game design that draws on resources from NYU Poly and the Courant Institute of Mathematical Sciences. "Game design is growing rapidly here," Schlossberg says, "and it needs people who know about music design and screen design and story-boarding. There's a whole new division called physics design, which involves taking what you learn in physics and applying it to the creation of these online, virtual worlds." Schlossberg says that the technologies that have given rise to this and other fields have revolutionized his own discipline in the last few years and that in order to stay competitive he has had to find people, often recent graduates, who not only know how they work but can apply them creatively in new contexts.

One other factor behind ballooning design school enrollments is the appeal of New York City itself. As the scope of the design and architecture professions have changed over the years, many

Percent of Foreign Students: 2010
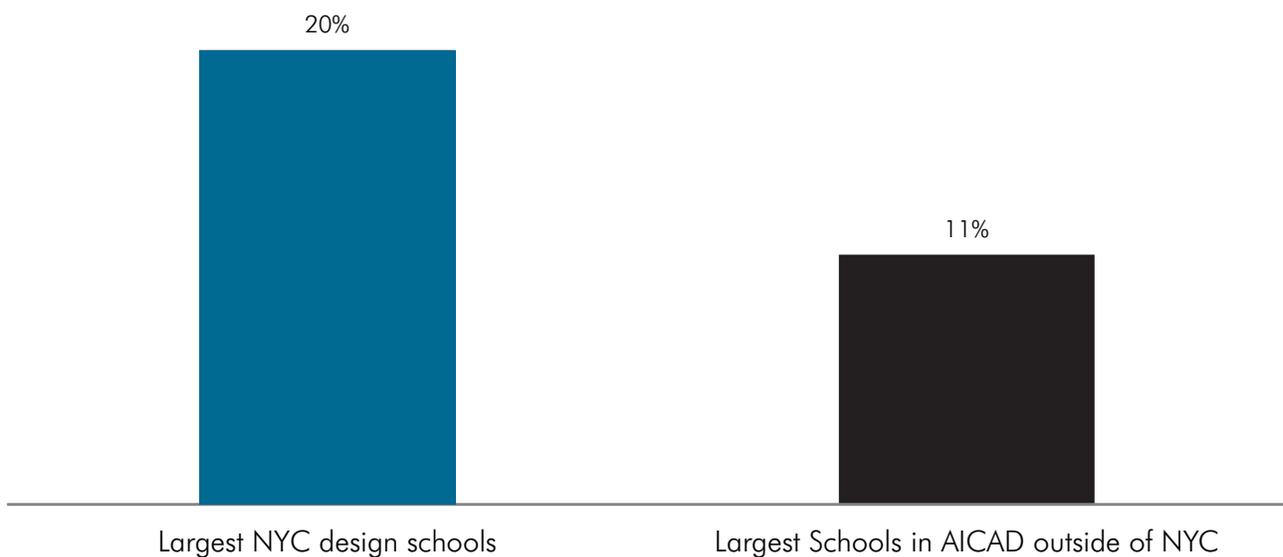
Source: IPEDS. NYC schools include FIT, Parsons, Pratt, and SVA. AICAD schools include: The Art Center College of Design; California College of the Arts; Maryland Institute College of Art; Massachusetts College of Art and Design; the Rhode Island School of Design; the School of the Art Institute of Chicago; and the University of the Arts.

of the schools have started to incorporate urban issues and systems in their curricula, sometimes partnering with city agencies and non-profits on concrete problems. Joel Towers, for instance, says that Parsons has recently partnered with the city's Department of Education and the Department of Parks and Recreation on real world projects like cutting down on waste in school cafeterias, and he thinks the students themselves prefer this real world approach to learning. "The city is inspiring to them but it is also their laboratory," says Towers.

Students also choose New York-based schools because they can recruit some of the best professional faculty members in the business. At all the major schools professional designers and architects, more than a few of them celebrated figures in their field, regularly teach classes and host students in their studios. For example, Allan Chochinov, the director of a new interdisciplinary program at SVA, says that next year the program's design research class will be hosted by IDEO, a prominent product design firm with an office in SoHo. "One really important thing we do," says Chochinov, "is introduce students to the best professional designers we know, and if we can do that in the context of their actual workplaces all the better."

In fact, New York City offers so many pedagogical and locational advantages that top schools in other parts of the country have decided that it is worth opening a campus here. Both Kent State's Fashion School and Cornell's College of Architecture, Art and Planning have Manhattan campuses that host students for a kind of "semester abroad" experience, but in place of a foreign language, students are introduced to professional offices and practitioners. Even though Cornell has a prestigious architecture school with the top-rated undergraduate program in the country, Robert Balder, the executive director of the campus, says that being in New York makes it easier to recruit the best faculty—many of whom are adjuncts who work at their own architecture and design firms—and arrange internships for students. "Half of our faculty are within five blocks of this office," he says. "We really needed to have a center of excellence in an urban setting like New York. It helps us recruit the best faculty."

Largest Design Schools in the U.S. by Degrees Awarded

Rank	Institution	Degrees
1	Fashion Institute of Technology New York, NY	1378
2	Fashion Institute of Design & Merchandising Los Angeles, CA	1019
3	Savannah College of Art and Design Savannah, GA	999
4	Parsons The New School for Design New York, NY	818
5	Academy of Art University San Francisco, CA	720
6	The Pratt Institute Brooklyn, NY	561
7	The Art Institute of Fort Lauderdale Fort Lauderdale, FL	409
8	The School of Visual Arts New York, NY	357
9	Interior Designers Institute Newport Beach, CA	323
10	The Art Institute of Pittsburgh Pittsburgh, PA	314

Source: IPEDS. Degrees issued in 2010.

Full-time Student Enrollment Increases: 2001-2010

Institution	2001	2010	% Change
New York School of Interior Design	142	290	104%
Spitzer School of Architecture, City College	420	403	-4%
Cooper Union, Schools of Art & Architecture	398	415	4%
Columbia GSAPP*	600	780	30%
NYIT School of Architecture	647	939	45%
LIM College	338	1,500	344%
School of Visual Arts	3,169	3,951	25%
Pratt Institute	3,493	4,219	21%
Parsons The New School for Design	2,386	4,237	78%
Fashion Institute of Technology	6,409	7,331	14%
Total	18,002	24,065	34%

Source: IPEDS and Institutions.
*Includes part-time students

DESIGN THINKING
Key findings from our survey of 322 design professionals

In order to better understand how professional designers interact with the city's design and architecture schools, last fall the Center for an Urban Future partnered with six prominent trade associations to survey their professional members located in the New York metropolitan area. AIGA (formerly the American Institute for the Graphic Arts), the American Society of Interior Designers (ASID), the Council of Fashion Designers of American (CFDA), the Design Management Institute (DMI), the Industrial Design Society of America (IDSA) and the International Interior Design Association (IIDA) all emailed their New York-based professional members to issue invitations to the Center's online survey, and, over the next four weeks, we received 322 completed responses.

Of those 322 professionals, 22 percent were principals or executives of local businesses, 36 percent were freelancers or independent contractors, and 42 percent were employees at firms and other companies in the advertising, media, retail, manufacturing and financial industries. In terms of their field of expertise, 58 percent of respondents worked in graphic or communications design, 13 percent in interior design, 7 percent in product design, and 6 percent in interactive design. Other areas included architecture, fashion, lighting design, exhibition design and motion graphics.

Below are the survey's major findings:

A large number of those who operate a design firm or design-related business in New York are graduates of local schools: Twenty-two percent of our respondents indicated that they were principals or executives at a New York-based business. According to the estimates provided of the number of employees, these businesses ranged from huge fashion retailers and large multinational architecture firms to small boutique businesses with just two or three full-time staff members. Out of 72 total respondents who fell into this category, 39 percent said they had trained at one of New York's design and architecture schools. Forty-four of those respondents—or 14 percent of the total—indicated that they had founded their business, and again, according to the respondents' own estimates, the average size business for this group was 18 employees; the largest had 200 employees.

A high percentage of New York design firms and other companies are hiring local graduates: Among the respondents in our survey who have the power to make hiring decisions, 81 percent said they had hired at least one local design or architecture school graduate for a full time position in the last five years. Respondents were asked to estimate how many local graduates they had hired in that time, and the average number was five.

In the design and architecture sectors, interest in starting one's own business is extremely high: Among those who were not already in an executive position at their business, a group that includes both freelancers and employees, 56 percent indicated that they planned to start their own design-related business. Seventy percent—or 99 out of 141 respondents—said they hoped to do so in the next five years, while 30 percent said they were unsure. Among freelancers alone, the numbers were even higher. Sixty-four percent of freelancers said they planned to start their own business, with, again, the vast majority saying they hoped to do so in the next five years.

Formal training in most design disciplines is becoming more of a necessity to practice: No doubt because of all the rapid proliferation of new technologies and specialties, 66 percent of respondents said they thought formal training in their discipline was becoming more important, while only 11 percent said

it was becoming less important; 23 percent of respondents said that the need for formal training wasn't changing in their field.

The design schools are not providing many opportunities to pick up technical business skills: When prompted to assess how well New York City design and architecture schools were doing to prepare students to become business owners and entrepreneurs, only 12 percent of respondents overall indicated that they were providing significant opportunities to do so. Among the graduates of local schools, 14 percent thought there were significant opportunities to develop these skills, and among those who had already founded a business only 5 percent thought so. A whopping 59 percent of business owners thought that developing business skills was not a major focus at the schools, while 36 percent thought there were merely "some opportunities."

Center for an Urban Future Survey

Do you think formal training in your discipline is becoming more or less important?
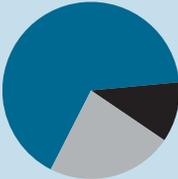
More: 66%
Less: 11%
Unchanged: 23%

(all respondents)

Have you hired a NYC design school graduate in the last five years?
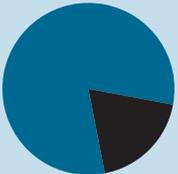
Yes: 81%
No: 19%

(principals and executives)

Do you have plans to start your own business?

Yes: 56%
No: 44%

(employees and freelancers)

Do NYC design schools provide significant opportunities to develop business and entrepreneurial skills?
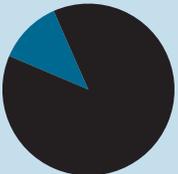
Yes: 12%
No: 88%

(all respondents)

MAGNETS FOR TALENT

New York design and architecture schools exert a powerful pull on prospective students in other parts of the country and globe

Beyond preparing students for a professional career, one of the most important contributions that design and architecture schools make to the broader city economy is to attract talented and highly motivated students to the city in the first place.

New York schools are big magnets for students in other parts of the country and globe. Parsons, Pratt, SVA and GSAPP, for example, all enroll more out-of-state students than in-state students. In Parsons' case, only 19 percent of students come from New York State, while only 36 percent of Pratt students do. But, perhaps, even more impressive is the out-sized pull these schools have on prospective students in South America, Europe and Asia.

For example, the largest schools in the Association of Independent Colleges of Art and Design (AICAD) have an average foreign student enrollment of just 11 percent, whereas the four largest schools in New York—namely, FIT, Parsons, Pratt and SVA—have a combined foreign student enrollment of 20 percent.[17] Parsons and SVA both attract even more foreign students, with 34 percent and 25 percent of their student bodies, respectively, coming from overseas. Columbia's GSAPP also attracts an extraordinarily high number of foreign students, with 27 percent of the student body coming from abroad.[18]

Like students more generally, the number of foreign students studying at New York City schools has also been growing rapidly over the last decade. Among the city's seven biggest design and architecture schools, 4,945 foreign students were enrolled in fall 2010, which was a 42 percent increase from ten years earlier when only 3,479 foreign students were enrolled.[19] Nearly every school in the city has seen big gains in foreign students over the last decade, though none can match Parsons' growth. Between 2001 and 2010, the number of non-resident alien students at Parsons grew from 828 to 1,592, a 92 percent increase. And again this year the school saw yet

FASHION INSTITUTE OF TECHNOLOGY

FOUNDED	1944
LOCATION	Chelsea
TOTAL STUDENTS (2010)	10,386
FULL-TIME STUDENTS (2010)	7,331
FULL-TIME STUDENT GROWTH (2001-2010)	14%
FOREIGN STUDENTS	12%
CONCENTRATIONS	Fashion Design, Fashion Merchandising, Packaging Design, Toy Design, Interior Design
NOTABLES	Ranked #5 in Fashion by fashionista.com; Variety of entrepreneurship courses offered to both students and non-students in the fashion industry
DISTINGUISHED GRADUATES	Calvin Klein, Michael Kors, Reem Acra, Nanette Lepore

another big bump with 1,731 foreign students enrolled.

On a subject by subject basis, architecture, in particular, is a huge draw for foreign students. While 18 percent of students studying design at institutions of higher education in New York are non-resident aliens, 30 percent of students seeking a degree in architecture are. As the graph on page 18 shows, computer science has a higher percentage of foreign students, but chemical engineering and medicine—subjects with traditionally high numbers of foreign students—have lower percentages.[20]

Foreign students have a big economic impact just by coming here to study. According to an economic impact analysis conducted by the Institute of International Education (IIE), in 2010, the foreign students at Cooper Union, FIT, Parsons, Pratt and SVA paid a combined $123 million in tuition and $122 million in living expenses. When scholarships and other forms of U.S. support are subtracted from those expenses, the net contribution of those students to the New York City economy was still $200 million for the single year.[21]

But many, if not most, of these students also end up staying in the city after graduation to contribute in other ways as well. Many participate in internships or get jobs at firms; a few even go on to start their own companies. For example, Emily Griffen, a career development officer at Columbia, says that most foreign students who come to GSAPP come with the expectation that they will be able to build a New York City network. Some of them want to stay permanently, she says, and most will stay in the city for a little while after graduation even if they ultimately return home.

New York's world-class fashion and architecture sectors are filled with firms, large and small, that were started by foreigners who first came to New York to study. In fashion, for instance, Yoehlee Tang, Thakoon Panichgul and Pabal Gurung all founded celebrated fashion brands after having first arrived in the U.S.—and New York—as students. In architecture, Winka Dubbeldam (Archi-tectonics), Florian Idenburg (SO-IL), and Pablo Castro (Obra Architects) all came as students before staying on to start their own firms.

Antonio Di Oronzo and Stefan Sagmeister, well-known interior and graphic designers respectively, did the same.

Meanwhile, it's important to point out that, in addition to attracting students, design and architecture schools also exert a powerful pull on professionals. Whether it's for adjunct and visiting professorships, conference speakerships or lectures, thousands of designers and architects

PARSONS THE NEW SCHOOL FOR DESIGN

FOUNDED	1896
LOCATION	Greenwich Village
TOTAL STUDENTS (2011)	4,836
FULL-TIME STUDENTS (2011)	4,336
FULL-TIME STUDENT GROWTH (2001-2010)	78%
FOREIGN STUDENTS	35%
CONCENTRATIONS	Architecture, Urban Design, Fashion, Graphic Design, Interaction Design, Design Management
NOTABLES	Ranked #1 in Fashion by Fashionista.com, and #4 in graduate Interior Design by Design Intelligence
DISTINGUISHED GRADUATES	Donna Karan, Marc Jacobs, Jimmy K.W. Chan (Semeiotics, Inc.), Wade Tinney (Large Animal Games)

come to the city every year. Like many other pro-fessional schools, adjunct faculty at design and architecture schools typically outnumber full time faculty, in some cases by large measures. For example, of FIT's 1,007 faculty members in 2010, 754, or 75 percent, were part-time professionals; of Pratt's 1,391 faculty members that year, 1,255, or 90 percent, were part-timers.

In New York, professional designers and architects, particularly those who run their own practices, will seek out teaching roles at schools during periods when contracts are slow. For many, it's a way to stay afloat financially. But they also do it because it gives them a chance to meet talented young designers and hone their own ideas and skills. "[Teaching] is exciting," says Tucker Viemeister, a co-founder of the product design firm Smart Design and the current lab director at the Rockwell Group. "You get to step back and evaluate what you do."

"Everyone is like, 'Oh, it's so nice of you to go back and teach,'" adds Dennis Crowley, the founder of the tech-company Foursquare, in an *NYU Connect* interview. "I go back because the students are teaching me as much as I'm teaching them. Even if you teach the same class two or three semesters in a row, you take the syllabus and you rip it apart every semester. You have to rebuild it from scratch because the students are that much smarter."

New York City Majors by Percent of Foreign Students

- Computer Science: 44.1%
- Architecture: 29.6%
- Chemical Engineering: 27.7%
- City Planning: 26.7%
- Medicine: 20.9%
- Design: 17.6%
- Mathematics: 17.3%
- Journalism: 16.8%
- NYC Average: 8.2%
- Sociology: 5.7%
- Law: 2.2%
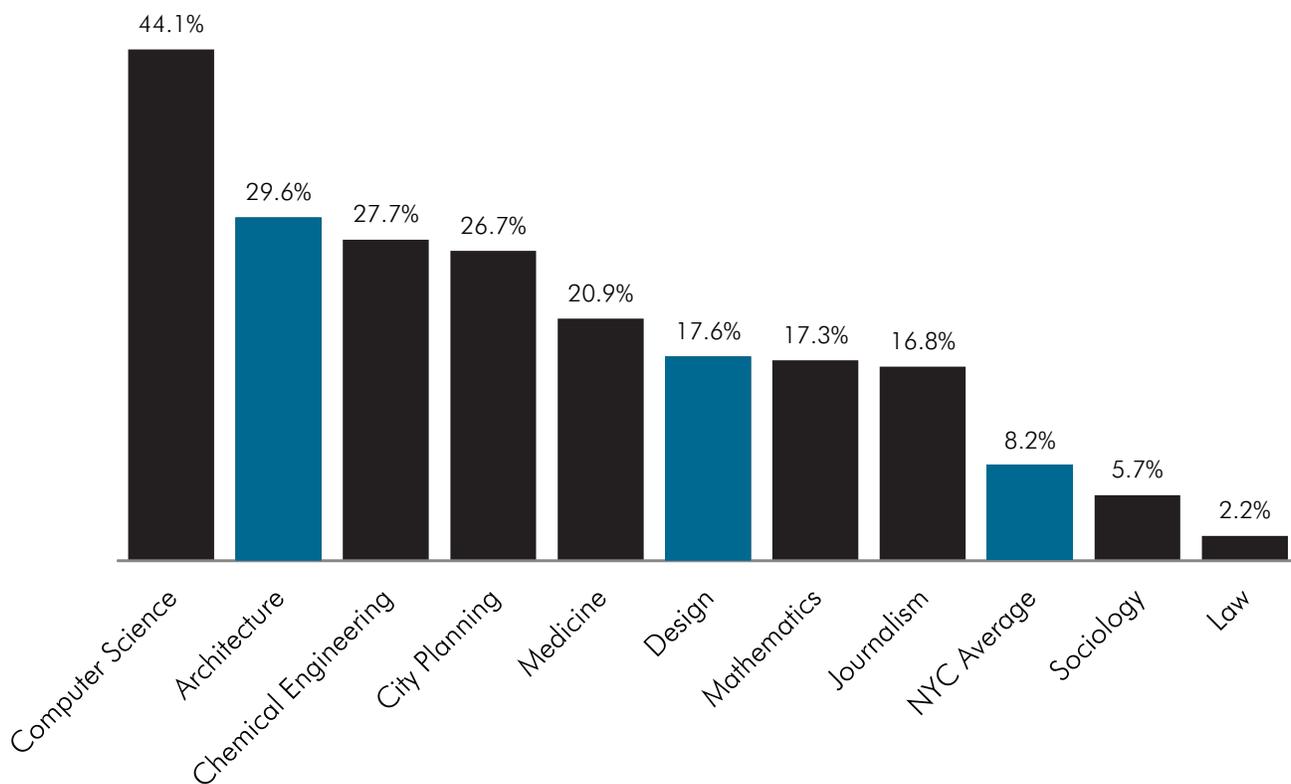
Source: IPEDS

ENGINES OF ENTREPRENEURIALISM

Increasingly, graduates of New York's design and architecture schools are stepping away from traditional career tracks at established companies to start their own ventures

Although most design and architecture school graduates have gone on to work at a variety of different businesses—not just design and architecture firms but media and technology companies, advertising agencies, banks and manufacturers—a higher than average percentage have also veered from a traditional career track to start their own companies.

Indeed, many of the city's—and nation's—most visible and influential firms were founded by New York City design school graduates, including Studio Daniel Liebeskind, Diller Scofidio Renfro, SHoP architects, Smart Design, Ralph Applebaum Associates, Calvin Klein, Marc Jacobs and Donna Karan International. All of these firms employ dozens of designers—indeed the fashion companies employ hundreds—and all have gone beyond success in the marketplace to establish new paradigms and possibilities in their fields. The Columbia graduates who founded SHoP architects have even begun to spin off several of their innovations in construction management and software development into stand-alone businesses, including SHoP Construction, an independent consultancy, SHoP Applications, a software development company, and Helioptix, a fledgling start-up in the clean tech sector.

Of course these are just a few of the very largest firms. New York is home to thousands of other, smaller companies that have been founded by local design school graduates. Thirty-three percent or 129 out of 386 members of the Council of Fashion Designers of America (CFDA), for example, are graduates of FIT, Parsons and Pratt. And well over a quarter (6 of 22) of the finalists for this year's prestigious National Design Awards at the Cooper Hewitt Museum—awards that go to firms all over the country—are graduates of New York-

based schools, including Jake Barton, an ITP grad and founder of the interaction design firm Local Projects, Peter Shelton, a Pratt alum and founder of the interior design firm Shelton, Mindel and Associates, and Jason Wu, a fashion designer who trained at Parsons.

"For a lot of entrepreneurs the intrinsic motivator isn't necessarily money but creating and problem solving," says Marco Perry, a former Pratt student who started a Brooklyn-based design consultancy in 2005. "I think the people who exemplify that quality the most are designers. I would guess that 90 percent of designers would rather have their own business."

In fact, a 2009 survey conducted by the Strategic National Arts Alumni Project (SNAAP) at Indiana University turned up a high number of graduates who took on significant financial and opportunity risks to start their own companies. According to the survey, 19 percent of Parsons, Pratt and SVA graduates—compared to 14 percent nationally—went on to create their own for-profit company, while 4 percent went on to found a non-profit. In CUF's own 2011 survey of trade association members, an equivalent 19 percent of New York City design school graduates indicated that they had either founded their own business or moved into an executive position at an existing one.[22]

Although the entrepreneurial route has already been well-traveled among designers, there are lots of reasons to think it will become even more popular in the future. Over the last ten years, the traditional employment model for designers and architects—as for creative workers more generally—has changed dramatically, so that more designers than ever before are already working for extended periods outside of the context of es-

tablished firms and companies. According to the SNAAP survey, for example, 83 percent of Parsons, Pratt and SVA graduates have worked as a freelancer or independent contractor for some

PRATT INSTITUTE

FOUNDED	1887
LOCATION	Clinton Hill, Brooklyn
TOTAL STUDENTS (2011)	4,686
FULL-TIME STUDENTS (2011)	4,265
FULL-TIME STUDENT GROWTH (2001-2010)	21%
FOREIGN STUDENTS	19%
CONCENTRATIONS	Architecture, Urban Planning, Graphic Design, Industrial Design, Interior Design, Design Management
NOTABLES	Ranked #1 for Interior Design, #4 for Industrial Design, and #9 for Graphic Design by *U.S. News & World Report*; Ranked #9 in undergraduate Architecture by *Design Intelligence*
DISTINGUISHED GRADUATES	Robert Siegel (Gwathmay Siegel), Ralph Applebaum, Roger Cook, Tucker Viemeister (Rockwell Group)

length of time after graduation, compared to 62 percent who have worked as an employee at a for-profit company and 19 percent who have worked at a non-profit.

Many of the educators and professionals we interviewed for this report say that the economic transition to freelancing, though difficult and stressful in a number of ways, has also led to more entrepreneurialism, since the skills a person needs to be a success are very similar to the skills (s)he needs to start a business. "The term freelancing is completely misleading," says Peter Barna, for instance, the provost at Pratt. "Freelancers are sole-proprietorships. If they're going to be successful, they have to think and act like a small business."

"We're in a period right now where the very idea of work is changing radically," adds Jake Schwartz, co-founder of the tech campus General Assembly. "More and more workers are chasing after gigs rather than jobs, and to make that work they have to be much more entrepreneurial than they used to be."

This connection between freelancing and business creation was certainly reflected in our survey of trade association members. Overall, 56 percent of employees and freelancers said they had plans to one day start a business, but among those who identified as freelancers—a group that made up 36 percent of respondents—64 percent said they had plans to start their own company, with a vast majority saying that they hoped to do so in the next five years.

To be sure, most freelancers and independent contractors won't (and probably shouldn't) start a business. But as the number of freelancers has risen over the years, the number of people who have that calling has grown too—and in recent years a number of organizations have sprung up in the city to help them pull it off. Online services like Etsy.com, Fab.com, Kickstarter and Behance give independent designers and small design companies the tools they need to reach new markets, raise funds and broadcast portfolios. New workshare spaces and incubators like 3rd Ward, Eyebeam, Grindspaces and General Assembly offer cheap, flexible spaces and access to a community of collaborators. And 3-D printing companies

like Shapeways, a Dutch company that moved to New York last year, offer fabrication services for a fraction of the cost of a traditional manufacturer. In the case of Shapeways, designers can have their 3-D models "printed" in a variety of different materials, including plastic, stainless steel, ceramic, sandstone and glass.

Many of the city's design and architecture schools have also started to prepare students for life as an entrepreneur. Rather than focusing exclusively on the formal elements of good design or good architecture, educators across a wide swath of disciplines are now starting to emphasize other parts of the development process, including sourcing materials, managing supply chain logistics, marketing products, and the like. "[At Cooper Union] we teach students that the building is not the only or even the primary part of the story," says architecture dean Anthony Vidler. "It's the end point in a long complicated process that involves sourcing, environmental technology, construction management, public policy and more. The innovation is happening along all these trajectories." Similarly, students in Columbia's architecture and real estate development programs have recently started to collaborate on projects in the same design studios and, according to the program director, Vishaan Chakrabarti, are tasked with not only coming up with a design solution but an implementation strategy.

Outside of the core design curriculum, other initiatives are more focused on the ins and outs of creating a business. For example, in order to help student thesis projects move toward viable business enterprises, Pratt, in 2002, launched an incubator and innovation space in the Brooklyn Navy Yard. By concentrating on sustainability, the space could offer a focused, collaborative environment for recent graduates and other promising designers to further develop and test their ideas, do market research and search out financing opportunities. And in a little more than nine years the effort has successfully launched 25 businesses in clean tech, social innovation, fashion design, design consulting, furniture design and product design. The incubator's director, Deb Johnson, says that 20 of those businesses are still around, collectively supporting 60 jobs and $4 million in

revenue per year. Besides the services offered to participating start-ups, the Pratt incubator organizes classes on a wide variety of technical business issues and also provides consulting services both to corporations like West Elm and smaller Brooklyn-based businesses.

Another important school-based design incubator called New York Designs was created in 2006 at La Guardia Community College. The in-

SCHOOL OF VISUAL ARTS

FOUNDED	1947
LOCATION	Gramercy Park
TOTAL STUDENTS (2010)	4,225
FULL-TIME STUDENTS (2010)	3,951
FULL-TIME STUDENT GROWTH (2001-2010)	25%
FOREIGN STUDENTS	25%
CONCENTRATIONS	Graphic Design, Interaction Design, Industrial Design, Computer Animation
NOTABLES	Ranked #6 in graphic design and #7 in multimedia and visual communications by *U.S. News & World Report*
DISTINGUISHED GRADUATES	Gail Anderson, Drew Hodges (SpotCo), Genevieve Gorder (HGTV), Deborah Adler

A Q&A WITH YOUNG DESIGN ENTREPRENEURS

During our research, the Center for an Urban Future (CUF) sat down with several graduates of New York design schools to talk about how they started their design businesses. **Steph Mantis** is a Pratt graduate who runs a small business that produces fashion and home accessories. **Nico Puertollano**, an SVA grad, runs a print and motion graphics studio. **Sam Cochran**, a Pratt graduate, and his sister **Teresita Cochran**, an NYU alum, are developing a solar energy product that looks and behaves like natural ivy on buildings. **Diane Ruengsorn** is a Pratt alum who runs a company that designs sustainable bowls and plates. Finally, **Mokgadi Matlhako** is an FIT graduate who created her own line of handbags and other fashion accessories.

CUF: How did you decide to start your own business?

SM: When I graduated I had a job, I was working for a watch company. I went full time when I graduated, but then they let me know they didn't have any cash flow, so I said, "I have nothing to do right now, no one to answer to, I'm going to make something for me: A necklace rack." It was animal heads mounted on locally-sourced wood, called the Pack Rack. I showed them to a friend of mine, who said that if I made a few he could try selling them at Future Perfect [a retail store in Williamsburg]. I made three, and all three sold within a week. Then I brought in ten, and they became one of the fastest selling products in the store. That led to more stores reaching out and asking to place orders. I was babysitting during the day and assembling Pack Racks at night.

NP: Initially, I had no thoughts of starting my own business. When I got my first full-time job, I realized, "this could be done better…" There were certain things I wanted to be able to do that I couldn't do at the company I was at. Also, with the many years of freelance work, people keep calling you with gigs. You realize at a certain point that you need to bring on more people. If you start to get bigger clients, they look at you differently if you're an entity. They see you as legitimate. Now I have work with P&G, Unilever, and others.

CUF: What resources did you draw on to get the business off the ground?

SC: While still in school, I was able to use professors and pick their brains. I pulled a professor aside to find out what kind of billing process and contract I would need. He helped me figure out how to work as a freelancer. In one class, a professor took a product and walked us through all the stages that a given product would take to go to retail, all the components through mass production. But, at Pratt, the incubator is probably the best resource, even for those who were not selected to be a part of it. It holds workshops and other events. If you have an idea, an IP lawyer will come and talk about the process of getting a patent. For us, the incubator reduced the initial capital that it would have taken to start the business: rent, basic utilities, and it gave us some initial legal and grant-writing help. We couldn't have done it financially without that.

SM: The Gift Fair [a biannual trade show at the Javits Center in New York] really changed everything. Someone had dropped out of the American Design Club booth and they invited me to join. Whenever you're in school, you work on these hypotheticals, but the Gift Fair forces you to have a physical product. The price point has to be right, the scale has to be right. I haven't honestly done anything super comparable. As a result of the Gift Fair, I picked up a dozen stores, started talking with major players in the retail world, all these big things started happening. The gift fair is a pretty tremendous transitional event for a lot

of people. It launched Fort Standard [a Brooklyn-based product and furniture design studio] as well. I honestly think that schools could put a booth together at these fairs. Doing the Gift Fair put me in touch with Kikkerland, a Dutch company located here in New York. It's also international. Now I'm working with someone in London, and potentially in Brazil.

CUF: What kinds of resources do you wish you would have had before starting out?

MM: At school, there were no resources for licensing. We were taught to follow designers, taught high-end fashion. In class, we were instructed to price things based on a single item. The formula was unrealistic. People want to become their own designers, but they're only taught to make the product, and that's only part of it. My mentor at Ralph Lauren explained how to price, how to include shipping costs, and so on.

DR: If someone had said, "hey, there's a student at NYU Stern who is interested in ecofriendly products," I think the business would have gone further and faster. You're not trained to be a businessperson when you graduate, you're trained to be a designer.

SM: I wish there were classes that collaborate with a manufacturer or design house for a whole semester, developing a produceable, market-ready product. Occasionally schools will partner with companies and hold competitions, but they fall outside the actual curriculum, and as a result some students may not be able to devote the required time to the competition. A semester long project would be great because students would learn how to actually communicate and produce [market-ready] design[s].

SNAAP Survey: Have you founded a for-profit company?

19%

14%

Graduates of Parsons, Pratt and SVA   Graduates of all the art schools surveyed by SNAAP
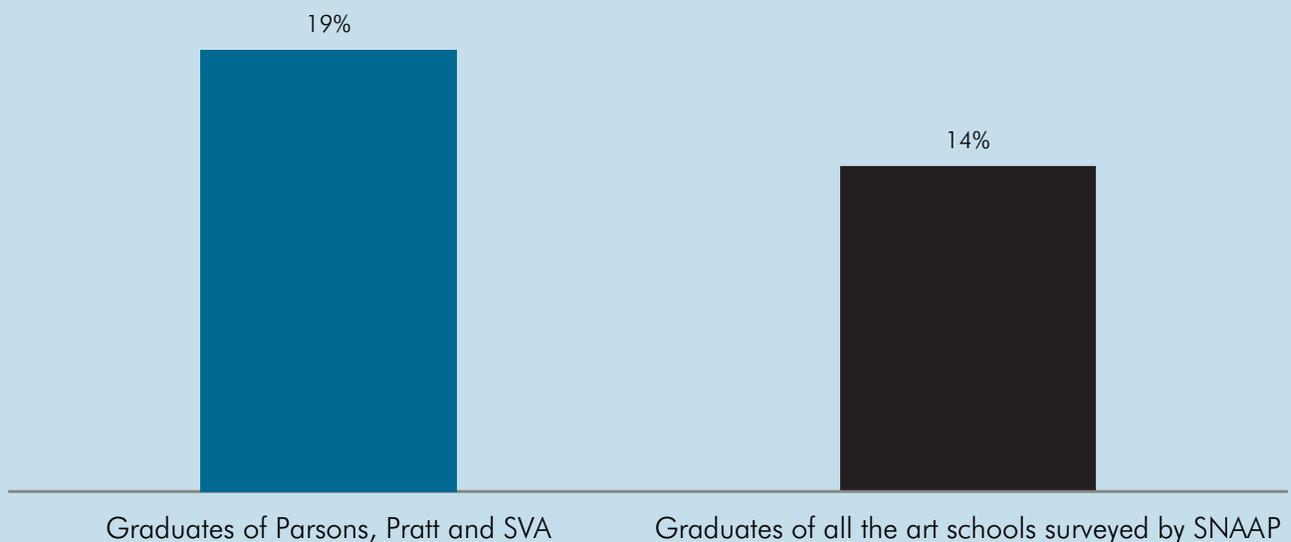
Source: Strategic National Arts Alumni Project, Indiana University, 2009

cubator is currently housing 15 firms in a section of a huge converted factory in Long Island City; resident members can use conference rooms, a media lab and fabrication shop and, along with others in the design community, take part in business coaching seminars provided by guest lecturers. New York Designs staff have also been helping designers apply to Goldman-Sachs' 10,000 small businesses program, a selective mini-MBA program for promising businesses and start-ups.

A very different model for supporting entrepreneurship is the Fashion Institute of Technol-

ogy's Enterprise Center, which offers both credit courses to existing students and non-credit courses for small business owners and freelancers outside the FIT community. Last year, well over 500 students enrolled in the credit courses and over 1,100 in the non-credit courses, says director Christine Helm. Helm says that fashion students in particular all want to have their own collections and that the courses are designed to get them thinking about what that really entails, including such specifics as sourcing materials, filing taxes, and protecting intellectual property. "Even if they don't end up starting a business these are skills they need to have in a freelancer economy," says Helm.

On the non-credit side, courses emphasize everything from computer skills to creating a business plan to analyzing financial statements. Helm says that one recent participant was an experienced embellisher in the Garment District who was looking for help on how to transition from a service provider working exclusively with fashion designers to a retailer who could appeal to tourists and other casual designers. Baruch College, the Science, Industry and Business Library (SIBL), and the Economic Development Corporation's (EDC) Fast Trac programs offer similar sorts of services but without the emphasis on design, which, Helm says, has been key in both attracting people to the courses to begin with and ushering them through the specific sorts of problems that designers face.

General Assembly is another organization that offers entrepreneurship courses with designers and other creative types specifically in mind; according to co-founder Jake Schwartz, GA will unveil 10 different, 12-week certificate programs this year and is looking at opportunities to expand its entrepreneurship offerings, including basic courses on accounting and tax filing, to designers.

While all of these are important efforts to teach designers entrepreneurial and business skills, too few of the city's design and architecture schools offer these sorts of programs.

LIM COLLEGE

FOUNDED	1939
LOCATION	Midtown East
TOTAL STUDENTS (2011)	1,595
FULL-TIME STUDENTS (2010)	1,500
FULL-TIME STUDENT GROWTH (2001-2010)	344%
FOREIGN STUDENTS	17%
CONCENTRATIONS	Fashion Merchandising, Marketing, Design Management
NOTABLES	Trains students in the business of fashion
DISTINGUISHED GRADUATES	Jacqui Wenzel (JW Merchandising), Luisa Herrera (John Varvatos), Steve Robinson (Icer Brands), Deborah Waknin

CLEARING THE HURDLES

From a dearth of basic entrepreneurship courses and interdisciplinary programs to counterproductive visa policies by the federal government, design schools face a number of important challenges

New York's design and architecture schools are already serving a critical function in New York's expanding creative economy, but if New York is going to reap all the benefits it can from these important institutional resources, there are a number of serious challenges to address.

Perhaps most glaringly, most of the schools don't offer nearly enough courses on the nuts-and-bolts of starting a business. Whether it's sourcing materials, applying for patents, negotiating licensing deals, financing products, or simply filing taxes, graduates are now regularly left to their own devices when navigating the demands of being a freelancer or prospective business owner. For this report, CUF interviewed over a dozen young entrepreneurs who had graduated from New York City schools, and the relative dearth of business training at the schools was an almost unanimous complaint. Even those who did manage to track down helpful resources at school tended to do so through satellite initiatives like the Pratt incubator or personal relationships with professors, rather than formal seminars or lessons.

"There's a big gap between graduating and being able to sell a quantity of product," says one recent graduate who started a product design business, for example. "On practical issues like protecting intellectual property [the school doesn't] do a good job of communicating what you need to do and how you go about doing it—it's one class in the year, one day."

"I graduated and had to source everything on my own," says a fashion designer who recently started her own company. "No one explained that factories have minimums. In the process of looking for a manufacturer, I actually cried. There was no support."

A number of institutions in the city, including the New York Public Library and Baruch College, offer practical courses on business issues, but these are rarely tailored to the specific needs of the design community, and the few initiatives that do exist—including FIT's Enterprise Center, a city-funded fashion incubator, and a pilot program at the CFDA that matches young fashion designers with MBA students at NYU—are almost all concentrated on the city's fashion designers. One notable exception to this rule is General Assembly's recent efforts to market basic business courses to creatives in general, but those efforts are still in the early stages and reach a modest number of designers.

Next, New York does not have the sorts of interdisciplinary programs that can lead to fruitful collaborations between designers, engineers and MBA's. An increasing number of programs at a wide variety of schools, including not only design schools but business and engineering schools, have started to carve out the institutional space for gifted graduate students with a wide variety of backgrounds to collaborate on design projects. In other places, new innovation labs at schools like Harvard are looking to replicate the success at MIT's famously entrepreneurial Media Center by matching entrepreneurs with experts across a wide range of disciplines, and design concentrations are sprouting up at otherwise traditional business schools: For example, the Rotman School of Management at the University of Toronto has developed a concentration in what it calls "Business Design," a collection of courses and workshops that stress user experience research, visualization methods, and the design of strategic business models. Meanwhile, Stanford's Hasso Plattner Institute of Design, better known as the "d.school," has developed a one-year cross-disciplinary certificate program for students who are pursuing more traditional degrees in other Stanford departments and schools.

Ryan Jacoby, an early graduate of Stanford's d.school who now runs IDEO's New York office,

says that B-school students will oftentimes pick Stanford over other top schools so they can participate in the d.school curriculum. Jacoby says that students come to the program with backgrounds in engineering, business and design. "You have to bring your own depth and skills," he says, "but it gives you this incredible opportunity to make things, to hack and experiment. In traditional courses, you learn to say the smart thing,

NYIT SCHOOL OF ARCHITECTURE AND DESIGN

FOUNDED	1955
LOCATION	Upper West Side
TOTAL STUDENTS (2011)	1,070
FULL-TIME STUDENTS (2011)	840
FULL-TIME STUDENT GROWTH (2001-2010)	45%
CONCENTRATIONS	Architecture, Interior Design, Urban Design, Architectural Technology
NOTABLES	Named one of top 4 U.S. schools that excel in building technology and construction; The school has two campuses, in Manhattan and Old Westbury, Long Island
DISTINGUISHED GRADUATES	Joseph Randazzo (Spector Group), Thomas Vecchione (Gensler), Robert Laudenschlager (SLCE Architects), Carmen Aguilar (Rockwell Group)

but at the d.school you aren't afraid to be wrong or crazy. It completely changes your outlook."

In some ways, New York University's Interactive Telecommunications Program (ITP) comes closest to the Stanford model. According to Red Burns, who founded ITP—or rather a precursor program called the Alternate Media Center—in the early 1970s, students arrive at the program having majored in everything from mechanical engineering to interaction design to philosophy, and over the course of two years they pursue foundation courses in design and computer programming, collaborate on a wide variety of specific technology projects, and, in their last year, propose a thesis project. As thesis projects, students have built assistive technologies in the medical field, interactive video games and social media sites. In 2003, two ITP thesis students, Dennis Crowley and Alex Rainert, proposed an interactive platform for mobile devices called Dodgeball that allowed users to report their geographic locations to friends in their network; the technology was subsequently sold to Google and later formed the basis of the tech company foursquare.

However, not even ITP has been able to break through the institutional barriers separating NYU's Tisch School of the Arts and The Stern School of Business, and graduate students in other programs across the university are not allowed to collaborate on projects, as they are at Stanford's d.school. Perhaps not coincidentally, several of the people we interviewed for this report said that the culture at ITP tends to encourage projects that are extremely experimental, and even the most promising ideas tend to be in need of extensive polishing before they could be eligible for angel or VC funding.

In terms of pedagogical programming, other missed opportunities include the lack of design programs that build off of New York's rich assets in business consulting, health care, and philanthropy. According to one designer who graduated from Pratt and now consults widely on innovation strategies for big firms like Pepsi and Samsung, the product design programs in New York are decidedly more crafts oriented and focused on form rather than innovation or strategy, despite New York's natural advantages in these areas. "The

consulting world is a career path for designers," he says, "but the New York schools don't speak to this world at all."

Similarly, New York is home to several of the world's largest and most innovative hospitals and medical research institutions. But, even though designers are playing a larger role than ever in medical device and health care services industries, few of the schools have created partnerships with those institutions or even offer medical design concentrations. And, to be fair, on the other side, few of the city's hospitals and research institutions have looked to include designers when coming up with new products and services. This isn't always the case. In Cincinnati, for example, a number of local medical device manufacturers and hospitals are working closely with the University of Cincinnati's medical device innovation and entrepreneurship program, a product design program within the University's School of Engineering. Among other things, the organizations are giving design students access to doctors in clinical settings, including surgeries, so that they can begin to understand what kinds of challenges medical practitioners face. Meanwhile, Minnesota's renowned Mayo Clinic has an innovation center that draws on a whole team of human-centered design researchers to improve patient care—designers work on everything from patient scheduling and the layout of exam rooms to monitoring devices and digital communication platforms. Without question, more partnerships and innovative programs like these could spur a lot of growth in New York's comparatively small health care design sub-sector.

Tapping into the world of philanthropy to build a culture of so-called 'social design' or 'social entrepreneurship' has been a hot topic among designers and architects over the last few years. For example, in 2007, an influential exhibit at the Cooper Hewitt Museum called "Design for the other 90%" highlighted projects ranging from portable water purifiers and low-cost prosthetic feet to $100 laptops and solar powered hearing aids. And in 2008 the Rockefeller Foundation (the funder of this report) co-hosted a conference that looked at ways to encourage innovative collaborations between designers and NGOs. Moreover, a lot of the design and architecture schools in New York have already started to build relationships with a variety of non-profits and government agencies to do pro bono design work in exchange for the opportunity to tackle interesting problems. For instance, the decades-old gymnasium at Highbridge Park in the Bronx didn't have enough physical capacity to have a changing facility in the summertime, but the New York City Department of Parks and Recreation teamed with Parsons students to come up with an innovative design solution. Additionally, participants at the Pratt Incubator worked with the Mayor's office to design an affordable modular shed for sidewalk dumpsters.

COLUMBIA GSAPP

FOUNDED	1881
LOCATION	Morningside Heights
TOTAL STUDENTS (2011)	813
TOTAL STUDENT GROWTH (2001-2010)	30%
FOREIGN STUDENTS	27%
CONCENTRATIONS	Architecture, Urban Planning, Real Estate Development
NOTABLES	Ranked #4 in graduate programs for architecture by *Design Intelligence*
DISTINGUISHED GRADUATES	Peter Eisenman, Gregg Pasquarelli (SHoP Architects), Charles Renfro (Diller, Scofidio, Renfro), Dan Wood (WORKac)

Many of the city's architecture schools, including NYIT, Parsons and City College, have excelled in the biennial Solar Decathalon, a contest sponsored by the U.S. Department of Energy that challenges collegiate teams worldwide to build solar powered houses. And, in fact, both Parsons and SVA have even created MFA programs in social innovation design.

Still, despite all of these promising initiatives and programs, the possibilities have barely begun to be tapped in this important field. One major conclusion of the Rockefeller Foundation workshop in 2008, for example, was that while successful examples of groundbreaking design collaborations are easy to indentify in the social innovation sphere, partnerships between designers and NGOs are still far from routine.[23] And, as many of the people we interviewed pointed out, social entrepreneurship holds particular promise for New York: "New York City is the center of philanthropy," says AIGA executive president Ric Grefe. "The U.N. is here as are loads of NGOs and non-profits, but more students need to realize that 'pro bono' means 'for good' not 'for free.' You can make a living doing social entrepreneurship."

One last important challenge to harnessing the full economic potential of New York's design and architecture schools include federal policies surrounding both student and H1-B visas for highly skilled non-immigrants. Students from certain countries like Brazil, South Korea, India and China have to pay hundreds of dollars in visa fees, which SVA president David Rhodes, among others, sees as excessive and a disincentive for students to come here. Student visas also come with a number of severe restrictions. For example, Mokgadi Matlhako, a South African citizen who went on to found an accessories company after graduating from FIT, says she had to fight to keep prestigious internships at Ralph Lauren and other companies because her student visa came with time and financial restrictions that weren't generally recognized at the companies. "The schools didn't know what to do," she says, "but a family friend told me 'ok, you can't take a paid internship, but you can have them cover your travel expenses, lunch, etcetera.'" Similarly, because so many talented foreign students come to New York schools in the hope that they can catch on with top-notch firms after graduation, the 65,000 person cap on H1-B visas is becoming a bigger reason not to come in the first place; it also hampers existing firms by preventing them from hiring the very best employees.

COOPER UNION FOR THE ADVANCEMENT OF SCIENCE AND ART

FOUNDED	1859
LOCATION	East Village
FULL-TIME STUDENTS (2010)	415
FULL-TIME STUDENT GROWTH (2001-2010)	4%
FOREIGN STUDENTS	15%
CONCENTRATIONS	Applied/Fine Arts, Architecture
NOTABLES	Ranked #13 in undergraduate Architecture by Design Intelligence; All students at the undergraduate level are offered full scholarships
DISTINGUISHED GRADUATES	Milton Glaser, Stan Allen, Elizabeth Diller and Ricardo Scofidio (Diller, Scofidio, Renfro), Abbot Miller (Pentagram)

INNOVATIVE MULTIDISCIPLINARY PROGRAMS IN OTHER CITIES

Although overcoming institutional barriers at the university level can be extremely difficult, an increasing number of universities, both in the US and abroad, have begun to carve out interdisciplinary programs that emphasize innovation and entrepreneurship. So-called 'innovation labs,' modeled in part on MIT's famously entrepreneurial media lab, part of the university's School of Architecture and Planning, have recently opened at the University of Virginia and Harvard, for example; and intensely collaborative postgraduate design programs that draw students from across a wide swath of professional backgrounds have been developed in different ways at Stanford University, the University of Toronto's Rotman School of Management, Carnegie Mellon University, Virginia Commonwealth University, and the Royal College of Art (RCA) and Imperial College London.

In London, the joint program at RCA and Imperial called Design London takes postgraduate students from the business, engineering and art programs and puts them in teams that tackle specific design problems. The program begins with a rigorous set of classes, in which students begin to develop a common language and skill set, and then moves on to the workshops in which concrete projects and prototypes are developed. The most promising proposals from the workshops are then invited to set up shop in the program's incubator, where they can take advantage of further coaching and financing opportunities.

Stanford's celebrated 'd.school,' which was founded in 2004 by David Kelley, a founding principal of the design firm IDEO, also emphasizes diversity of background and collaboration. Top graduate students from across the university—including not only design, business and engineering students but students in the sciences, medicine, law and humanities—participate in classes and workshops emphasizing a "human centered" design process that includes in-depth user experience research and rapid prototyping methods. Students work intensely in teams to identify problems in a wide variety of contexts, from checkout counters and business meetings to farm irrigation systems in the developing world, and then they come up with tangible solutions.

According to Design London director Nick Leon, bringing designers together with business people and engineers in a collaborative setting gives talented students the opportunity to learn to work together so that ultimately the solutions they propose will not only be technologically sound but commercially viable. "It takes all three of those disciplines to create the kinds of innovations which would be appropriate for the 21st century," says Leon. Founded in 2007 with approximately $9 million, Design London has already graduated eight successful businesses, and because the program raises additional operating funds from a mixture of product royalties from formerly incubated businesses, consultation services provided to private sector businesses and student fees from its classes, it no longer needs outside support.

However, just as important as the diversity of the students is a program's ability to attract people who are eager to take risks and have a talent for collaboration, says Ryan Jacoby, a Stanford d.school alum and the current director of IDEO's New York office. "The d.school has really become a beacon," Jacoby says. "It attracts people who bring their own depth and experience but who also want to collaborate and experiment in new ways. [At the d.school] you can't afford to get wrapped up in your identity as a designer or engineer because it teaches you a whole new mindset."

Among interdisciplinary programs that stress collaboration, MIT's Media Lab is both among the oldest and most successful in generating spin-offs; recent companies have included E-ink, an interface design and software company that invented the technology behind many e-readers like the Amazon kindle, and One Laptop per Child, a non-profit that is developing a $100 laptop to be used by poor children in developing countries. But other programs are starting to make a mark as well. For instance, London Designs has successfully incubated a company that designs robotically controlled metal folding systems for car plants, a company that designs waterless sanitation systems, and an award winning fashion designer who uses digital fabrication technology to manufacture hats and other fashion accessories.

MAKING THE MOST OF DESIGN SCHOOLS

With support from the city, New York's design and architecture schools could build on their success in spurring new businesses

Over the last two years, the Bloomberg administration has made entrepreneurship a top economic priority. The Economic Development Corporation (EDC) and Department of Small Business Services (SBS), the city's chief economic development agencies, have unveiled a number of programs targeting immigrant entrepreneurs, food manufacturers, and technology start-ups; they've supported incubators and workshare spaces, and expanded programs like Fast Trac which provide lessons on basic business skills. This administration has even begun to look seriously at both the design sector and schools of higher education as huge potential sources for new businesses. What they haven't done yet is put the two together to devise a comprehensive strategy for *design schools*!

The city's most ambitious new economic development initiative by far has been its recently concluded contest for a new applied sciences campus. By dangling city-owned land and as much as $100 million in infrastructure support, the administration has successfully lured Cornell University and Technion-Israel Institute of Technology to build a major new research campus on Roosevelt Island that promises to make the creation of new businesses in health care, digital media and environmental science a core mission. And, in addition to the Cornell/Technion partnership, the city may yet support at least two more campus projects that almost certainly wouldn't have happened without the initial invitation: In one, Carnegie Mellon University has teamed up with Steiner Studios in the Brooklyn Navy Yard to build a digital media and entertainment technology program that could serve as a talent pipeline for the city's burgeoning film and post-production sectors. In the second, NYU has partnered with IBM, Siemens, Carnegie Mellon and the City University of New York (CUNY), among others, to build a major R&D agenda—and campus in downtown Brooklyn—around technologies that could support or transform urban transportation networks, energy delivery systems and buildings.

Meanwhile, with regard to design, city officials have partnered with local universities on at least two recent initiatives, but they have been comparatively limited and all focus exclusively on fashion design. For example, the EDC has teamed up with Parsons to create a weekend networking event for fashion interns, and just a few weeks ago the agency unveiled a more ambitious "mini-Masters program" in conjunction with FIT that will teach talented designers business and entrepreneurial skills. Other recent design initiatives have included a 12-person incubator at the Coun-

At the moment, neither the planned Cornell/Technion applied sciences campus nor the proposed tech campus in Downtown Brooklyn proposed by NYU features connections to design in any meaningful way.

cil of Fashion Designers of America, for which the agency put up $200,000, and a competition that awards winning fashion designers with $175,000 and the chance to market their clothing lines in prime retail locations.

The city's economic development agencies deserve a lot of credit for pursuing so many promising entrepreneurship initiatives—and for tapping the city's institutions of higher education as important partners in many cases. But compared to the immense economic opportunities that the city's design and architecture schools present these efforts have barely begun to scratch the surface.

Very few cities can match New York when it comes to the number of top quality design schools and design students. According to Tim Marshall, provost at the New School, a number of countries that are investing heavily in design education have even looked to the mix of schools in New York as a model to strive for.[24] Still, other global cities have been much more aggressive with respect to the assets they do have. Cities like London, Seoul and Shanghai have launched city-wide promotional events, invested in interdisciplinary post-graduate programs and incubators, and, like with the prestigious Tongji University in Shanghai, turned sleepy university neighborhoods into vibrant creative districts with hundreds, even thousands, of design-related businesses.[25]

With help from the city, New York could easily pursue similarly ambitious strategies. At the moment, neither the planned Cornell/Technion applied sciences campus nor the proposed tech campus in Downtown Brooklyn proposed by NYU features connections to design in any meaningful way. This would make a lot of sense. Both proposals have adopted research agendas focused on the built environment, and Cornell/Technion is developing further concentrations in health care and media. All three of these areas are relevant to designers, and Cornell President David Skorton has indicated that the school will be seriously considering other academic partners as its campus plans and research agendas continue to develop.[26] Similarly, the applied sciences campus proposed by Carnegie Mellon and Steiner Stu-

dios would go a long way toward completing the Brooklyn Navy Yard's transformation into a major industrial park for the creative sector. If realized, manufacturers, design and film companies would not only enjoy the economic advantages of clustering but of forming closer relationships with university researchers at Carnegie Mellon and Pratt. Carnegie Mellon's post-production program could be a big boon to the growing number of design firms moving into motion graphics and animation; and Pratt's design incubator—which is located in the Navy Yard—is currently mapping out plans to triple its size, according to director Deb Johnson.

THE BERNARD AND ANNE SPITZER SCHOOL OF ARCHITECTURE, CITY COLLEGE

FOUNDED	1968
LOCATION	Manhattanville
TOTAL STUDENTS (2011)	599
FULL-TIME STUDENTS (2011)	499
FULL-TIME STUDENT GROWTH (2001-2010)	-4%
FOREIGN STUDENTS	17%
CONCENTRATIONS	Architecture, Landscape Architecture, Urban Design, Sustainable Design
DISTINGUISHED GRADUATES	William Louie (Kohn Pedersen Fox), Joseph Fleischer (Ennead Architects), Frank Sciame, Patricia M. Johanson

Former industrial sites like the Navy Yard or the Brooklyn Army Terminal in Sunset Park are already serving as invaluable resources for young firms who need affordable and flexible work space, but with involvement from both the city and schools those efforts could be dramatically expanded. Right now, Pratt is the only school in the city with its own incubator, but other schools like Columbia's GSAPP, Parsons, SVA and FIT could follow their lead.[27] The professionals we interviewed for this report say the need is immense.

NEW YORK SCHOOL OF INTERIOR DESIGN

FOUNDED	1916
LOCATION	Upper East Side
TOTAL STUDENTS (2010)	730
FULL-TIME STUDENTS (2010)	290
FULL-TIME STUDENT GROWTH (2001-2010)	104%
FOREIGN STUDENTS	2%
CONCENTRATIONS	Interior Design, Health Care Design, Lighting Design
NOTABLES	Ranked #4 in Interior Design by *U.S. News & World Report*
DISTINGUISHED GRADUATES	David Scott, Susan Nagle (Bentel & Bentel), Alberto Villalobos and Mercedes Desio (Etos)

For example, according to Gregg Pasquarelli, SHoP Architects probably wouldn't have gotten off the ground at all if it hadn't been for the industrial loft space they rented in east Midtown in the early 1990s. The five partners, he says, all had separate jobs but used the space as a kind of think tank and lab, where they could create experimental designs and installation pieces in their spare time. "Working out of this cheap 2,000 square foot space, we started to make a collaborative," Pasquarelli says.

If anything, this approach to design and architecture is even more important now. Over the last five to ten years, an increasing number of designers and architects have started to build their practices around fabrication technologies like milling machines and 3-D printers. Young architecture firms like Situ Studio sometimes even build models to scale, so that clients can walk through them and evaluate their dimensions; young furniture and product design firms are manufacturing their own product lines in New York. As a result, high-ceilinged, light-industrial space has become highly sought after by these firms, just as they have become increasingly rare in the private market.

For similar reasons, many young designers are also looking to locate their studios as close to manufacturers as they can. Fashion designers in the Garment Center like to be able to see early prototypes and work directly with manufacturers to make modifications; and in the Navy Yard, a few innovative product designers are even repurposing scraps from nearby manufacturers. "In Denmark they appreciate material," explains Steph Mantis, a Pratt alum. "Danish design is white Oak because they have white oak—they live in the forest. German design has bent wire because it was around. [In a similar way], we could utilize our industry and manufacturing, and link it to a more sensitive designer aesthetic."

Just as the schools should play a major role in the development of these broader geographic ecosystems, they should play a role in a broader, city-wide effort to promote New York designers and architects. Outside of fashion week, economic development officials do very little to promote the city's designers, and next to nothing to bridge

all the different trade shows and exhibits happening throughout the city during the year. But, as we argued in our *Growth by Design* report last year, a comprehensive and well-marketed design week, like London's or Beijing's, could trade on the events that are already happening at city museums, schools, and other event spaces and not only magnify their influence by attracting more visitors but pave the way for economic development initiatives at the neighborhood level. In her most recent State of the City speech, City Council Speaker Christine Quinn announced plans to create New York's first design week. And judging by our interviews, a fully supported, city-wide event, one that goes well beyond the attempts by several independent institutions, is a concept that most high-ranking administrators, from provost Peter Barna at Pratt to president David Rhodes at SVA, would enthusiastically support.

Lastly, city officials should work with the city's design schools to develop programs that teach basic business skills, from accounting and marketing to protecting intellectual property. The city's existing programs are designed strictly for fashion designers and artists such as painters and writers; but New York's vast number of independent interior, product, graphic, furniture, and interaction designers, among others, are desperately looking for similar support services.

RECOMMENDATIONS

New York City has more design and architecture schools—and more students in those two disciplines—than any other city in the country. As we show in this report, those schools serve a critical function in the broader economy; they supply talent for the city's design and architecture firms, media companies, and banks, and generate graduates who are more inclined than most to start their own businesses. However, even though the schools are clearly succeeding on a number of fronts, there are also a number of opportunities to improve. Below are several recommendations aimed not only at the design and architecture schools themselves but the city government and other prominent institutions for building on these important economic assets.

Expand and improve opportunities for design students to learn business skills. In today's economy, design and architecture schools need to do more than just groom top notch design talent; they need to prepare students for lives as entrepreneurs. But as we learned in countless interviews with design professionals in New York, the city's design universities are lacking in this area. Courses on tax filing for freelancers and small business owners, intellectual property law, funding, and sourcing, among many other nuts and bolts issues, should be developed or expanded for both undergraduate and graduate design students. Also, designers who are already practicing in their fields, sometimes at very high levels, are increasingly stepping away from jobs inside organizations and corporations to start their own businesses—and they are desperately searching for this kind of help as well. As evidenced by FIT's Enterprise Center, which has a number of courses for non-students in the fashion industry, the schools could step in to help fill this gap. However, the city has a role as well. The Economic Development Corporation (EDC), in particular, should look for ways to expand their entrepreneurship offerings to professionals and recent graduates in the design fields, something they have already begun to do for fashion designers and artists but not yet for other kinds of designers.

Connect design and architecture students to small businesses in New York that could benefit from better design. Talented design students could provide an immense service to small independent retailers, restaurants, bakeries, manufacturers and non-profits by redesigning their logos, awnings, menus, interiors and internet presences, perhaps even connecting them to social media opportunities on Twitter or Google ads. Partnerships like this would not only put the participating businesses and non-profits in a more competitive position but it would provide the students with valuable private sector experience. To make this happen, New York's design schools should be assertive in forging partnerships with organizations that provide assistance to small businesses, such as Business Improvement Districts (BIDs), local development corporations (LDCs), microfinance organizations and local chambers of commerce. At the same time, city, state and federal government agencies that support small businesses in New York should help the schools make these connections, including: the city's Department of Small Business Services (SBS), which oversees a number of Small Business Solutions Centers across the city and administers the Avenue NYC program, which focuses on improving commercial corridors through façade improvement and other efforts; the U.S. Small Business Administration (SBA), which operates several Small Business Development Centers (SBDCs) in the five boroughs; and the state's Office of Community Renewal, which runs the New York Main Street program, a statewide initiative that supports targeted commercial/residential improvements such as façade renovations, interior residential building upgrades, and streetscape enhancements. In the case of slightly larger businesses like manufacturers or health care providers, design internships could be arranged, something the Pratt Center for Community Development has been working on in the case of manufacturers. Students could be paired on an individual basis with the establishments that have decided to enter the program, and a small fund could be set up to make some of the student proposals a reality and encourage businesses to take part.

Develop programs that capitalize on New York's strengths in business consulting, philanthropy, and health care. New York is a global leader in business consulting, health care research and philanthropy, but with the exception of philanthropy, New York's design schools have not developed significant programs and concentrations to prepare students to enter these fields. More could also be done in the area of philanthropy, where the schools have developed a number of promising initiatives—from social innovation concentrations at SVA and Parsons to the Pratt Incubator for Sustainable Development at Pratt. Given New York's unparalleled concentration of non-profits, there is clear potential for expanding current design school initiatives focusing on social design and making the city a global leader in this still emerging field.

Link New York's new applied sciences campus to design. The Bloomberg administration has won international acclaim for its plan to create a new applied sciences and engineering campus, an initiative that is at least partly intended to stimulate new tech start-ups in the city. Surprisingly, however, there has been hardly any mention of linking the new campus to New York's one-of-a-kind design sector or partnering with the city's design schools. The two universities that were selected to develop the new applied sciences center—Cornell University and the Technion-Israel Institute of Technology—have said that research at their new Roosevelt Island campus would concentrate on health care, environmental technology and digital media. Meanwhile, NYU has proposed an applied sciences campus in downtown Brooklyn that would concentrate on research into the built urban environment and officials at Columbia have similarly indicated that health and bioscience research will figure prominently at their proposed Manhattanville campus. Designers and architects have a huge role to play in all of

these areas. In fact, at other prominent research institutions across the country, from MIT's media lab to the Mayo Clinic's innovation center, designers are already contributing to a wide variety of breakthroughs and business spin-offs. There is still time to incorporate a role for design, and EDC should push for this to happen.

Develop new design incubators and work share spaces for promising graduates. The city's design and architecture schools are graduating hundreds, if not thousands, of talented students every year who would rather produce their own designs and start their own businesses than continue on traditional career paths with big companies. But accessing the space and practical know-how necessary for success is a big and growing challenge for many of these graduates. Currently, only one of the city's top design schools—Pratt—has an incubator for design start-ups. EDC should work with the schools to develop new incubators, and also consider expanding the three existing design incubators—Pratt's design incubator, the New York Designs incubator at LaGuardia Community College and the CFDA Fashion Incubator.

Develop a high-profile design week, and make the city's design schools a key part of it. In February 2012, City Council Speaker Christine Quinn announced a plan to develop New York City Design Week, an idea we pitched in our 2011 Growth by Design study. The Bloomberg administration should get behind the Speaker's initiative, which could serve as a powerful showcase for New York's thriving design industries. As city officials develop the concept, they should consult leaders of the city's design schools and look to the schools for programming. New York's design and architecture schools put on not only dozens of student shows and exhibitions that could benefit from the increased exposure of a New York City Design Week but conferences and panels too. An ambitious, city-wide promotional event would also be a good opportunity for the schools to look for ways to collaborate or begin new promotional

efforts like sponsoring student booths at the International Contemporary Furniture Fair or the International Gift Fair.

Develop innovative interdisciplinary programs. The city's design and architecture schools could contribute even more to local entrepreneurship and economic growth if they broke down disciplinary barriers to develop innovative programs that matched designers with business students and engineers. Ambitious post-graduate degree programs in other cities have started to do this with remarkable success. However, even relatively small initiatives like matching young design entrepreneurs with interested business school students, as the CFDA has started to do with young fashion companies, could make a big difference. The designers would learn how to produce basic financial documents, such as cash flow statements, and the business school students would get the opportunity to work with a live business in an exciting industry.

1. Jim O'Grady and Jonathan Bowles, "Building New York City's Innovation Economy," Center for an Urban Future, September 2009.

2. The ten schools are: Cooper Union's Schools of Architecture and Art; Columbia University's Graduate School of Architecture, Planning and Preservation; the Fashion Institute of Technology; LIM College; NYIT School of Architecture & Design; the New York School of Interior Design, Parsons The New School for Design; the Pratt Institute; the School of Visual Arts; the Spitzer School of Architecture at City College. Other institutions offering rigorous classes in the design fields include: 3rd Ward, General Assembly, Studio Jewelers, New York University, and Queens College. The Art Institute of New York, Kingsborough Community College, LaGuardia Community College, and the Wood Tobe Coburn School also offer certificates and associates degrees in a number of design fields.

3. 2009 survey from the Strategic National Arts Alumni Project (SNAAP).

4. O'Grady and Bowles; Association of University Technology Managers, "U.S. Licensing Activity Survey: FY 2007." Our start-up total for New York (21) does not include Rockefeller University, which did not allow AUTM to publish their data, or Weill Cornell Medical Center. Cornell University produced 2 start-ups in 2007, but it is not clear how many of those emanated from research at its Manhattan medical school versus its main campus in Ithaca. According to Rockefeller University, it has produced just 14 startups in the last 15 years.

5. Institutional Postsecondary Data System (IPEDS). Includes all degrees awarded by four year colleges and universities in 2010.

6. IPEDS. Includes degrees awarded by all postsecondary institutions in New York City, including two year colleges.

7. Two other New York City schools—Pratt (#24) and LIM College (#49)—were also ranked in the top 50.

8. In a list of 60 schools worldwide, generated through a survey of industry leaders and published in 2007, *Bloomberg Businessweek* included programs at all four schools; in a similar list of 30 worldwide schools published in 2009, the publication included programs at SVA and Pratt.

9. IPEDS and the Institute of International Education (IIE). The seven schools are: Cooper Union, FIT, Parsons, Pratt, NYIT, SVA and City College.

10. See for example: The Organisation for Economic Co-Operation Development (OECD), "SMEs, Entrepreneurship and Innovation," 2010.

11. Steven Kurutz, "On Kickstarter Designer's Dreams Materialize," *New York Times*, September 21, 2011.

12. IPEDS. These numbers include all degrees awarded by four year colleges and universities. Community colleges and other schools offering primarily certificate and associates degrees were not included. Also, schools offering primarily online classes were not included in this analysis.

13. IPEDS and institutions. See endnote 2 above for a list of the ten schools we included in our calculations.

14. IPEDS. To arrive at this number we evaluated full time student enrollment numbers for 35 accredited universities and colleges in NYC.

15. IPEDS. To arrive at this number, we evaluated full time student enrollment numbers for the seven non-NYC AICAD schools that were in the consortium's top ten by number of students. These include: The Art Center College of Design; California College of the Arts; Maryland Institute College of Art; Massachusetts College of Art and Design; the Rhode Island School of Design; the School of the Art Institute of Chicago; and the University of the Arts.

16. The seven schools considered in this analysis are: The Cooper Union for the Advancement of Science and Art; the Fashion Institute of Technology; LIM College; the New York School of Interior Design; Parsons The New School for Design: Pratt Institute; and the School of Visual Arts.

17. Both percentages are based on 2010 non-resident alien and total student enrollment figures.

18. According to the Columbia University website, 216 non-resident aliens were enrolled at GSAPP in 2010.

19. IPEDS and IIE. See endnote 9.

20. IPEDS.

21. The Institute of International Education (IIE), Open Doors 2011.

22. Seventeen out of 144 New York City design school graduates were founders, while 11 were non-founding executives or principals.

23. See Rockefeller Foundation and Continuum, "Design for Social Impact," July, 2008. http://continuuminnovation.com/Work/Portfolio/Rockefeller-Foundation/social_impact_workshop.aspx

24. Amy Gendler, the director of AIGA China, says that the Chinese government has been investing heavily in design education. According to her estimates, over 1,400 schools in China are now teaching design, and 250,000 graduate every year.

25. Lou Yongqi, a professor of design at Tongji University in Shanghai, says that the Shanghai municipal government has developed creative industry parks all over the city, turning, in most cases, defunct factories into spaces for creative businesses. "There are thousands of small and medium-sized companies in the Tongji area similar to Silicon Valley around Stanford University," he says.

26. Economic Development Corporation (EDC), "Mayor Bloomberg, Cornell President Skorton And Technion President Lavie Announce Historic Partnership to Build a New Applied Sciences Campus on Roosevelt Island," December 19, 2011

27. Pratt's design incubator is not the only design-focused incubator in the city, but it is the only one affiliated with one of the city's major design universities. The city also boasts New York Designs, an incubator at LaGuardia Community College, and the CFDA Fashion Incubator.

More than half of designers

56%
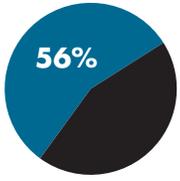
who don't already run a business say they plan to start their own company

Designing New York's Future

New York City graduates twice as many students in design and architecture as any other U.S. city, but the city's design schools are not only providing the talent pipeline for New York's creative industries—they have become critical catalysts for innovation, entrepreneurship and economic growth

Growth of design/ architecture degrees vs all majors

40% — Design/Arch
20% — All majors
2010
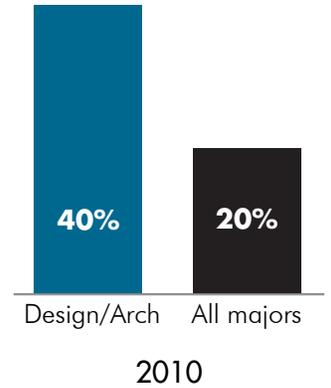
NYC schools issued 4,278 design and arch. degrees in 2010
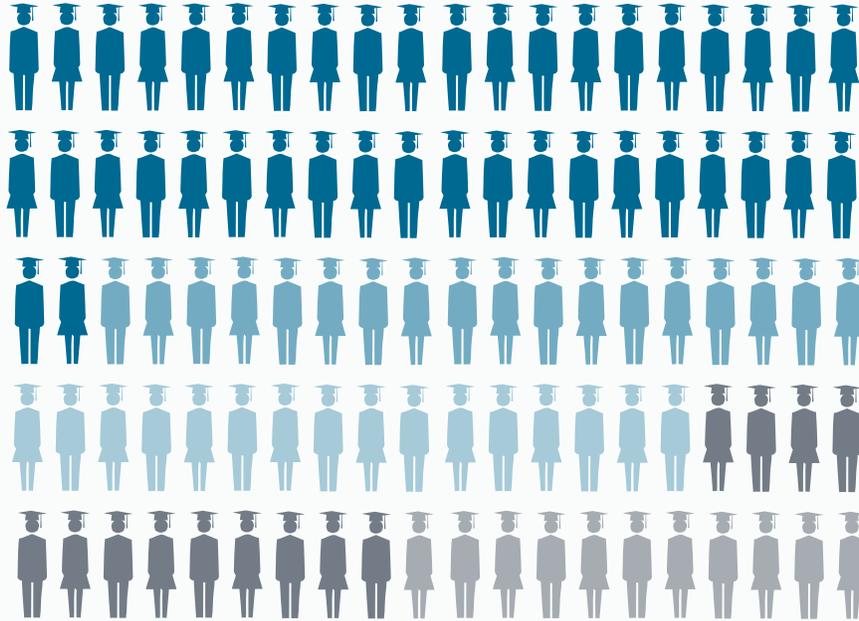
## compared to 1,769 in LA, 1,552 in Chicago, 1,343 in SF, and 1,128 in Boston

Percentage of foreign students at NYC design schools vs schools in other cities

20% — Largest NYC design schools
11% — Largest Schools in AICAD outside of NYC
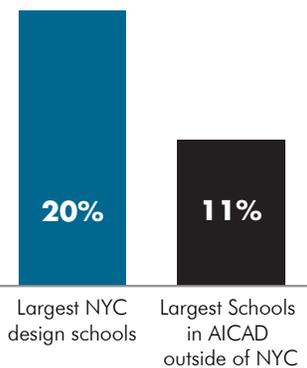
NYC is home to

4

of the top 10 nationwide design schools by the number of degrees awarded annually
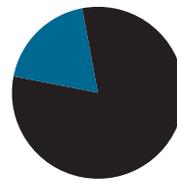
19% of Parsons, Pratt and SVA graduates have started their own businesses

129

of 386 members of the Council of Fashion Designers of America (CFDA) attended NYC schools

Center *for an* Urban Future

120 Wall Street, Floor 20
New York, NY 10005

This report and all other publications issued by
the Center for an Urban Future can be viewed
at www.nycfuture.org. Please subscribe to our
monthly e-mail bulletin by contacting us at
cuf@nycfuture.org or (212) 479-3344.

Center *for an* Urban Future