

Re-seeding the Garden State's economic growth: A vision for New Jersey

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Preface

The Great Recession of 2008-2009 left many states, including New Jersey, reeling. And, like many other states—and the US economy overall— New Jersey has not yet got back to the rate of growth seen before the global financial crisis. Unlike many other states, however, we in New Jersey do have an outstanding opportunity to reignite our growth. If New Jersey makes the right choices now, it can create a future-oriented, high-growth economy.

This report is intended to assist New Jersey’s leaders in understanding the dimensions of the state’s economic potential. With it, we hope to provide an objective, non-partisan analysis of the Garden State’s economic strengths, informed by extensive economic and business data, by insights from 70 prominent business leaders, and by a survey of the state’s business community.

This report reflects a collaboration between McKinsey & Company’s New Jersey and Philadelphia offices, its Public and Social Sector Practice, and the McKinsey Global Institute. McKinsey Partner Mike Kerlin and Senior Partner Steve Van Kuiken led this research, together with Tyler Duvall, Paula Ramos, and Zachary Surak – all McKinsey Partners. Lesley Pandey, a consultant in McKinsey’s New Jersey Office, led the project team, which consisted of Reinier van der Lely and Gillian Almeida.

We are grateful for the advice and input of many McKinsey colleagues and experts. Michael Della Rocca and Sree Ramaswamy provided invaluable guidance throughout the effort. We thank Geoffrey Lewis, who provided editorial support; Jesse Salazar for his help with external relations; Anna Gressel-Bacharan and Melissa Milstead for their guidance on public sector considerations. The final report relied heavily on McKinsey Publishing for its production, content, and graphics expertise. Many leaders in New Jersey have offered invaluable guidance, suggestions, and advice. We thank them for their willingness to help us shape this research.

With this report, McKinsey hopes to start productive, non-partisan conversations that will lead to distinctive, lasting, and substantial improvements in the New Jersey economy. No single institution or sector can make the changes the state needs. It will take dedicated efforts by the private, social, and public sectors—and the involvement of us all —to make the Garden State a growth leader again.

This work is independent, non-partisan, and objective; it has not been commissioned or sponsored in any way by any business, government, or other institution.

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In brief

New Jersey has significant economic strengths, including strong positions in knowledge-intensive industries such as pharmaceuticals, finance, and technology. It has a highly educated labor force and a uniquely advantageous location for participating in international trade and providing logistics services on the Northeast Corridor. Yet, in recent years, the state has not translated these advantages into rapid growth. If its private, social, and public sectors address these barriers to growth and focus on ways to nurture new businesses, New Jersey can build on its strengths and become a future-oriented, high-growth economy in the coming decade. The 2008-09 recession hit the state hard—GDP declined by 4.6 per cent and employment fell by 4.3 per cent between December 2006 and December 2009. Recovery has been weaker in New Jersey than across the nation: US GDP advanced by 1.4 per cent per year from 2005 to 2015, but growth in New Jersey averaged just 0.3 percent. Growth in both employment and median income in New Jersey was flat between 2006 and 2016.

This performance can be attributed to four major factors that reduce dynamism in the New Jersey economy and depress growth.

1. New Jersey has relatively few young companies that have grown into major employers.
2. Aging transportation infrastructure exacts a toll on productivity and high maintenance costs divert public funds from other uses.
3. There is a growing mismatch between the type of middle-skill workers New Jersey has and middle-skill jobs that employers need to fill.
4. New Jersey has focused business incentives on retaining major employers and therefore has created fewer new jobs than states that aim more incentives at new businesses

New Jersey could address these four drags on growth by learning from the best practices of other states. Some states, for example, have created a more supportive environment for growing startups into large-scale businesses. New Jersey could invest in improving the quality of its transportation infrastructure and better manage traffic flows to avoid congestion. To improve labor-market matching, New Jersey could emulate other states and work with employers to create training programs and post-secondary curricula to qualify middle-skill workers for positions in growing fields such as health care. And the state could seek to get better returns on economic development programs by focusing on fast-growing young firms and targeting foreign investors.

New Jersey is well positioned to ride growth trends in several industries where it could build on established strengths. Examples include biotech, logistics for e-commerce, and cybersecurity.

We estimate that by addressing the four factors described above, New Jersey has the opportunity to make up for the growth it has missed out on in the past decade. If the state can keep pace with the U.S. economy, it can vastly increase economic opportunity in the state. By reaching the national average for growth, the state will expand its economy by more than \$150 billion and create more than 250,000 jobs over the next decade.

New Jersey's economy today

The State of New Jersey has a proud place in the history of the United States. It played a leading role in the founding of the nation and was an engine of growth for the economy through much of the 19th and 20th centuries. It gave the nation Campbell's soup, Victor phonographs, RCA televisions, and the TV dinner. It is where Thomas Edison did most of his work and Albert Einstein pushed the boundaries of science.

In the 21st century, the state retains many of its core advantages. Its 9 million people make it the 11th largest state in terms of population and employment. With \$508 billion in annual GDP (in 2015), New Jersey is the eighth-largest state economy.¹ New Jersey is No. 3 among the states in median household income (\$68,357 vs. \$56,516 nationally in 2015).² And it remains a favored location for major corporations, with 19 Fortune 500 companies headquartered within its borders.³ New Jersey is home to high value-added industries, ranging from pharmaceuticals to information and communication technology, and financial services. According to our survey of business leaders, New Jersey's highly educated labor force—37 percent of workers have four-year college degrees compared with 30 percent across the United States—is one of the main reasons to locate in the state.

New Jersey's highly advantageous location is perhaps its most enduring economic strength, and has helped make it a global leader in trade and a critical hub for logistics. The Port of New Jersey / New York is the third-largest in volume in the country and the largest in the value of goods that flow in and out. Equally important, New Jersey sits at the heart of the Northeast Corridor, the densely populated region that extends from Boston to Washington DC and generates 22 percent of US GDP. This gives New Jersey proximity to large markets, innovation clusters, and robust supply chains.

However, in the 21st century, these advantages have not generated strong growth (Exhibit 1). A decade after the onset of the global financial crisis, New Jersey's economy is still struggling to grow. State GDP grew by just 0.3 percent on average, from 2005 to 2015, compared with 1.4 percent for the United States overall. Out of 19 leading industries in New Jersey, 16 grew at rates below their industry's national average from 2010 to 2015. And, although the median household income in New Jersey remains high, it is barely growing, and total employment was nearly flat from 2005 to 2015. Critically, New Jersey continues to lag the rest of the United States in productivity growth, a trend that began in the mid-1990s and acts as a drag on the state's GDP.⁴ At the same time, the cost of doing business has risen faster than the national average and in surveys, the state consistently ranks in the bottom quartile. In 2016, CNBC ranked New Jersey 42nd out of 50 states in business friendliness because of its complex regulations.⁵

The overall picture is one of great potential that is currently tempered by weak economic dynamism. Other states have been able to tap new sources of growth and have made their economies more attractive to investors in the past decade through investments in infrastructure and training, for example. But little has changed in the New Jersey economy in the past decade.

We identify four major factors that limit dynamism in the New Jersey economy and depress growth. First, New Jersey has relatively few young companies that have grown into major employers (with more than 500 employees). New Jersey has about as many startups as other states, but fewer of them scale up into large businesses. Dynamism is also inhibited by New Jersey's aging infrastructure, which exacts a toll on productivity, raises the cost of doing business, and diverts public funds from uses that might generate more growth.

1 Bureau of Economic Analysis.

2 American Community Survey, US Census.

3 Eric Strauss, "19 New Jersey companies make 2015 Fortune 500 list," NJ Biz, June 4, 2015.

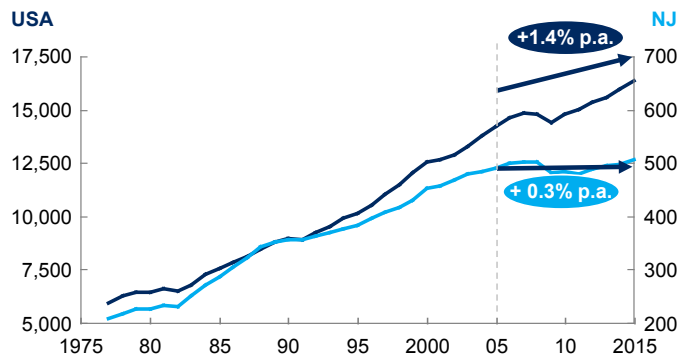
4 *The US Economy: An agenda for inclusive growth*, McKinsey Global Institute, November 2016.

5 America's Top States for Business 2016: A scorecard on state economic climate, CNBC.com

Exhibit 1 New Jersey has been trailing the US economy since the 1990s

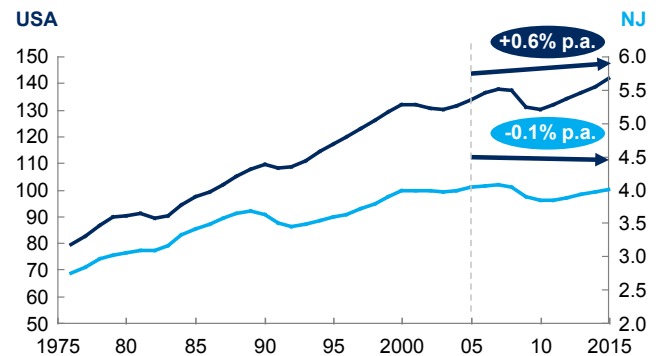
NJ GDP growth has trailed the US in GDP growth ...

GDP in \$US bln, Chained to 2009 \$



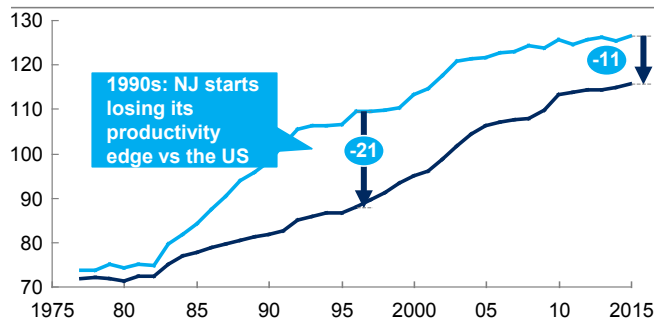
... as well as in employment growth

Private non-farm employment, millions of employed workers



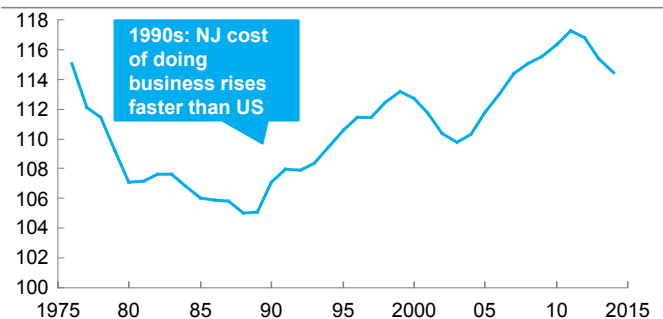
Further exacerbated by below-average productivity growth...

Productivity, \$000s



... and an increasing cost of doing business

Cost of Doing Business Index, 100 = USA



¹ Productivity is measured as Real GDP (at chained 2009 US\$) / employment

SOURCE: BEA, BLS, Moody's analytics

Third, New Jersey has a significant labor-market mismatch between demand for middle-skill workers and the supply of workers with appropriate skills. Finally, New Jersey's efforts to spur growth through tax breaks and other incentives for employers to locate or remain in the state have not been as effective as similar programs in other states; New Jersey has been good at retaining existing employers, but other states do more to attract fast-growth companies.

- Growing young businesses:** Young, fast-growing firms create most of the jobs in the United States. In New Jersey, only 5 per cent of companies with 500 employees or more are less than 10 years old, compared with 11 per cent across the United States. New Jersey attracts less venture capital per capita than peer states with similar types of economies. And some other states have created better environments for fast-growing young companies by improving access to capital through angel investing credits, setting up business incubators, and helping firms navigate state and local regulations.
- Improving transportation infrastructure:** Aging transportation infrastructure and congestion are a drag on productivity, raise the cost of doing business, and restrict worker mobility across the region. Congestion and poor road conditions cost New Jersey motorists an estimated \$5.2 billion a year in time, wasted fuel, and repairs.⁶ To help address the infrastructure problem, New Jersey could consider shifting more funding to long-term improvements, adopting methods for optimizing infrastructure spending, encouraging transit-oriented development, and taking additional steps to rebalance traffic flows.

⁶ Report Card for New Jersey's Infrastructure 2016, American Society of Civil Engineers, 2016.

- **Addressing workforce imbalances:** The skills of the labor force in New Jersey are not well aligned with demand. There are more high- and low-skill workers in New Jersey than employers need, and more middle-skill jobs than qualified middle-skill applicants. The economy has shifted successfully from a heavy reliance on traditional manufacturing to services and advanced manufacturing (pharmaceuticals, for example), but relatively few of New Jersey’s middle-skill workers (with less than a four-year post-secondary degree) are qualified for the middle-skill jobs that are available today, such as health technicians, construction service workers, heavy vehicle maintenance, and retail managers. This shortage is exacerbated by the outmigration of young millennials from New Jersey, including many middle-skill workers. New Jersey could increase the supply of “job-ready” middle-skill workers by expanding access to vocational training, partnering with companies to tailor college curricula, and putting in place other measures to train workers in skills demanded by the private sector.
- **Tailoring incentives for growth:** New Jersey’s capital outlays (for building construction, land alterations, and infrastructure expansion, etc.) and business development efforts have had relatively modest impact on growth. New Jersey pays ~5x more for each job affected and ~6x more per dollar of investment attracted than peer states. Over 80 percent of incentive deals are geared to older domestic companies, even though younger firms and foreign companies, on average, invest more capital in operations and create more jobs. Other states have gotten higher returns by continuously monitoring the economic gains from their investment, enforcing claw-back provisions for incentives that do not produce returns, and focusing investment in industry clusters where young companies can blossom.



Unleashing growth enablers in New Jersey

If addressed forcefully, each obstacle New Jersey faces could be turned into an enabler of economic growth. For example, by better nurturing fast-growing companies, New Jersey could benefit from similar levels of job creation that other states get from start-ups. Modernizing infrastructure could speed up commerce and raise productivity. Efforts by companies and the education system to train middle-skill workers for jobs that are in demand could help to raise employment and accelerate growth. And New Jersey could improve the impact of its investments in growth, such as tax incentives for companies locating operations in the state. All these things can happen in New Jersey.

Here we look at how the four major factors inhibiting growth can be turned into growth enablers if New Jersey follows the lead of other states and applies its own best practices more broadly.

We believe that by building up these growth enablers, New Jersey has the potential to make up for a decade of growth that trailed the national average. If the state can keep pace with the U.S. economy, it can vastly increase economic opportunity in the state. By reaching the national average for growth, the state will expand its economy by \$170 billion and create 250,000 jobs over the next decade. Below we lay out the factors that have held our growth and employment back in the past and the ingredients that can push us ahead in the future.⁷

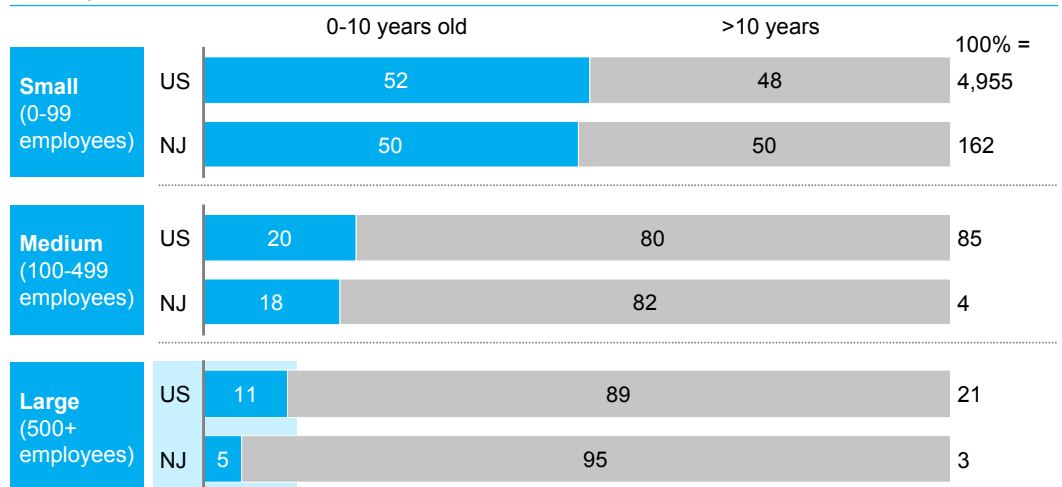
Growing young companies

Young, fast-growing companies are an important enabler of growth. Across the country, startups and other small firms are the largest net job creators, according to US Census data. And wherever they thrive, young companies also generate demand for business services and contribute to a more dynamic business environment. The rate of business starts in New Jersey is comparable to the US average, but New Jersey attracts less venture capital per capita than peer states.⁸ And fewer fast-growth companies grow into major employers in New Jersey; only 5 percent of New Jersey companies that are 10 years old or younger employ 500 or more workers, compared with 11 percent across the United States (Exhibit 2).

Exhibit 2 New Jersey has fewer fast-growing, young companies

2014 share of total companies by age and size

Percent, 000s of firms



New Jersey has approximately half the share of young firms (0-10 years) that grew rapidly compared to the US

SOURCE: US Census Business Dynamics Statistics

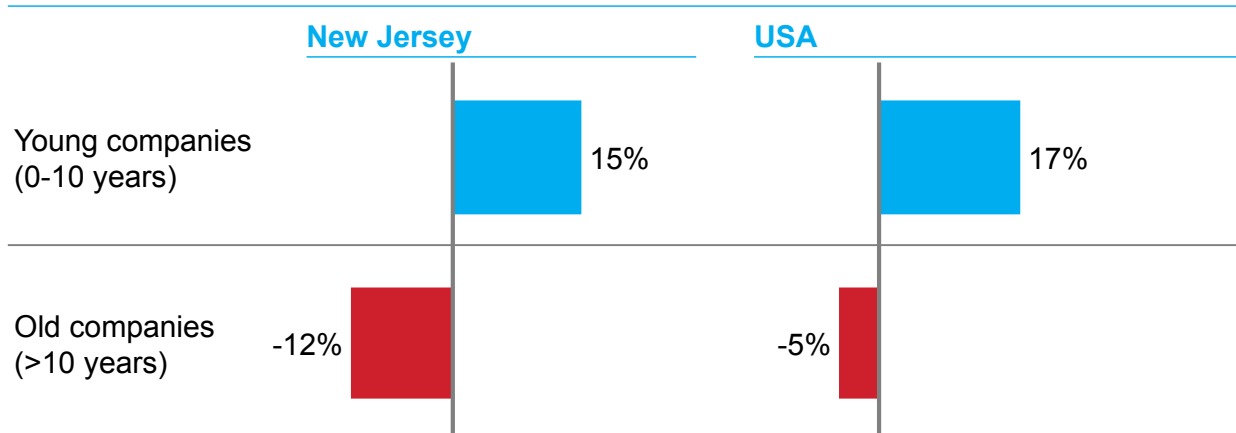
⁷ Forecasted growth rate of New Jersey GDP is based on Bureau of Economic Analysis estimate; Pitchbook.com

⁸ Best States for Doing Business, Forbes.com, 2016.

Exhibit 3 Young companies have been the net job creators, across the US and in New Jersey

Net job creation by age of firm

% growth in total employment, 2004-2014



SOURCE: US Census Business Dynamics Statistics

The lack of fast-growing young firms—and the higher proportion of older corporations—has been a factor in slow growth in New Jersey. Few mature businesses grow faster than the overall economy and large companies generally create relatively few new jobs, but young companies can double in size in a year or two and may be adding jobs for many years to keep up with growth. In New Jersey, employment in companies less than 10 years old grew by 15 percent from 2004 to 2014, somewhat below the US average, while employment in companies aged 10 years or older fell by 12 percent—far more than the US average (Exhibit 3).

States that have many large-scale young businesses have done more to support startups, including by providing a more attractive overall business environment. In national surveys, New Jersey ranks relatively poorly on metrics such as regulatory environment and cost of doing business. For example, it was ranked 48th in cost of doing business by Forbes because of labor rates, energy costs, and taxes. New Jersey also has been less successful than other states in landing federal small business funding; for example, it only received \$32 per capita in Small Business Innovation Research awards from 2010 to 2015, compared with \$214 per capita in Massachusetts.⁹

“The entrepreneurial ecosystem is weak in New Jersey.

Although there are some incubators, accelerators and co-working spaces they are not on par with other places”

—Technology executive

To turn this around, New Jersey could look to the experience of other states that have created an environment in which young companies thrive and grow large. This might involve action on a number of fronts, which could range from creating access to financing to helping in regulatory compliance.

- Incubators and other support services.** Some states encourage home-grown startups and attract entrepreneurs by supporting incubators. New Jersey has only 15 incubators and business accelerators, compared with 375 in California and 179 in New York.¹⁰ Maryland works with the University of Maryland to create incubators with state-of-the-art facilities and on-site business services. Through Maryland’s overseas economic development arm, the incubators are connected with joint ventures in China, India, Russia, and other countries.
- Finance.** Today, New Jersey is attracting a moderate amount of venture capital—\$1,493 per capita from 2010 to 2014.¹¹ That is far below the \$9,347 of Massachusetts, and 20 percent below New York’s \$1,863. Access to early-stage capital is also critically important for encouraging startups. Tennessee, for example, recently launched an angel investor tax credit (see Box 1. How Tennessee supports fast-growing companies).

⁹ SBIR/STTR Program, US Small Business Administration (SBA), www.sbir.gov.

¹⁰ Pitchbook

¹¹ Pitchbook

Box 1

How Tennessee supports fast-growing companies

Tennessee has made itself a favored location for small fast-growing companies through a series of state initiatives, collaboration with the private sector, and public/private partnerships. It has launched six entrepreneurship centers around the state, which connect startups with mentors, researchers, and investors. More than 500 companies have gone through these accelerators and the INCITE Co-Investment fund, which uses federal funding to match private funding, has invested \$116 million in Tennessee startups. The state's angel investing tax credit and Launch Tennessee have helped raise more than \$1 billion in venture investing in Tennessee, including \$138 million for companies that went through the accelerator program. Finally, Tennessee has partnered with the Oak Ridge National Laboratory to provide R&D services and improve innovative capabilities of Tennessee firms. An R&D voucher program helped attract Local Motors, a maker of self-driving vehicles that uses small, local factories.

- **Regulation.** As noted, in national surveys companies rate New Jersey poorly for its regulatory system, which is regarded as highly complex. There are more than 500 municipalities, each with its own rules for zoning and business regulation as well as county and state regulations. The process of getting approvals can be daunting for a young company. New Jersey could consider specific initiatives to ease the way for growing companies, such as providing assistance to help young businesses navigate the regulatory system. In New York, Indiana and other states, public-private partnerships (PPPs) have been established to assist small businesses in the regulatory process and expedite approvals for new buildings or licenses. Some states offer such assistance from state agencies. Other states have launched efforts to streamline regulatory processes specifically to help young businesses.

Improving infrastructure

New Jersey has extensive transportation infrastructure, but it is also the most densely populated state and its roads are highly congested, impeding commerce, limiting productivity, and exacting a high cost on the state and its residents. High density is the result of New Jersey's unusual geographic situation: it is part of two large metropolitan areas (New York and Philadelphia) that are only about 80 miles apart. In 2014, the New York-Newark-Jersey City metro area had the highest congestion costs in the nation, at nearly \$15 billion, and the Philadelphia-Camden-Wilmington metro area ranked eighth nation-wide, at \$3.7 billion.¹² The congestion problem could grow worse if, as predicted, traffic volume in New Jersey increases by 15 percent by 2030.¹³ As in comparable states, such as Massachusetts and Maryland, traffic growth is occurring almost entirely in already-congested areas. In New Jersey, this could mean even longer traffic jams around New York and Philadelphia.

New Jersey drivers already lose an estimated \$5.2 billion per year to congestion in wasted fuel and lost time.¹⁴ Businesses lose an incalculable amount of productivity to delays in moving supplies, goods, and personnel. And congestion ranks second only to the high cost of doing business as the reason companies cite for not locating to or expanding in New Jersey; business leaders rank New Jersey 44th among states for infrastructure quality.

“There is no easy way to get to our offices from New York City and it is very difficult for me to do site visits given the congestion in Northern NJ”

—Retail executive

The cost of congestion is only one way that aging infrastructure holds New Jersey back. Two-thirds of New Jersey's roads are in poor or mediocre condition and 36 percent of its bridges are structurally deficient or functionally obsolete. The average New Jersey motorist spends \$601 a year on vehicle repairs and additional operating costs caused by poorly maintained roads, more than any of its peer states (Exhibit 4). The average bridge in New Jersey is 51 years old compared with 43 years old across the country (most bridges have a useful life of 50 years).¹⁵

Aging bridges and highways require continuous repairs, adding to congestion and consuming a large share of New Jersey's transportation funding. New Jersey disbursed \$306,000 per state controlled lane mile in capital and bridge spending, maintenance and administrative expenses in 2013, compared with \$113,000 in New York and \$50,000 on average per state nationwide.¹⁶

With budget constraints, New Jersey has concentrated on repairing old roads, leaving limited funds for the new construction that could help address the long-term challenge. Spending for road operations and maintenance rose by 68 percent from 2010 to 2014, while spending on capital construction dropped by 37 percent from 2010 to 2013, before turning up in 2014.¹⁷

Tackling infrastructure takes a sustained effort and considerable investment. New Jersey is already working on the challenge. In 2016, the State legislature did pass a 23 cents per gallon hike in gasoline tax—the first increase in 28 years—which is expected to generate \$32 billion for the State's highway trust fund.¹⁸

¹² American Community Survey, US Census.

¹³ Report Card for New Jersey's Infrastructure 2016, American Society of Civil Engineers, 2016.

¹⁴ Ibid.

¹⁵ Ibid.

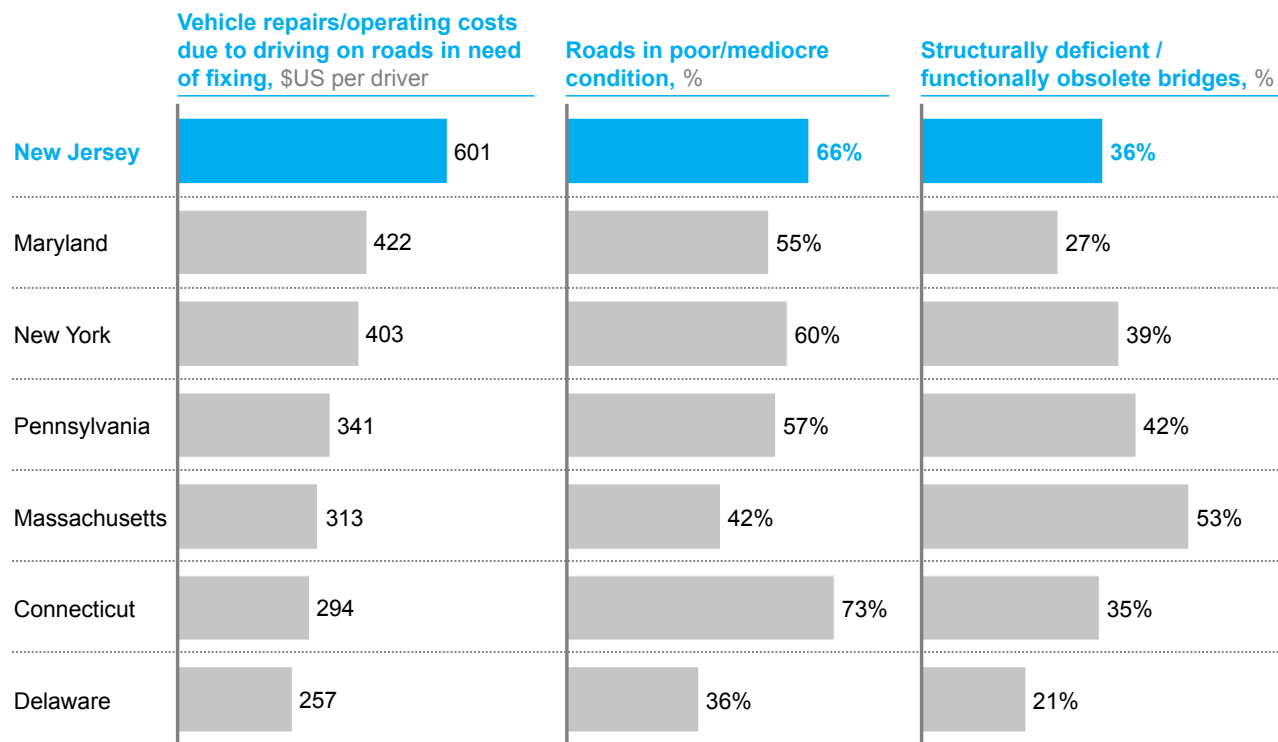
¹⁶ 22nd Annual Highway Report, Reason Foundation, 2015.

¹⁷ The Cost of Roadway Construction, Operations and Maintenance in New Jersey, Rutgers University, 2016

¹⁸ Patrick McGeehan, “New Jersey Will Increase Gas Tax 23¢, Ending Long Political Stalemate,” The New York Times, September 30, 2016.

Exhibit 4 Poor road conditions cost the average NJ driver more than \$600 a year

Road and bridge infrastructure of peer states, 2013



NJ's bridges are ~51 years on average, compared to the a national average of 43 years and an expected life of 50 years

SOURCE: Federal Highway Administration (Transportation.gov), ASCE infrastructure report card (2013)

As it increases efforts to upgrade transportation infrastructure to reduce congestion, New Jersey can look to successful efforts in other parts of the country. These efforts generally fall into two categories: optimizing infrastructure spending to get the most value out of investments in new capacity and rebalancing traffic flows to reduce congestion. If New Jersey decides to attack congestion on multiple fronts, it can look to models such as Chicago's GO TO 2040 plan as it considers a comprehensive plan for creating modern, efficient infrastructure (see Box 2, next page, Chicago's road to the future is paved with data).

- Optimize capital spending.** Infrastructure is costly to build and maintain, but there are proven ways to raise the productivity of infrastructure investment by up to 60 percent. The McKinsey Global Institute has identified a series of steps that states can implement to stretch infrastructure dollars, including optimizing project portfolios to prioritize investments that have the greatest benefits, streamlining delivery to save time and money, and make the most of existing infrastructure rather than investing in new infrastructure.¹⁹
- Rebalance traffic flows.** Around the world, cities and nations have worked to reduce highway congestion by finding ways to reduce demand on highways. These efforts include investments in new rail lines (passenger and freight) as well as incentives to choose non-automotive transportation such as congestion pricing. In Europe, for example, the Gotthard Base Tunnel in Switzerland reduced road congestion by completing a rail link that extends from the port of Rotterdam to Genoa. The tunnel, which opened in 2016, is expected to shift goods being transported by more than a million trucks annually to rail transport. In the United States, Amtrak is planning a new high-speed rail service along the Northeast Corridor, which would take some of the burden off New Jersey highways. Having said that, those trains are not expected to run before 2040.

¹⁹ *Infrastructure productivity: How to save \$1 trillion a year*, McKinsey Global Institute, January 2013..

Box 2

Chicago's road to the future is paved with data

The Chicago Metropolitan Agency for Planning (CMAP) has led a regional effort to relieve congestion and improve transportation infrastructure across the Chicago area. Under the banner of “Chicago GO TO 2040,” 284 municipalities have approved a comprehensive plan that relies heavily on data-based decision making to set priorities and determine what projects to fund and which approaches to use. Performance-based funding, using federal highway performance data, provides a transparent method for funding decisions. The same data-driven approach has been used to create the Transportation Financial Plan for the region, which identifies several “fiscally constrained” major capital projects. Using a variety of data tools, including aerial photography, Chicago is tackling traffic flow and improving maintenance programs. CMAP is exploring opportunities to introduce congestion and parking pricing programs to move traffic away from bottleneck areas. It is also exploring a public/private partnership that would work with the city, Amtrak, and freight operators to eliminate bottlenecks in the rail system. Some of the opportunities that have been identified include dedicated trucking routes and a regional freight authority, which would fund capital improvements and address public policy issues.

Congestion pricing can offer a lower cost and faster way to fight congestion. Motorists pay a premium to enter certain high-congestion zones or to travel during rush hours. London is one of the major cities that has successfully used congestion pricing, albeit not without criticism. After congestion pricing was introduced in central London in 2003, travel delays were reduced by 25 percent and traffic speed increased by 30 percent. But congestion pricing is a controversial policy to implement and has not been widely embraced in the United States.

Introduce transit-oriented development. Developing new housing, shops and offices around existing commuter rail lines is a way to cut congestion and improve neighborhoods. Typically, transit-oriented development raises real estate value in the surrounding areas. In places such as Hong Kong, the government has helped fund development through “betterment” assessments, which are levied on nearby property owners to capture some of the windfall.²⁰ Still other value-capture schemes can also be used to get private capital to fund new transit stops that will be the center of development. Transit-oriented development can also help address high housing costs through “inclusionary” zoning, which requires residential projects to include some percentage of affordable units.²¹

Addressing workforce imbalances

The executives we surveyed cite the highly educated labor force as the second most important reason for locating to New Jersey. However, there is a growing mismatch between labor supply and demand. As employment in New Jersey has shifted from manufacturing to services, the state has developed a shortage of middle-skill workers with the skills needed in today’s economy and a surplus of workers at the high and low ends of the skills spectrum. There is a growing need for middle-skill workers (with high school and some college education) in jobs such as healthcare (health technicians), construction services, heavy vehicle maintenance, and retail management, which the New Jersey labor market has trouble filling.²²

This imbalance affects growth. As in other states, New Jersey’s surplus of low-skill workers leads to relatively high levels of unemployment for people with no more than a high school education. The oversupply of high-skill workers with college or graduate degrees leads to unemployment as well as underemployment—high-skill workers accepting jobs below their skill levels. Between these two groups are middle-skill workers, who are in short supply. According to the National Skills Coalition, an estimated 53 percent of all jobs in New Jersey in 2015 were appropriate for middle-skill workers. Furthermore, 50 percent of all job openings between 2014 and 2024 are expected to be middle-skill jobs. However, middle skill workers represent only 37 percent of the labor force in New Jersey

In almost every industry, the shortage of middle-skill workers is an issue. This is likely the result of the shift in the type of industries in the state and changes in the types of skills needed within industries. While manufacturing, which traditionally employed middle-skill workers, went from employing 23 percent of the New Jersey labor force in 1990 to just 6 percent in 2014, healthcare employment has gone from 6 percent of all jobs to 14 percent (Exhibit 5). Also, jobs that once could be filled by anyone with a high school education now require higher skills, including proficiency in analytics, communication, presentation, and computer programs. In health information management, for example, employers seek workers who have both IT backgrounds and are trained in customer service.

The shortage of middle-skill workers can be traced to several factors, including the rising share of New Jersey students who complete college degrees and the outmigration of millennials. In 2015, more than 85 percent of the people leaving New Jersey were in the millennial age bracket (aged 18 to 35 in 2015). The outmigration rate for millennials is six times that of any other age cohort and it is particularly high among the youngest members of the group (18- to 24-year-olds), which includes college students who leave and do not return after graduation. Overall, middle-skill and high-skill millennials are the most likely to leave, contributing to the mismatching for middle-skill positions.

20 *A blueprint for addressing the global affordable housing challenge*, McKinsey Global Institute, October 2014.

21 *Ibid.*

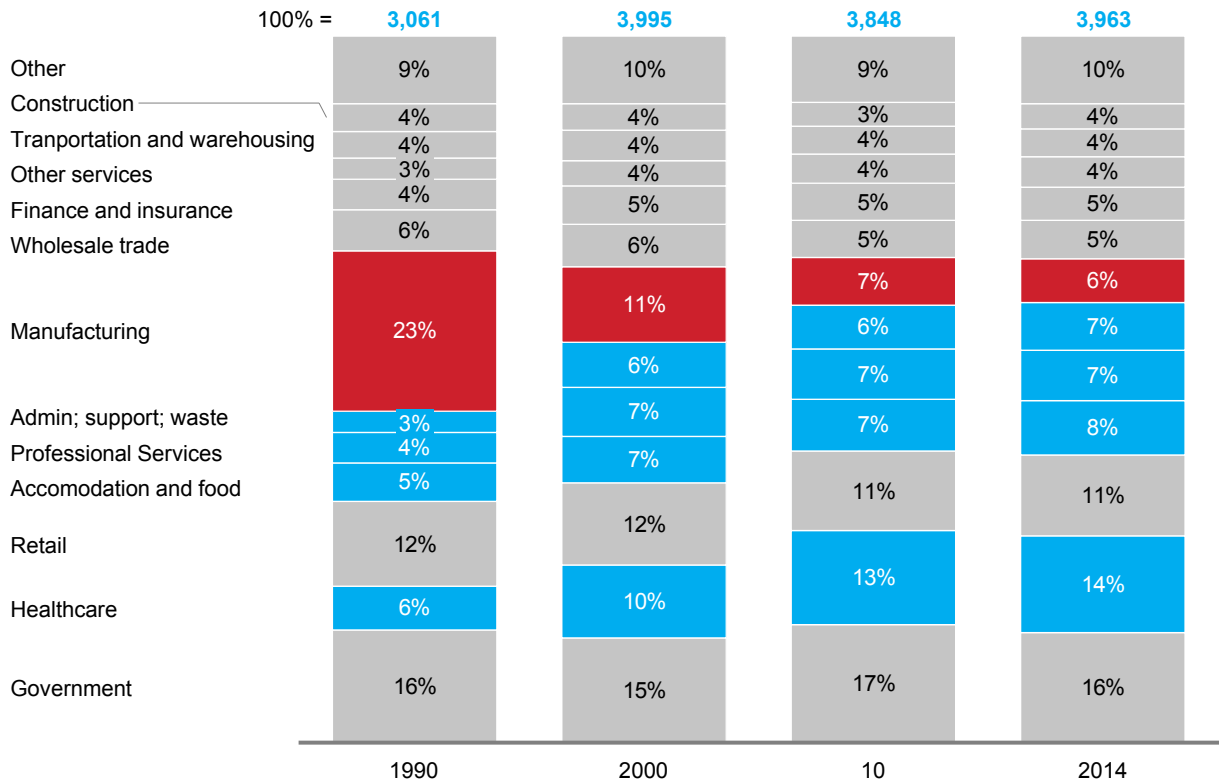
22 For more on middle-skill employment trends, see *Digital America: A tale of the haves and have-mores*, McKinsey Global Institute, December 2015.

Exhibit 5 Employment has shifted from manufacturing to services such as healthcare

Breakdown of New Jersey employment by industry, 1990-2014

% of total employment, 000s of employees

■ Relatively declining sectors
 ■ Relatively growing sectors
 ■ Relatively unchanged



SOURCE: Moody's Analytics, US Bureau of Labor Statistics

The only bright spot is an inflow of college-educated 31- to 35-year-olds, who come to New Jersey for high-level jobs (Exhibit 6).

Another factor contributing to the skills mismatch is the shortage of training opportunities to prepare middle-skill workers for today's economy, which is a nationwide challenge. The United States spends considerably less per capita on vocational training and apprenticeships than other advanced economies. "Earn while you learn" apprenticeships, which are widely used in countries such as Germany, help workers build credentials that make them far more employable, without accumulating excessive student debt.

The share of students in apprenticeship programs in the United States is much lower than in Germany, although it is growing through state-level programs and federal initiatives such as the Virginia Registered Apprenticeship Program.²³ Germany's dual system of education—with students working part-time and attending school part-time—combines high-quality vocational training with apprenticeships in nearly 350 nationally recognized occupations. These programs are closely aligned with the secondary and post-secondary education system. The German approach requires private-sector investment, but participating companies are rewarded with a well-trained talent pool. Most of the dual-system training in countries such as Germany, Austria, and Switzerland is provided by companies.

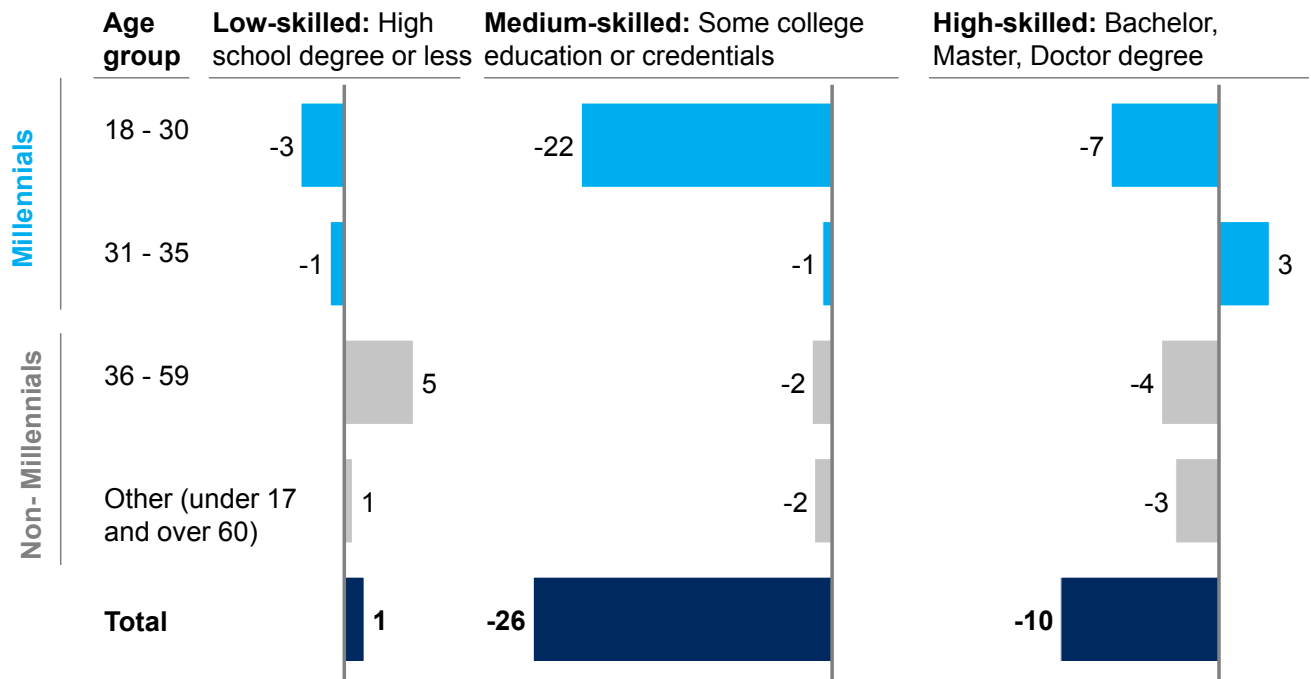
The United States trails other advanced economies in apprenticeship enrollment rates and New Jersey trails the rest of the country. In New Jersey, only 0.15 percent of the employed population was in an apprenticeship program in 2016, compared with 0.26 percent across the United States.²⁴ New Jersey also lags other states in other types of support for middle-skill workers, such as integrated education and training programs, financial aid for occupational training, and "stackable" credentials that employees can build up over time. New Jersey also lacks a comprehensive program to coordinate efforts to train and employ middle-skill workers.

²³ *Game changers: Five opportunities for US growth and renewal*, McKinsey Global Institute, July 2013

²⁴ ApprenticeshipUSA. US Department of Labor Registered Apprenticeship National Results Fiscal Year 2016 (10/01/2015 to 9/30/2016).

Exhibit 6 The majority of millennials leaving NJ are middle- or high-skilled

Net migration of people in New Jersey that changed states/countries in 2015, 000s by age and education attainment
Negative values represents a net out-migration (more people leave than enter the state)



1 Includes middle-skilled workers with Associate's credentials, GED or alternative credentials or 1 year or more of college education
SOURCE: Census, American Community Survey

Other states have addressed the skills issue in the middle of the labor market with a variety of initiatives. Typically, these efforts involve partnering with the private sector to identify high-growth areas that will generate middle-skill jobs, defining skill requirements for high school and post-secondary curricula, and collaborating on skills training. Some states also have established incentives for employers that invest in training that elevates low-skill workers to middle-skill status. Pennsylvania, for example, identified 12 industry clusters and partnered with companies, local workforce development agencies, educators, and nonprofit groups to educate, train, and employ residents in middle-skill jobs. North Carolina has created consortia with community colleges that allow students to earn an associate's degree and a "journeyman" certificate in a middle-skill specialty. Maryland created a state-funded grant program for workforce development that focuses on training outside of traditional educational and training institutions (see Box 3, Moving training beyond the class room in Maryland).

Tailoring incentives for growth

All states make investments to support economic growth. These range from investments in physical infrastructure—building new highways, schools, sewers, and storm drains—to providing tax cuts to attract firms to the state, to sending development officials to trade fairs halfway around the globe to find foreign investors. The State of New Jersey puts a great deal of effort into economic development programs to attract new businesses and help existing businesses thrive. However, these programs are typically less productive than they have been in many peer states.

In terms of capital investment, New Jersey is not putting as much into physical assets as other states. It lags the US average in terms of capital outlays for construction and for the purchase of buildings, equipment, and land, as well as in spending for major alterations. Its investments in new capital projects have trailed the national average since 2000, when the state spent about 1.4 percent of GDP on capital investments compared with more than 2.1 percent across the country. Overall, New Jersey allocates only 7.7 percent of state and local spending to capital outlays, compared with 9.9 percent, on average, across the 50 states.²⁵

Second, New Jersey gets less return on the incentives it provides to attract and retain companies. Like other states, New Jersey offers tax discounts, grants, loans, subsidies and other incentives to convince companies to create jobs and invest capital. On average, states spend 40 cents for every dollar of corporate investment they induce through incentives such as tax abatements. Between 2010 and 2016, New Jersey offered \$1.80 in incentives for every dollar of capital spending by the companies it targeted.²⁶

25 2015 Annual Capital Expenditures Survey, US Census Bureau, February 8, 2017; IncentivesMonitor - WAVTEQ (www.IncentivesMonitor.com); *It's Time for States to Invest in Infrastructure*, Center on Budget and Policy Priorities, February 2016

26 Based on data collected from IncentivesMonitor (www.IncentivesMonitor.com)

Box 3

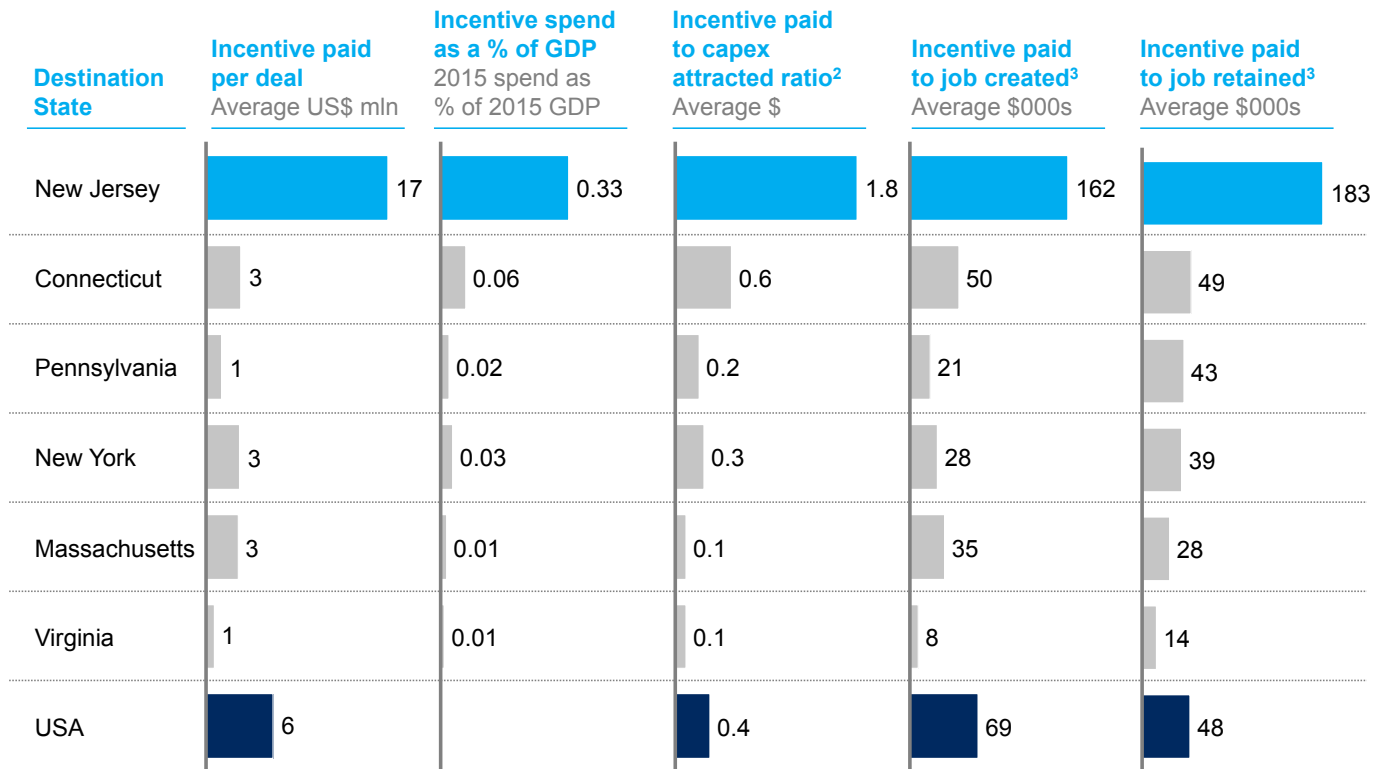
Moving training beyond the classroom in Maryland

Employment Advancement Right Now (EARN) is a state-funded workforce development grant program established by Maryland in 2014. The program provides \$4.5 million annually in funding and technical assistance to regional workforce training partnerships around the state. Each partnership is made up of employers, nonprofits, local secondary school educators, and business/trade associations. Using grants, the partnerships determine the workforce pipeline needs for employers in the area (the relevant skills needed by entry-level workers) then apply for implementation grants to fund training programs. So far, 40 implementation grants have been awarded and more than 650 businesses have contributed to program design and implementation. According to Maryland data, for every dollar invested in EARN, \$14.88 in economic value is created. This compares with \$3.41 for workforce training programs across the United States. More than 1,400 students have completed entry-level training and 3,000 workers have received skill training.

In total, New Jersey's incentives represent 0.33 percent of state GDP, compared with 0.03 percent in New York, which paid 25 cents for every dollar of new private investment. A similar pattern is seen in incentives to bring new jobs to the state or to keep existing jobs in New Jersey. Between 2010 and 2016, US states paid about \$69,000 on average per job attracted through sweeteners such as tax breaks, grants, loans, and subsidies. New Jersey, meanwhile, pays as much as \$162,000 per job. For jobs retained, the US average was \$48,000 (Exhibit 7).

Exhibit 7 NJ pays more than 5 times as much as peer states for every dollar of investment it attracts and for every job created or retained

Incentive deals¹, 2010-2016



¹ Examples of incentive deals include tax discounts, loans, grant, subsidies

² Calculated on all deals with investments over \$0

³ To calculate averages, a deal is classified as "job created" when more jobs were created than retained, a deal is classified as "job retained" when more jobs were retained than created

SOURCE: IncentivesMonitor, BEA

New Jersey's returns on incentive deals are likely skewed by the large proportion that are done with older firms, which generate lower returns than investments in fast-growing young companies. Between 2010 and 2015, less than 20 percent of incentive deals to create or retain jobs in New Jersey went to young companies (less than ten years old). It cost New Jersey \$174,000 for each job created or retained by an old firm, compared with \$110,000 per job in companies younger than 10 years. Some owners of young companies who responded to our survey cited complex processes as a barrier to seeking incentives.

Another area where New Jersey might want to place additional emphasis is in attracting foreign direct investment. New Jersey's location makes it a good choice for global players and it already gets a dollar of investment for a dollar of incentive offered to foreign companies, compared with \$1.80 for every dollar of capital spending by a domestic company. It pays \$119,000 for each job created in an FDI deal, compared with \$197,000 for each job created by a domestic company.

How could New Jersey improve its investment returns? It does not have a rigorous program to regularly evaluate the effectiveness of tax breaks and other incentives. In 2013, the legislature passed a law commissioning Rutgers to conduct a one-time study of the efficacy of tax incentives, which is due out in 2018. However, the same bill led to an increase in incentive spending.²⁷

Meanwhile, other states are increasing scrutiny of incentive programs. Virginia, for example, tracks all its investments and calculates an ROI on incentive deals over the years (see Box 4: How Virginia boosts ROI on investments in growth). Working with the Pew Charitable Trust, 22 states and the District of Columbia have enacted laws requiring regular and rigorous review of tax incentives and economic development programs. Ohio uses an impact-driven evaluation system and targets investors in specific industries that are important to the state, such as aerospace and chemicals. In Toronto, the focus is on companies that can strengthen industry clusters in growth areas such as digital media.

²⁷ How states are improving tax incentives for jobs and growth: A national assessment of evaluation practices, The Pew Charitable Trusts, May 3, 2017.

Box 4

How Virginia boosts ROI on investments in growth

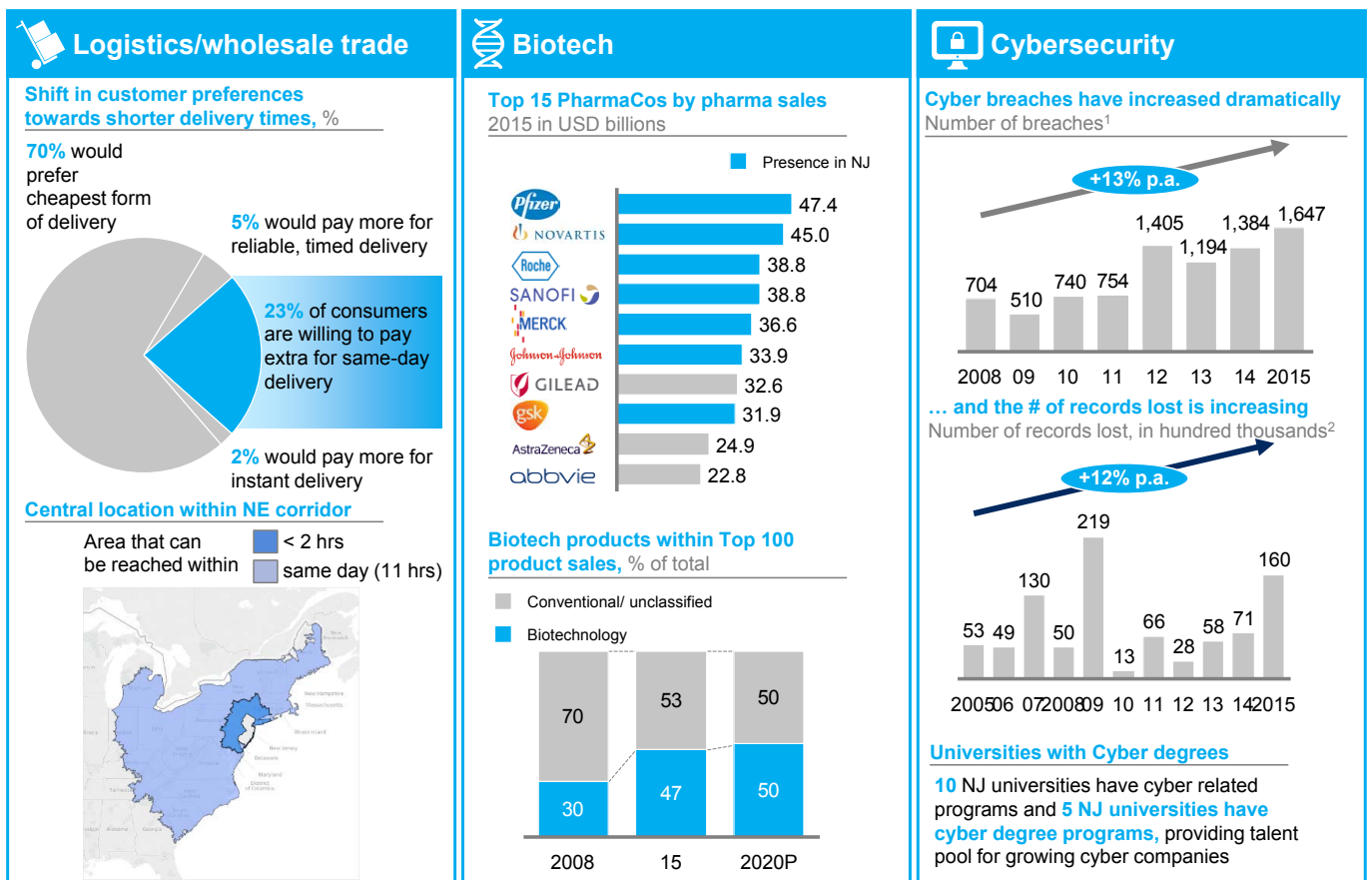
Virginia stands out among states for getting the greatest bang for its economic development buck. It does so by carefully monitoring and measuring its investments and holding recipients to their commitments. The Virginia Economic Development Partnership calculates ROI for each project and estimates a present value of \$23 for every dollar invested over ten years and \$48 over 20 years. Recipients sign performance agreements, which include provisions for claw-backs if performance does not fall within specified parameters. Virginia also strategically targets certain industries and sectors where Virginia is well positioned for growth and assigns business attraction managers to work with companies in those areas. Virginia is one of five states that are working with the Pew Charitable Trusts and the Center for Economic Competitiveness to codify best practices in state business development incentives.

Building on New Jersey's sector strengths in a changing economy

In addition to putting in place enablers such as infrastructure improvements and skills training, New Jersey could encourage growth by building on current strengths and riding important trends in the national economy. As an exercise, we looked for examples of sectors that might hold particular promise. First, we looked at the five major industry clusters in the state: information and communication technology (ICT), pharmaceuticals and medical equipment, logistics and wholesale trade, chemicals, and professional services. Then, by mapping these clusters against a list of industries that are undergoing rapid change because of technological disruption, three growth opportunities were identified that could be particularly promising for New Jersey.²⁶

By highlighting these three examples—logistics and wholesale trade, pharmaceuticals and biotech, and cybersecurity—we are not attempting to pick “winners and losers.” The New Jersey growth agenda should be broad-based and statewide to succeed. However, these industries represent some of the clearest opportunities for immediate results (Exhibit 8).

Exhibit 8 Examples of industries that are poised for growth and where New Jersey has advantages



¹ Average of breaches reported by: Identity Theft Resource Center, Privacy Rights Clearing House, and Risk Based Security. US focused

² As reported by Privacy Rights Clearing House. US focused

SOURCE: NJ Department of Labor & Workforce Development, Quarterly Census of Employment and Wages, 2010 - 2015 Annual Averages; Evaluate Pharma

28 For more on the “pillars” of growth in the US economy, see *The US Economy: An agenda for inclusive growth*, McKinsey Global Institute, November 2016.

Logistics and wholesale trade

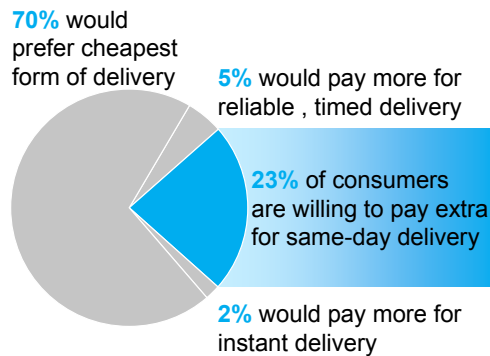
As noted, New Jersey's location has already made it a strong player in logistics. It has the second-largest port on the east coast, which handles imported goods from all over the world. Newark Liberty International Airport is the 14th busiest air freight facility in the United States and has FedEx's third-largest hub. New Jersey is centrally located on the Northeast Corridor, which enables it to be a distribution point for reaching large population centers and it has extensive rail and highway networks. Now, New Jersey has the opportunity to capitalize on changes in logistics that are driven by new technologies and consumer preferences.

The most far-reaching change in logistics is the increasing focus on "last-mile" delivery, which is the result of the shift to e-commerce. Consumers are making more purchases online and expect next-day delivery. In the case of groceries – a growing ecommerce category – same-day delivery is required. Business customers also expect rapid deliveries and the emergence of additive manufacturing technology will mean shorter lead times and more dispersed manufacturing, both of which put pressure on logistics suppliers to provide rapid last-mile service.

Logistics technology is also evolving to meet new challenges and improve the overall performance of distribution systems. These range from autonomous vehicles – including self-guided container ships and airborne drones – to artificial intelligence software that can optimize schedules. Innovations such as self-driving delivery vans with lockable bins could be used for grocery delivery and flying drones are being introduced by Amazon and DHL for use in package delivery. New Jersey could be an ideal market for such approaches, which need high population density to succeed economically (Exhibit 9).





Exhibit 9 In logistics, New Jersey can benefit from customer demand for rapid delivery

Delivery model customer preferences, %



- The rapid **growth of e-commerce** and consumer demands for **faster parcel delivery** and new technologies such as **autonomous vehicles** make proximity to large **population centers** even more important.
- New Jersey's prime location positions it to benefit from these shifts

Available delivery options, by density of locale

	B2C			B2B
	Regular parcel ¹	High reliability	Same day	Instant
Rural areas Density of <50,000 inhabitants		Drones (same day, if fulfillment times feasible) 		Fulfillment likely not possible at economical cost levels
Urban areas Density of 50,000-1 million inhabitants	Autonomous ground vehicles with lockers (e-grocery with today's delivery model) 			
Urban areas Density of >1 million inhabitants			Droids or bike couriers 	Today's delivery model 

¹ Parcel delivery between one day after drop-off and four days after drop-off

SOURCE : Mckinsey & Co, Future of Last Mile Delivery, How consumer demands are reshaping last mile delivery

Additional innovations in logistics include Internet of Things sensors to manage the flow of goods through warehouses, shipping, and delivery, as well as new kinds of packaging that improve packing efficiency. Robotics will also play a role in next-generation logistics, as will new software systems that can orchestrate all the elements that move items through global, regional, and local networks.

New Jersey could support the development of advanced logistics in a number of ways. Other states have offered targeted and temporary tax incentives to strengthen certain sectors of their economies. If it chose to follow those examples, New Jersey could for instance consider special incentives for investment in new logistics technology and university-industry consortia to help develop and implement new technologies such as robots and autonomous vehicles.

Pharmaceuticals and biotech

New Jersey has a high concentration of US and global pharmaceutical and life sciences companies and has benefitted from the success of the industry over many decades. Today, however, the industry is moving in ways that will only fully benefit New Jersey if the state can position itself to participate more fully in high-growth subsectors, such as biotechnology.

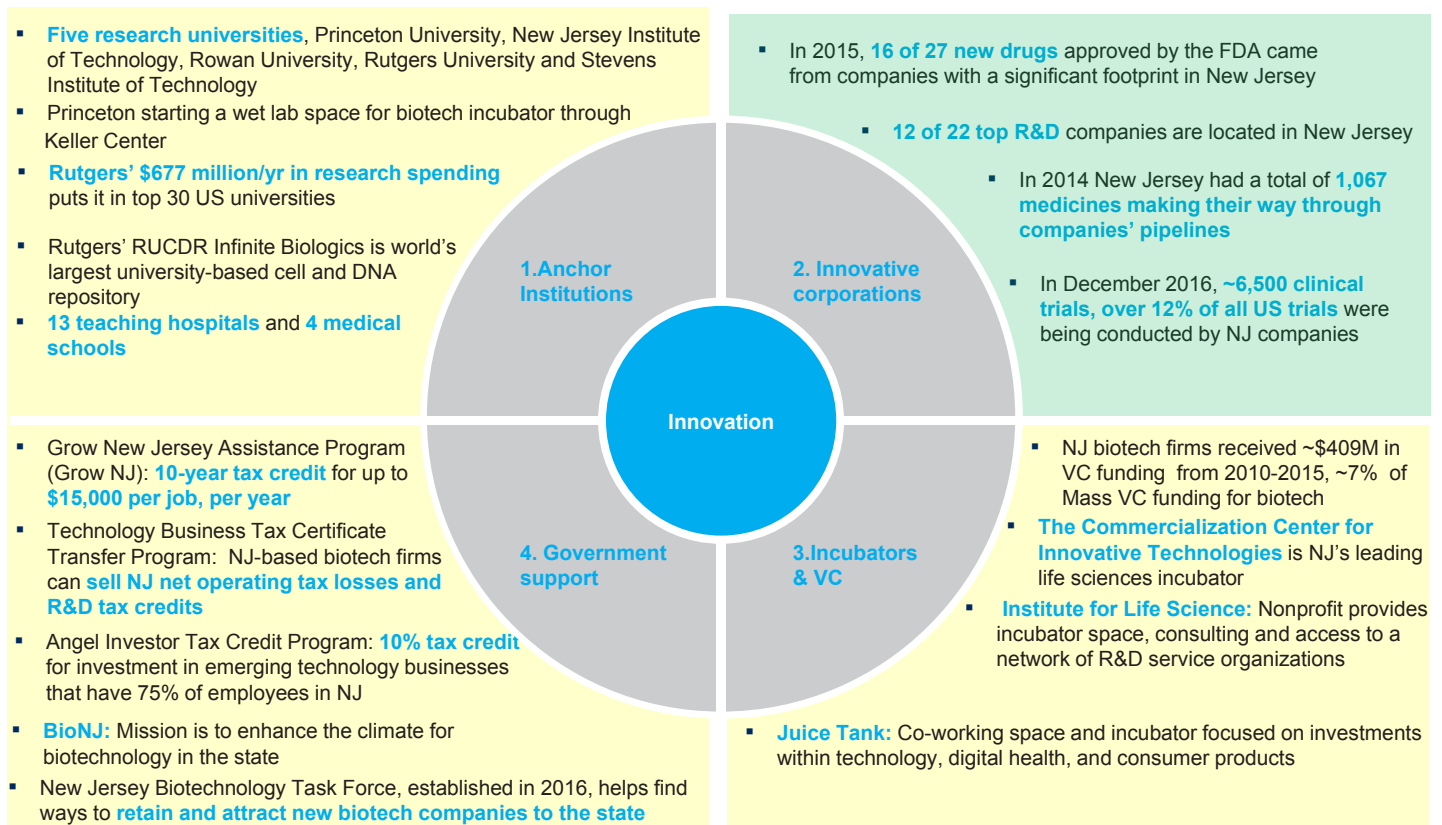
The life sciences sector is undergoing structural and technological change. Globally, growth is shifting to emerging markets and, while subsectors such as biotech and generics are outpacing the overall industry, “big pharma” companies that develop and market branded pharmaceuticals have shrunk as a share of the industry. In New Jersey, this pattern is reflected in sector employment: overall employment in life sciences declined by 10 percent from 2010 to 2015, while employment grew in biotech.²⁹

Because of its large pharmaceutical cluster and its wealth of scientific and life sciences talent, New Jersey is well-positioned to benefit from the growth in biotech, which is driving innovation in life sciences. New Jersey has five research universities, 13 teaching hospitals, and four medical schools. In 2014, New Jersey companies had more than 1,000 new medicines under development and, in 2015, 16 of 27 drugs approved by the US Food and Drug Administration came from companies with significant New Jersey footprints (Exhibit 10).

Exhibit 10 New Jersey has a strong innovation ecosystem for biotech

NJ position vs. peer states

- Strong
- Medium
- Weak



¹ Lead scientist or engineer for research projects (e.g., laboratory study or clinical trial)

²⁹ *New Jersey's Life Sciences Industry Cluster*, NJ Department of Labor and Workforce Development, Spring 2017.

To date, however, New Jersey has not assumed a role in the global biotech industry commensurate with its role in big pharma. For example, New Jersey biotech companies attracted only \$409 million in venture capital from 2010 to 2015, only about 7 percent of what Massachusetts firms received.³⁰ New Jersey could turn this around and become a leading center of biotech innovation by learning from strategies from Massachusetts and other states. For instance, in 2008, Massachusetts legislators approved the Massachusetts Life Sciences Act, which committed the state to spend \$1 billion over ten years to fund R&D, capital investments and economic incentives to spur growth in biotech, pharmaceuticals, medical devices, diagnostics, and bioinformatics. Programs ranged from investments in buildings and roads to support the sector to internships and apprenticeship programs.

Cybersecurity

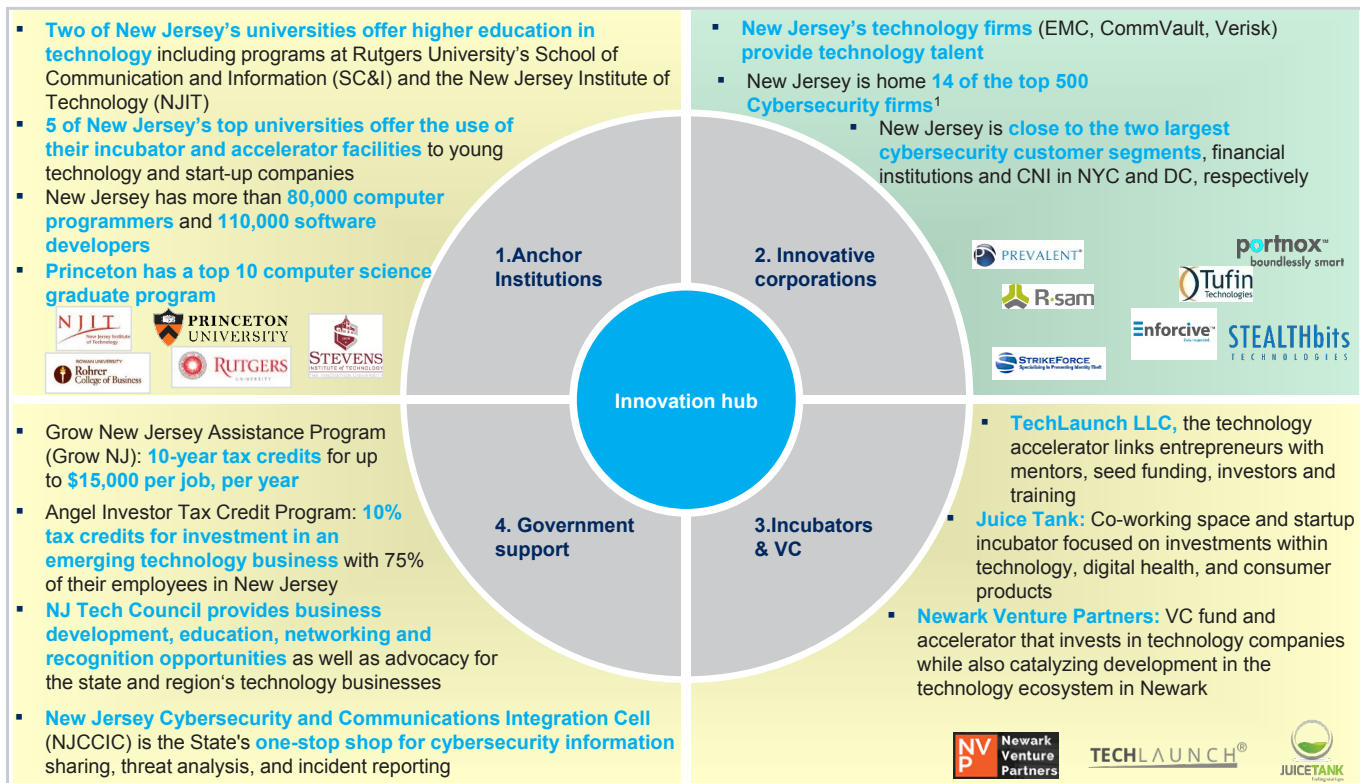
New Jersey has the potential to play a leading role in the burgeoning cybersecurity sector, where the State's strength in ICT and its expertise in financial services – a prime target of cybercriminals – could provide distinct advantages. New Jersey is also located within easy reach of many of the most likely customers for cybersecurity products and services – in New York and Washington. Attacks on critical national infrastructure – such as transportation and power systems – and financial institutions have been on the rise. Global revenues from cybersecurity products and services have been estimated at \$77 billion in 2015 and are projected to grow by 17 percent or more per year from 2015 to 2020.³¹

In New Jersey, a group of new businesses has cropped up in cybersecurity and IT security and major ICT companies such as AT&T and Verizon added managed security services to their business offerings by 2015. New Jersey is home to 14 of the top 500 cybersecurity firms. In addition, it has the building blocks to be a major cybersecurity hub, including 80,000 programmers and 110,000 software developers, and Princeton, which has a top ten computer science graduate program (Exhibit 11). Virginia has recognized the opportunity and has launched programs to fill the talent pipeline for a growing cybersecurity industry. The effort includes a veterans training program, apprenticeships, and a program to increase the number of community colleges and universities that are certified in cybersecurity education. In 2015 more than 65,000 Virginians worked in cybersecurity.

Exhibit 11 New Jersey has the ingredients for a strong cybersecurity ecosystem

NJ position vs. peer states

- Strong
- Medium
- Weak



¹ Ranked by Cyber Security Ventures
SOURCE: ChooseNJ, NJBiz

³⁰ Pitchbook

³¹ Steve Morgan, "The Business of Cybersecurity: 2015 Market Size, Cyber Crime, Employment, and Industry Statistics," Forbes.com, Oct. 16, 2015.

What can be done?

In this paper, we have focused on describing the root causes of New Jersey's relatively slow growth in recent years. We have sought to clarify why, despite all the enviable advantages that come with its location, wealth, labor force, and intellectual capital, New Jersey has lagged the nation in GDP and job growth. From this research, a complex and multi-faceted challenge emerges. If the state can keep pace with the U.S. economy, it can vastly increase economic opportunity in the state. By reaching the national average for growth, the state will expand its economy by more than \$150 billion and create more than 250,000 jobs over the next decade.

Our hope is that this paper will be used to start productive conversations about New Jersey's future and will be a resource for those who are looking for practical, proven solutions. They can look to Tennessee for ideas about how to support the young fast-growing companies that create more jobs than older companies. They can think about how Chicago has developed data-driven approaches to tackle its infrastructure challenge and they can look at how states like Maryland have used grants and regional training partnerships to prepare more workers for today's middle-skill jobs. They can also consider the new approaches to incentives for job creators that Virginia has been using.

It will take dedicated efforts by the private, social, and public sectors—and the involvement of us all—to make the Garden State a growth leader again. All stakeholders can take encouragement from the experience of other states that have faced all the same challenges and hurdles—and remember the unique strengths that can make New Jersey a growth leader.

Bibliography

American Community Survey (2016), US Census Bureau

“America’s Top States for Business 2016: A scorecard on state economic climate,” CNBC.com, Jan. 23, 2016.

A blueprint for addressing the global affordable housing challenge, McKinsey Global Institute, October 2014

The Cost of Roadway Construction, Operations and Maintenance in New Jersey, Alan M. Voorhees Transportation Center, Rutgers University, May 2016

Digital America: A tale of the haves and have-mores, McKinsey Global Institute, December 2015.

National Skills Coalition, 2017

Hartgen, David T. and Gregory Fields, *22nd Annual Highway Report*, Policy Study No. 448
September 2016 Reason Foundation, 2015

Infrastructure productivity: How to save \$1 trillion a year, McKinsey Global Institute, January 2013.

Joerss, Martin, Florian Neuhaus, and Jürgen Schröder, *How customer demands are reshaping last-mile delivery*, McKinsey, October 2016

McGeehan, Patrick, “New Jersey Will Increase Gas Tax 23¢, Ending Long Political Stalemate,” *The New York Times*, September 30, 2016.

Morgan, Steve, “The Business of Cybersecurity: 2015 Market Size, Cyber Crime, Employment, and Industry Statistics,” Forbes.com, Oct. 16, 2015.

Real Median Household Income in the United States (2015), The Federal Reserve Bank of St. Louis, September 23, 2016

Report Card on New Jersey’s Infrastructure 2016, American Society of Civil Engineers, 2016.

The US Economy: An agenda for inclusive growth, McKinsey Global Institute, November 2016.

Strauss, Eric, “19 New Jersey companies make 2015 Fortune 500 list,” NJ Biz, June 4, 2015.



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