

# Rhode Island Innovates 2.0



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# At-a-Glance

Rhode Island has achieved one of the biggest drops in unemployment rates in the U.S.—from 11.2% in 2010 to 3.5% today. Employment in advanced industry clusters prioritized in 2016 grew 12% on average—and greater than 13% in Biomedical Innovation; IT-Software, Cyber-Physical Systems, and Data Analytics; and Advanced Business Services. More than 20 new policies and programs aligned to support this growth, encompassing tax and regulatory reform, workforce development and talent attraction, quality of place, innovation and R&D, and supplier and industry cluster networks.

Despite substantial progress, a new round of policy and practice innovation is needed to continue the trajectory—both doubling down on programs that are succeeding and responding to new threats and embracing new opportunities. Importantly, one area of focus is to enlist greater private, civic, university, and federal engagement and investment; while much can be accomplished by the legislature and the administration, case studies of economic successes elsewhere in the U.S. and the world demonstrate that state governments can't do it all. We recommend three main areas of focus, with 17 tangible and feasible suggestions for change.

## Respond to new threats and embrace new opportunities

**01** Establish the Blue Economy as a focus.

**04** Create a Minority Business Accelerator.

**02** Add Offshore Wind as a targeted industry cluster.

**05** Transition to the future of work via a new Technology Adjustment Initiative.

**03** Target the technologically-advanced Back Office market.

**06** Support Business Succession across generations of business owners, particularly in manufacturing.

## Stay the course, double down, and sharpen the focus on strengthening advanced industries while improving the foundation for all businesses

**07** Make strategic infrastructure investments for targeted industries including wet labs in the Biomedical Innovation cluster, Smart Bay in the Blue Economy space, and large-scale site assembly/preparation in the advanced manufacturing/industrial area.

**08** Expand the Innovation Campus initiative and complement this effort with an enhanced statewide tech transfer focus and expanded Innovation Voucher initiative.

**09** Continue development of cluster networks and small business intermediaries.

**10** Continue progress and investment in improving quality of place via transit, housing, small business, arts, and culture. Regenerate the state's historic city and town centers. Continue place making efforts in the 195 District.

**11** Build municipal and regional development capacity via a new Local Development Fellows Program.

**12** Create an inventory of public assets and large-scale private assemblies (or potential assemblies) of land to identify opportunities for better utilizing, combining, and building upon assets including land and facilities.

**13** Establish a Taxpayer Advocate and a pre-audit Division of Taxation assessment to continue progress on the business climate.

## **Enlist greater private, civic, university, and federal engagement and investment**

**14** Increase foreign direct investment, the export potential of existing companies, and international B-to-B relationships via a GlobalRI Initiative.

**15** Expand SupplyRI into a broader AnchorRI Initiative focused on helping our largest institutions buy local, hire local, and invest locally.

**16** Improve access to capital via a new InvestRI Initiative.

**17** Establish a new Community Development Entity to leverage federal tax incentives and promote municipal and neighborhood development.



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# Preface

In January 2016, the Brookings Institution released *Rhode Island Innovates: A Competitive Strategy for the Ocean State* (hereafter the “Brookings report”). The report identified new sources of high-value economic growth to rectify the state’s heavy losses in manufacturing and advanced industries that had started after 1980. The report focused on advanced industries: industries that conduct large amounts of R&D and employ a disproportionate share of STEM (science, technology, engineering, and math) workers. Rhode Island’s advanced industries are primarily comprised of companies in advanced manufacturing and services, sectors that anchor the U.S. economy by paying higher wages, increasing exports, generating knowledge spillovers, and driving productivity growth.

The Brookings report identified five advanced industry clusters best positioned for growth in Rhode Island: Biomedical Innovation; IT/Software, Cyber-Physical Systems, and Data Analytics; Defense Shipbuilding and Maritime; Advanced Business Services; and Design, Food, and Custom Manufacturing. The report also identified two “opportunity areas”—Transportation, Distribution, and Logistics as well as Arts, Education, Hospitality, and Tourism—that also held particular promise for the state.

## **The Brookings report recommended the state proceed along three paths:**

1. Enact a series of policies and programs to drive advanced industry competitiveness through sustained investments in innovation capacity, quality of place, talent, and skills.
2. Enhance the civic engagement of major employers through a new Partnership for Rhode Island as well as strengthen connections between mature companies, universities, start-ups, skills providers, and investors within particular industry clusters and more broadly across the economy.
3. Improve the business climate through the streamlining of taxes and regulations.

Over the past four years, Rhode Island’s state government and a growing network of private, civic, and university stakeholders have embarked upon a remarkable effort to turnaround Rhode Island’s economy, guided by the Brookings report. A host of policy, program, and institutional initiatives have received legislative support in the form of direct appropriations and/or tax incentives.

In 2019, the Rhode Island Commerce Corporation engaged New Localism Associates, City Facilitators, and Quartz to assess the performance of the state’s advanced economy between 2016 and 2019 as well as the impact of the policies and programs enacted following the Brookings report. The Commerce Corporation also directed the team to recommend an economic strategy going forward in accordance with the statutory requirement that the state adopt such a plan every four years.

Over the past several months, the team has conducted a series of quantitative economic and program analyses, conducted qualitative interviews with scores of stakeholders within the state, and engaged residents through several public forums. These analyses and interviews provide the foundations for concrete guidance on advanced industry policies in the state, the primary focus of this report. They also, however, raise a series of issues and challenges that go beyond our narrow remit, which we raise for broader policy and public input.



# Executive Summary

After a decade adrift, Rhode Island's faltering economy is on the mend and expanding anew. Following the Great Recession, Rhode Island's economic recovery lagged behind the rest of New England, but recent progress indicates that the state's economy has passed an inflection point. The Rhode Island economy is growing, unemployment levels are at historical lows, average productivity has reversed its decline although it remains below the 2010 level, and advanced industry sectors are expanding with positive, reverberating effects for small businesses across the state.

Rhode Island's nascent comeback is creating visible signs in the state—along the Providence River at the new Innovation & Design District, at Innovate Newport's new co-working space, at Electric Boat's new submarine production facility in the Quonset Industrial Park, in the Offshore Wind Farm near Block Island, and at the new Fascitelli Center for Advanced Engineering at the University of Rhode Island. As important, but less visible, are the thousands of Rhode Islanders who now hold quality jobs with decent wages due to customized training and the scores of companies that have expanded their businesses due to strategic investment and support.

The turnaround of the Rhode Island economy is, however, still in its early stages. The creation of a solid platform for long-term prosperity is a decade-long project at a minimum, which needs sustained focus and integrated action across all sectors, including but not limited to the state government. The Rhode Islanders we have engaged with urged us to recommend maintaining (if not expanding) the programs to continue building upon the progress that was initiated only a few years ago. Declaring victory and “turning the page” too quickly would only limit the potential future growth from the groundwork that has been laid.

Rhode Islanders also implored us to focus on challenges that have become more pressing and apparent since 2016: in particular, the economic restructuring that is forcing many Rhode Islanders to work for wages that are insufficient to make ends meet and the rapid pace of technological innovation (e.g., automation, artificial intelligence), which already threatens the future of work in particular industries. At the same time, there are new opportunities to be seized, starting with the dramatic demographic transition that has put the state on the trajectory to be a majority minority state along with the rest of the country. These challenges and opportunities cut across advanced and non-advanced sectors and companies, requiring either new or revised policy responses.



Rhode Islanders finally advised us not to ignore traditional, mostly self-inflicted, challenges—the low quality of schools (in certain communities) and infrastructure (more broadly), an inadequate supply of quality and affordable housing options, the fragmentation of municipalities, the sense of opacity and cost of doing business—which have taken on new importance and urgency in the state. They also recommended that we connect the dots between economic prosperity and disparate parts of the state’s agenda (e.g., climate resiliency, reducing health disparities, and increasing quality of place) which are inextricably linked. Economic development is not an act that can occur in isolation, even when specific supports for businesses, workers, and places are well designed and delivered.

In the end, Rhode Island is a small state in a highly competitive region, nation, and world. Its size could be a strength in a fast-moving and rapidly changing world, allowing the state and its sectors, large companies, small businesses, and anchor institutions to move into closer alignment faster than would be possible for larger communities. But being small requires the state to be agile and nimble to leverage distinctive strengths and connect related assets (e.g., the procurement needs of large employers and the demand needs of small businesses) in deeper and more sustained ways. It also requires the state to focus and target its allocation of scarce resources.

**The Rhode Islanders we have engaged with urged us to recommend maintaining (if not expanding) the programs to continue building upon the progress that was initiated only a few years ago.**

In summary, the state has shown its ability to design, finance, and deliver a series of meaningful projects that support businesses, workers, and communities. It now needs to move from *individual transactions to structural transformation* and to grow the distinctive assets and capacities of this special place into a productive, sustainable, and inclusive economy. That will require a shared vision among multiple stakeholders and a collaborative, cross-sector approach to shaping and stewarding the economy.

Against this backdrop, we make the following overall findings and recommendations:



## **Rhode Island's economy has turned a corner and has made substantial progress since 2016**

- Unemployment rates are at historic lows and on par with the national average: between 2014 and October 2019, the state experienced one of the biggest drops in unemployment rates in the country.
- Unemployment rates for African Americans and Latinos have also dropped precipitously.
- Employment levels and business starts are at historic highs.
- Rhode Island continues to increase the skills of its population and educates a higher share of STEM graduates in 2017 than in 2014. The share of the population with a bachelor's degree or higher has also grown.
- Average GDP per worker grew by 1.5% from 2016 to 2019, following more than six years of declining economic output per worker.

*Significantly, Rhode Island has grown its existing base of advanced industries, critical to driving broad-based growth.*

- Rhode Island's seven prioritized industry clusters grew by 5% more than the Rhode Island economy as a whole between 2013 and 2017.
- Advanced industries have grown to become a larger part of the Rhode Island economy, improving the long-term trend of declining output per worker.
- There is more convergence between advanced industries. For example, the state's strong and growing expertise in IT and data analytics has strong spillover effects on other industry verticals, such as agriculture, health care, and manufacturing.



- The state is at the cutting edge of a diverse set of scientific and product breakthroughs, in such disparate fields as the brain-computer interface (e.g., paralysis), Alzheimer’s Disease, potential new therapeutics, biomarkers and clinical trials, precision medicine (e.g. cancer immunotherapies), the invention and deployment of underseas autonomous vehicles, and advancements in composite materials and textiles.
- The state has increased recognition as a global center of design.

*New advanced sectors have also emerged, providing promising new areas for broad-based growth.*

- The state has become a first mover in the Offshore Wind industry, attracting significant attention and investment from Northern Europe. The sector is expected to create 20,000–35,000 full-time jobs on the East Coast by 2028, placing Rhode Island in a strong position to own a significant part of the Offshore Wind value chain, in particular within shipping ports, installation ships, and maintenance and operations.
- More broadly, the state has the potential to draw together disparate advanced industry segments under the unified umbrella of the Blue Economy, a super-sector expected to grow substantially.
- The state also has experienced extensive growth in professional services that serve multiple advanced industries of importance to Rhode Island. Engineering services, for example, have grown 20%.



## State actions have catalyzed economic progress in three main ways

*First, the state enacted a series of policies and programs following the findings of the Brookings report and has intentionally and purposefully aligned their implementation to grow the state's advanced industry clusters.*

On business support:

- The state is attracting globally significant companies—Infosys, GE Digital, Johnson & Johnson, Rubius—in leading advanced industry clusters.
- Existing companies in key advanced sectors (e.g., Electric Boat, Amgen) are increasing employment, thanks in part to key government investments.
- Overall, public investments in new facilities have leveraged over \$2 billion in private investment.
- Over 80 Innovation Vouchers have been granted to small businesses to fund new R&D products and services, in close collaboration with universities and in direct alignment with target advanced industries.
- Five innovation campuses focused on advanced industry growth have been authorized to stitch together university assets with technology commercialization to speed the invention of new products and the cross-fertilization of new ideas.
- Throughout all this work, the state has focused on nurturing, supporting, mentoring, and capitalizing small businesses that fit within broader ecosystems and clusters. The early successes of the Small Business Assistance Program and the SupplyRI Initiative are particularly noteworthy. State officials recognize that creating sustainable economic strength means creating networks between anchors and emerging businesses.



#### On worker support:

- Real Jobs RI is highly praised among a broad range of companies and has pioneered innovative approaches in a sector that is characterized by “train and pray” initiatives rather than “train and place” efforts where demand is driven and curriculum is designed by industry partners. Real Jobs RI successfully served 6,745 workers from 2016 to 2019, including 2,982 who were placed into a new job, and another 3,763 incumbent workers and entrepreneurs who were upskilled. Real Jobs RI is providing tangible benefits to manufacturing companies (e.g., Electric Boat), financial institutions (e.g., Bank of America), life science companies (e.g., Amgen), and government agencies (e.g., health care delivery).
- The state has launched additional innovative programs to advance the skills of its current and future workforce. Launched in 2016, CS4RI now offers computer science curriculum in 100% of traditional Rhode Island school districts, and 78% of Rhode Island high schools offer an Advanced Placement (AP) course in computer science—the highest percentage in the country.
- Through the establishment of the Rhode Island Promise Scholarship in 2017, all Rhode Islanders graduating from high school are eligible to pursue associate degrees at the Community College of Rhode Island tuition-free.
- PrepareRI, a career readiness initiative, had 203 approved Career and Technical Education (CTE) programs for the 2018-2019 school year. Since 2015, the number of CTE programs has increased 61%, and 100% of high school students now have access to CTE programming in a priority sector.
- Skills for Rhode Island’s Future has placed over 1,800 unemployed or underemployed Rhode Islanders in jobs or training programs in three years.
- Opening in 2017, Westerly Education Center, an innovative public-private partnership, has trained more than 2,100 adults primarily in priority industry

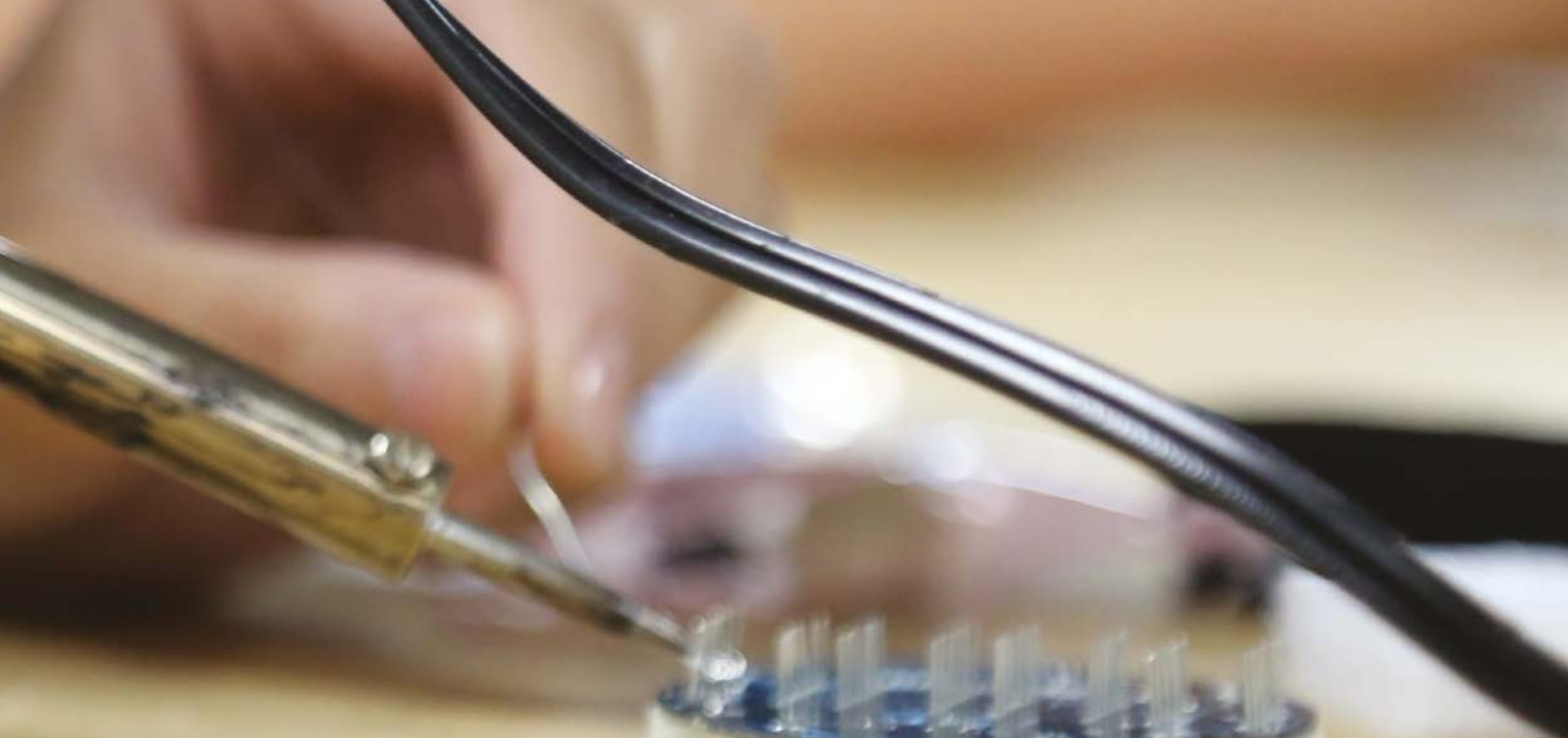


sectors. Additionally, at Westerly, CCRI, RIC, and URI have educated 1,361 students in associate, bachelor's, and master's level courses and customized, industry-recognized credentials and certificates responsive to immediate and long-term job prospects. Given the success of Westerly, the state plans to replicate this model by establishing a post-secondary workforce training center in Northern Rhode Island.

- Rhode Island's P-TECH (Pathways in Technology Early College High School) initiative, which enables students to graduate from high school with an industry-approved associate degree, has more than 500 students enrolled, and the program is projected to serve over 850 students by the 2023-2024 school year.
- The state's Wavemaker Fellowship program has already awarded over 800 fellowships that incentivize college graduates to stay in Rhode Island to pursue their careers in STEM or design fields.
- There are now tight connections between companies, business intermediaries, government (e.g., the Commerce Corporation, the Department of Labor and Training) and key secondary and post-secondary institutions and activities (e.g., Career and Technical Education efforts in public high schools, the Community College of Rhode Island, University of Rhode Island, and Rhode Island College).

On quality places:

- The 195 District offers a once-in-a-century opportunity to remake Providence's urban space given its strategic location along the Providence River and near key innovation assets like Brown University's Warren Alpert Medical School, downtown, and major hospitals. Exciting progress is being made, notably with the opening of the Point 225 (Wexford) building housing the Cambridge Innovation Center (CIC), Venture Cafe, and RIHub. There is over \$500 million of public and private investment (representing more than 1 million square feet of new development) already completed or underway in the 195 District.



- Another notable development is the Pawtucket-Central Falls Train Station, which is set to open in 2022.
- The Main Street Rhode Island Streetscape Improvement Fund provides grants and loans to help cover the costs of improvements to commercial districts. Awards in 2016, 2017, and 2018 have achieved a wide geographical reach, directly improving public spaces throughout the state, improving civic life and business attractiveness. This is another program with clear, tangible benefits for all residents and businesses.
- Rebuild RI tax credits help drive catalytic place-based change, sparking development (across a mix of uses) that would not have happened otherwise, assisting companies relocating to Rhode Island, expanding the economy, creating jobs, raising tax revenue, and enabling the adaptive reuse of historic buildings, a distinctive asset of the state.
- A vibrant arts, culture, and food scene is attracting national attention and enhancing not only tourism but also talent attraction and retention and business formation and growth.

**The 195 District offers a once-in-a-century opportunity to remake Providence's urban space.**

*Second, the state is helping to shape a new collaborative practice—across sectors, companies, and universities—for intelligent, integrated, and evidence-driven guiding of the economy.*

- The state government has attracted a cadre of professionals with deep expertise and experience, who can go toe-to-toe with their counterparts in comparable agencies around the country. Other key anchor institutions like CCRI and RIC have likewise attracted exceptional leaders.
- The Partnership for Rhode Island has brought together the large employers, Brown University, and the Rhode Island Foundation into a cohesive group for the first time, facilitating their roles as major backers of the takeover of the Providence schools (having provided funding for the Johns Hopkins report).



- The state’s leading universities and philanthropies have also embraced the notion that advanced industries are the platform for growth and are either working closely with the state on a host of initiatives or creating their own aligned efforts (e.g., Brown and the Innovation Economy).
- The state’s SupplyRI initiative—as well as Innovation Vouchers, Innovation Campuses, Real Jobs RI, and industry cluster initiatives—have made important connections between large and small employers, universities and other partners, connections that are now yielding results that are driven by market dynamics.
- There is more strategic focus within advanced industry clusters. Due to targeted state support, the intermediaries for industry clusters—RI Bio, DESIGNxRI, the Rhode Island Textile Innovation Network, the Composites Alliance of Rhode Island, Polaris MEP, New England Medical Innovation Center, the Southeastern New England Defense Industry Alliance, the Rhode Island Marine Trades Association, Social Enterprise Greenhouse—are increasingly capable and mature.
- New intermediaries such as the Cambridge Innovation Center, MassChallenge, Innovate Newport, and the Rhode Island Hispanic Chamber of Commerce are now on the scene, exhibiting energy, ambition, and purpose.
- All these disparate efforts directly and indirectly strengthen the innovation ecosystem in the state by pulling together universities, mature companies, small business enterprises, incubators and accelerators, educational institutions and skills providers, and cluster intermediaries around common goals and specific tasks.

**The state’s SupplyRI Initiative—as well as Innovation Vouchers, Innovation Campuses, Real Jobs RI, and industry cluster initiatives—have made important connections between large and small employers, universities and other partners, connections that are now yielding results that are driven by market dynamics.**





*Finally, the state has started to improve the business climate by streamlining regulations, reducing key taxes, and deploying technology.*

- The corporate tax burden is now more in line with other states after strategic reductions in the corporate minimum tax rate and unemployment insurance contributions and the repeal of the sales tax on energy.
- The state has repealed more than 150 regulations and eased the process for common business practices (e.g., opening restaurants, constructing buildings). As a result, complaint volumes have gone down considerably.
- Along the same lines, the state has made some progress in reducing the proliferation of licensing requirements for certain occupations, eliminating over 15 licenses.
- The state has used technological advances to reduce business time/hassle. Rhode Island is the only state where building permits can be obtained electronically via the state for most cities and towns.

## **Despite substantial progress and proven policies, the state faces multiple challenges as it moves forward**

*There is strong growth in advanced industries, but absolute job creation is still significantly higher in non-advanced industries, limiting growth in GDP per worker.*

- Since the absolute size of the employment base in Rhode Island's non-advanced industries is still roughly ten times the size of the employment base in advanced industries, the total number of jobs added to Rhode Island's economy is still primarily in industries with lower GDP per worker.
- In absolute terms, between 2010 and 2019, non-advanced industries added roughly 39,400 net jobs compared to roughly 2,800 net jobs added in advanced industries.
- The size of the non-advanced industries relative to the advanced industries challenges



the overall economy as the GDP per worker in non-advanced industries declined by 3.8% between 2010 and 2019, while GDP per worker increased by 18.7% on average for advanced industries.

*The pace of innovation is increasing in technologies that will automate processes in certain industries and drive down employment.*

- The future of work, in many respects, is now.
- Companies and workers in disparate sectors (e.g., manufacturing, digital technology, financial services, retail, hospitality) are looking for general guidance and concrete assistance on adapting to fast-changing technologies.

*There are several structural threats and barriers to industry expansion and community prosperity.*

- Competition with neighboring states is undermined by unreliable public school quality and a lack of adequate housing options for workers, particularly those with families.
- With only a 2% vacancy rate of industrial space, many businesses say that lack of available space is a challenge for expansion in Rhode Island.
- Given low unemployment, the scarcity of talent and a trained workforce have become serious constraints.
- The aging of ownership in technologically advanced small businesses in the manufacturing sector needs a special focus.
- Certain parts of the state are hampered by a lack of accessible and affordable high-speed internet.
- In particular industries, the lack of frequent and reliable transit services is considered a strong barrier to productivity.



- Pronounced income, health, and wealth disparities across municipalities are limiting the economic potential of certain communities.
- Lack of municipal capacity to partner with the private sector and the state on advancing quality of place and accommodating business limits the pace and amount of change.
- In life sciences, the lack of incubator space sends entrepreneurs to neighboring states.

*Changing state demographics have yet to be leveraged.*

- Rhode Island's population, like that of the rest of the U.S., is on a path towards being majority minority. Intentional inclusion in schools and skills initiatives as well as minority entrepreneurship efforts will be critical for ensuring that the state's increasingly diverse population participate fully in the economy.

*Despite indicators of strong progress, there is not yet a clear public consensus about how the state is performing economically and what its path forward should be.*

- A blizzard of external reports that compare Rhode Island to other states (positively and negatively) has sown confusion about the state's competitive position and the nature of its challenges.
- The pace of policy and program impact is poorly understood, particularly since it takes time to enact legislation; garner appropriations; engage voters in some cases (e.g., innovation campus bonds); and award, obligate, and deploy funding.
- The sheer number of agencies, anchors, companies, clusters, programs, intermediaries, and investors are bewildering for a small state, even to leaders involved in the initial Brookings effort who continued their involvement.



## We recommend three main areas of focus, with 17 tangible and feasible suggestions for change

These recommendations are a product of both quantitative analyses and qualitative interviews and are intended to unlock the further potential of the economy by removing barriers and leveraging assets. Each of our proposals will be explored at greater length further in the report, with best case practices from the U.S. and abroad.

Our proposals are also intended to enhance the active state efforts, already underway, to dramatically improve the quality of public education, workforce development, and infrastructure. To this end, we are deeply encouraged by the state’s takeover of Providence’s public schools, the recruitment of a new education commissioner, the progress on workforce development, and the enhanced vision for and investment in transportation, energy, and other critical infrastructure. We are certain that the Governor’s recent convenings of a series of workshops on the “future of work” will yield more progress. The future of Rhode Island’s economy can only be secured by combining a sustained focus on fixing the fundamentals with the disciplined implementation of well-designed and adequately supported economic development initiatives.

Our proposals fall naturally into three categories:

*First, respond to new threats and embrace new opportunities.*

The period since the release of the Brookings report has elevated the importance of certain market and demographic dynamics. This plan, therefore, recommends six new and customized responses.

- Major New Focus: The emerging **Blue Economy** should be a unifying initiative that can build upon the distinctive and formidable assets of the Naval Undersea Warfare Center, Offshore Wind, URI, tourism, the recreational marine industry, enterprising groups like SeaAhead, and the Undersea Technology Innovation Consortium (UTIC). Rhode Island should “skate to where the puck is headed” and maximize its position as the nation’s premier “Ocean State” by investing in ocean technology.



- **New Priority Cluster:** Rhode Island should maximize its potential in **Offshore Wind** through strategic investments in the maintenance and operations of this new industry’s increasingly robust supply chain.
- **New Target Niche:** Given its strategic location, cost structure, and talent pool, Rhode Island should take advantage of its potential to be an attractive, affordable **technologically-advanced Back Office market** for major companies in New England and beyond.
- **Diversity of Opportunities:** Rhode Island should enact a **Minority Business Accelerator**, modeled after the highly successful initiative undertaken in Cincinnati, to take full advantage of the state’s changing demographics. The Accelerator, working with CCRI, RIC, and other universities and colleges, should create a credentialed Minority Entrepreneurship Curriculum that would be made widely available.
- **The Future of Work:** Rhode Island should enact a **Technology Adjustment Initiative** to give small businesses and workers (in advanced and non-advanced industry clusters alike) the support necessary to adapt to disruptive technologies. This would build upon the expertise fostered by initiatives like Real Jobs RI and the 401 Tech Bridge initiative run by Polaris MEP.
- **Small Business Transition:** Rhode Island should enact a **Business Succession Initiative** to help successful small companies grapple with the twin challenges of aging owners and workers. The Initiative, for example, would help match retiring manufacturers with entrepreneurs who are interested in keeping companies local as well as explore the utility of the worker cooperative or ESOP model. Real Jobs RI would also be given a boost in resources to work closely with the Rhode Island Manufacturers Association and Polaris MEP on growing a new skilled workforce.

*Second, stay the course, double down, and sharpen the focus on strengthening advanced industries.*

As stated above, the purposeful alignment of programs and initiatives that support businesses, workers, and quality places and help improve the business climate has contributed to economic



progress. This important work needs to be continued and expanded. We recommend seven large moves as well as a series of small, incremental revisions to proven programs like Real Jobs RI, Innovation Vouchers, Innovation Campuses, and Industry Clusters.

- Rhode Island should make a series of targeted infrastructure investments to enable the prioritized clusters to move to their next stages of development. These **Cluster Infrastructure Investments** should include **Wet Labs** in the Biomedical Innovation cluster, **Smart Bay** in the Blue Economy space, and **large-scale site assembly and preparation** in the manufacturing/industrial area.
- Rhode Island should expand the **Innovation Campus** initiative by working with the University of Rhode Island and other key stakeholders to create an Innovation Campus dedicated to the Blue Economy or Ocean Technology. Rhode Island should also complement the Innovation Campus effort with an **enhanced statewide focus on technology transfer and an expanded Innovation Voucher program**.
- Rhode Island should expand investments into **Cluster Networks** and intermediaries that support small businesses.
- Rhode Island should continue the efforts to enhance the state's unique **Quality of Place** via investments in an integrated mix of transit, housing, small business, and arts and culture. Special attention should be made to regenerate historic centers in Central Falls, Woonsocket, and other communities as well as continue the quality placemaking underway in the 195 District.
- Rhode Island should create a new **Local Development Fellows Program** to enhance the capacity of local governments to design, finance, and deliver transformative revitalization.
- Rhode Island should create a comprehensive and transparent **inventory of public assets and large-scale private assemblies (or potential assemblies) of land**. Inventories of land and buildings owned by state and local government, public authorities, and public universities are common in Northern Europe but virtually nonexistent in the U.S. Armed with full information, there is enormous potential to dispose of public assets in ways that



enhance business growth and capitalize on opportunities to expand housing supply.

- Rhode Island should create a **Taxpayer Advocate and a pre-audit Division of Taxation assessment** to continue the progress on improving the business climate. The Taxpayer Advocate, a position which currently exists in 29 states, would help small businesses, in particular, navigate tax administrative processes that, although they have been significantly improved, continue to challenge businesses seeking to comply. The state government should continue its efforts to identify and prune unnecessary and outmoded laws and regulations, building upon outreach to businesses.

*Finally, efforts should be made to enlist greater federal, private, civic, and university engagement and investment.*

The structural transformation of Rhode Island’s economy cannot be delivered by the state government alone. Rather, it will require targeted action and active coordination across companies (large and small), business chambers, universities, philanthropies, investors, intermediaries, and more. Rhode Island needs, in other words, to collaborate to compete. To that end, this plan identifies four major initiatives that will ultimately require deep private, civic, and university engagement and investment.

- Rhode Island should create a **GlobalRI Initiative** to enhance the export potential of existing companies and the potential for foreign direct investment (e.g., companies, research institutions, investment capital) in the state.
- Rhode Island should expand the SupplyRI Initiative into a broader **AnchorRI Initiative** to maximize the scale at which anchor institutions (e.g., universities, hospitals, large companies) hire local, buy local, and invest local. This effort should be modeled after proven initiatives in Cleveland and Philadelphia.
- Rhode Island should create an **InvestRI Initiative** to match the investments of large institutional and individual holders and generators of wealth—pension funds, university endowments, estates, and family offices—with projects that are investor ready and meet return expectations.

- Rhode Island should incorporate and capitalize a new **community development entity** to leverage federal tax incentives and promote municipal and neighborhood development.

These 17 recommendations are closely aligned with Rhode Island’s distinctive economic profile and strengths, and the ongoing restructuring of the U.S. and state economy. They also reflect the lessons that have been learned from the implementation of growth-oriented programs and policies over the past four years. Finally, they are designed to leverage the roles and capacities not only of the state government, but also other key corporate, philanthropic, and university stakeholders. If designed and implemented well, we believe these recommendations—and the continued execution of existing programs and policies—would improve the state’s economy by increasing job creation and placement, growing existing businesses and attracting other

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companies, extending entrepreneurial dynamism, and strengthening the ecosystems for long term innovative, sustainable, and inclusive growth.

The organization of this report provides a

strong foundation for these recommendations. The following section analyzes Rhode Island’s economic performance, in general, and with regard to the state’s prioritized advanced industry clusters. The third section evaluates the state’s business climate and tax competitiveness. The fourth section assesses the impact of key programs and initiatives enacted since the publication of the Brookings report. The final section puts forward our short list of recommendations for actions, both by the state government and across multiple private, civic, and university sectors.

The bottom line: this plan provides a roadmap for continuing the progress that Rhode Island has made over the past four years and building on the hard work and dedicated effort of thousands of people in government agencies, private corporations and businesses, and non-profit organizations across the state.







# The State of Rhode Island's Economy

After a decade adrift, Rhode Island's faltering economy has turned a corner and is expanding anew. Following the Great Recession, Rhode Island's economic recovery lagged behind the rest of New England, but recent progress indicates that the state's economy has passed an inflection point. The Rhode Island economy is growing, unemployment levels are at historical lows, average productivity has reversed its decline, and advanced industry sectors are expanding.

- Rhode Island's unemployment rate declined to 3.6% in October 2019, the lowest since the 1980s, on par with the U.S. average (3.6%), and slightly above the New England average (3.0%).
- Between 2014 and October 2019, the state experienced one of the biggest drops in unemployment rates in the nation.
- Following a year of low growth in 2015, GDP grew 3.9% between 2016 and 2019 but still lags behind other New England states.
- Average GDP per worker grew by 1.5% between 2016 and 2019, following over 6 years of declining economic output per worker.

Following the rapid decline in the unemployment rate and the stabilization of the average GDP per worker, Rhode Island faces new economic opportunities and challenges when approaching the next period of economic growth. Very low unemployment combined with an aging population means that economic growth increasingly needs to come from improving economic output (GDP) per worker across different sectors in the Rhode Island economy.

- Between 2015 and 2040, the working age population (20-64 years old) is projected to shrink by ~50,000 (-8%).
- While most other New England states have

seen their GDP per worker increase since 2013, Rhode Island's GDP per worker has yet to grow significantly, although it has improved since 2016.

With a shrinking workforce, it is paramount for the state to build upon existing efforts to upskill its workforce, drive efficiency improvements across industries, and continue to grow advanced industries that increase the average economic output of the workforce to continue economic growth.

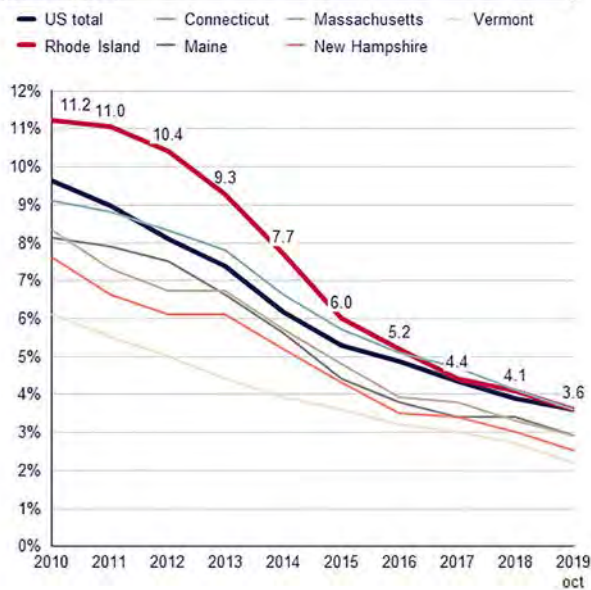
## Significant reduction in unemployment supports steady economic growth

The Great Recession had severe consequences for the Rhode Island economy and its citizens. Following strong economic growth throughout the early 2000s, the unemployment rate more

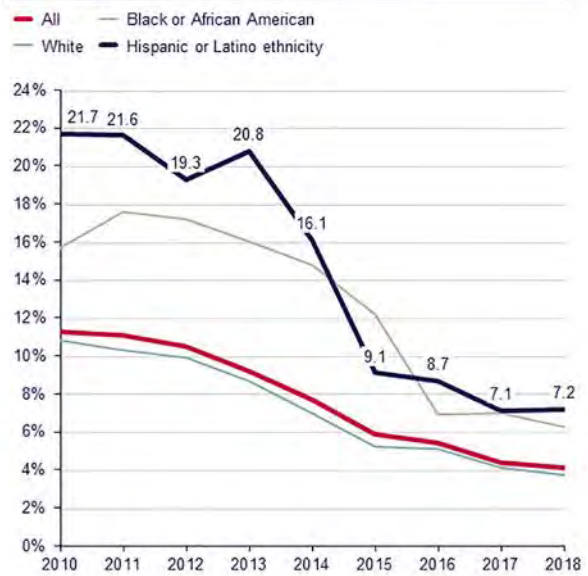
## Between 2014 and October 2019, the state experienced one of the biggest drops in unemployment rates in the nation.

than doubled during the Great Recession, jumping from 4.9% in 2006 to 11.2% in 2010.<sup>1</sup> Rhode Island's unemployment reached the highest rate and recovered at a slower pace than was the case elsewhere in New England (Connecticut, Maine, Massachusetts, New Hampshire, and Vermont). However, the Rhode Island economy has regained growth momentum, and its unemployment rate has decreased faster than in any other New England state over the past 3 years, dropping from 6.0% in 2015 to 3.6% in October 2019.

**Unemployment development compared to peer states and the U.S.**  
(% unemployed)



**Unemployment in Rhode Island per race and ethnicity**  
(% unemployed)

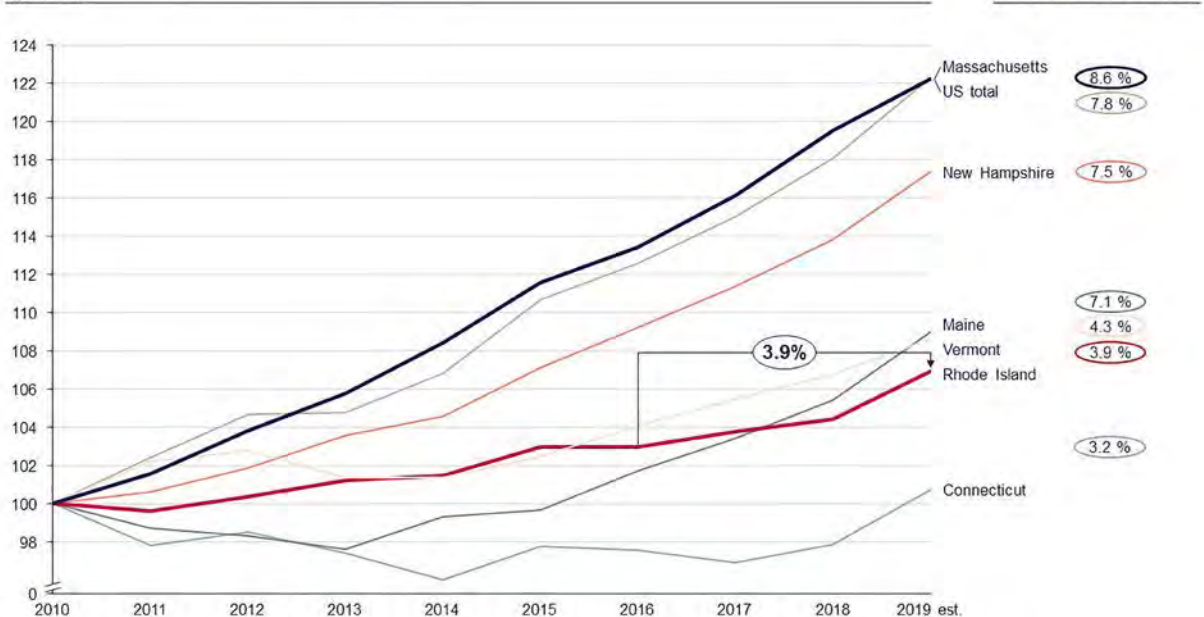


Source: FRED Economic Research and Bureau of Labor Statistics

As with employment trends at the national level, disparities continue in Rhode Island’s unemployment rate across racial and ethnic lines. During the Great Recession, for example, Latino unemployment increased from 7.7% in 2007 to 21.7% in 2010.<sup>2</sup> After 2013, the Latino unemployment rate declined significantly to 7.2% in 2018. A similar trend occurred in the state’s African American unemployment rate. Statewide data on the labor force’s demographic and economic characteristics are published on an annual basis and are thus unavailable as a 2019 estimate.

Before the recession, Rhode Island’s GDP growth was among the highest in New England. Between 2000 and 2006, the state’s economic output (GDP) grew by 18.3%.<sup>3</sup> Following the Great Recession, however, Rhode Island’s GDP recovered more slowly than those of other New England states. Rhode Island’s GDP grew 6.9% between

**Real GDP growth compared to peer states and the US**  
(index 100)



Source: Bureau of Economic Analysis; 2019 estimate is based on Moody’s analytics full year estimate, updated in November 22, 2019.

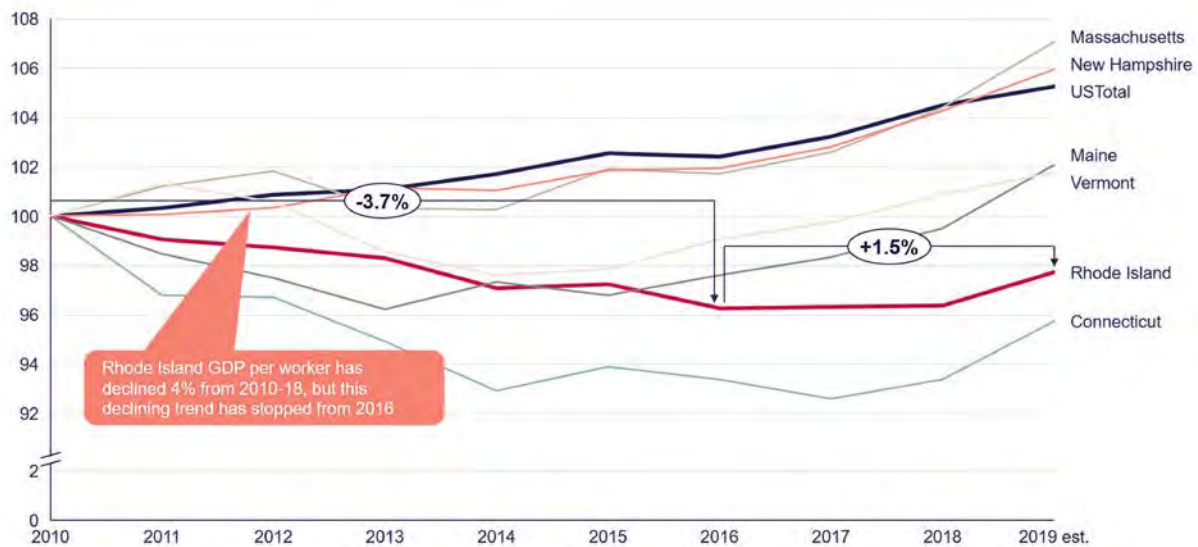
2010 and 2019, surpassing only Connecticut, which experienced just 0.7% growth. Meanwhile, Massachusetts' GDP grew by 22.2%, and New Hampshire's GDP grew by 17.3%, with the national average at 22.2%.

Between 2016 and 2019, peer states and the country as a whole have seen an upswing in economic output. Rhode Island's GDP is estimated to grow by 3.9% between 2016 and 2019, compared with 3.2% in Connecticut, 4.3% in Vermont, 7.1% in Maine, 7.5% in New Hampshire, 8.6% in Massachusetts, and 7.8% in the U.S. as a whole.

## To increase economic growth, Rhode Island must increase GDP per worker in the face of a shrinking workforce

Between 2010 and 2016, Rhode Island's GDP per worker declined by 3.7%, a trend that has likely reached an inflection point between 2016 and 2019. After many years of declining economic output per worker, GDP per worker has begun increasing. Relatively more jobs have been created in advanced industries than in the period preceding 2016, helping to raise the average GDP per worker.<sup>4</sup> Despite the slight increase, Rhode

**GDP per worker development compared to peer states and the U.S.**  
(index 100)

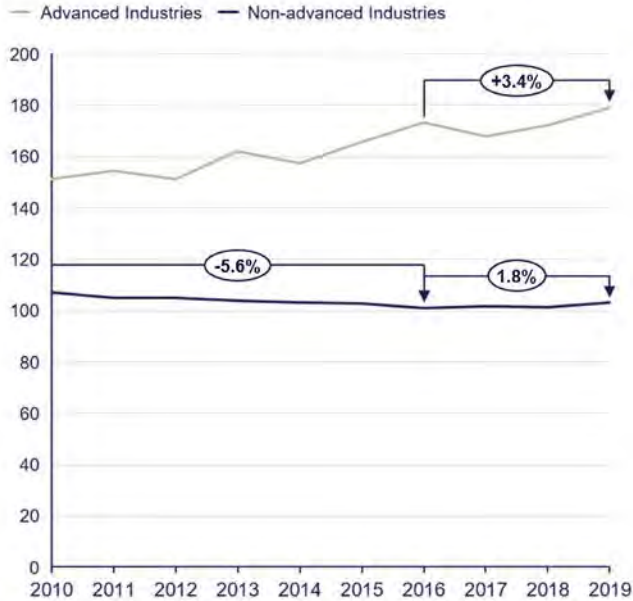


Source: Bureau of Economic Analysis

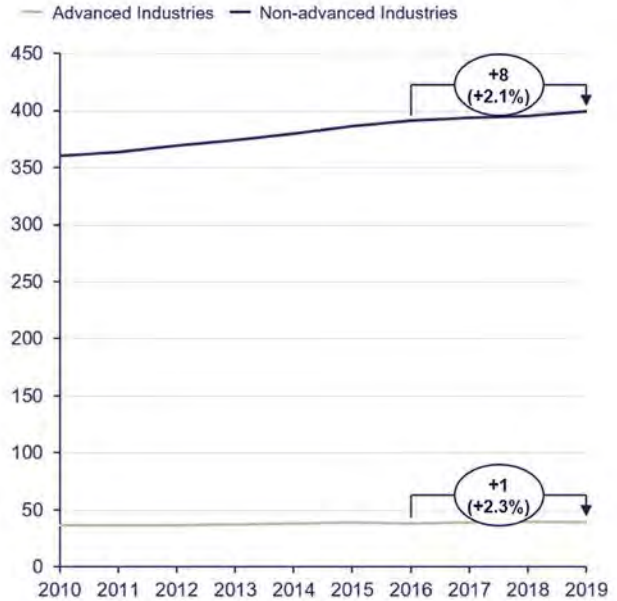
Island's GDP per worker growth lags behind those of peer states in New England as well as the U.S. national average. Since the absolute size of the employment base in Rhode Island's non-advanced industries is roughly 10 times the size of the employment base in advanced industries, the absolute number of jobs added in Rhode Island's economy remains largely in industries with lower GDP per worker. In absolute terms, between 2010 and 2019, non-advanced industries added roughly 39,400 jobs, compared to roughly 2,800 added in advanced industries. The proportion of non-advanced industries relative to advanced industries challenges the overall economy, as the GDP per worker in non-advanced industries declined by 5.6% between 2010 and 2016, while GDP per worker increased by 14.7% on average in advanced industries.<sup>5</sup>

The relative proportion of job creation distributed between advanced and non-advanced industries is, however, gradually shifting with advanced industries growing more quickly.

**GDP per worker in Rhode Island, 2010-2018**  
USD-2012 dollars (thousands)



**Employees in Rhode Island, 2010-2018**  
Thousands



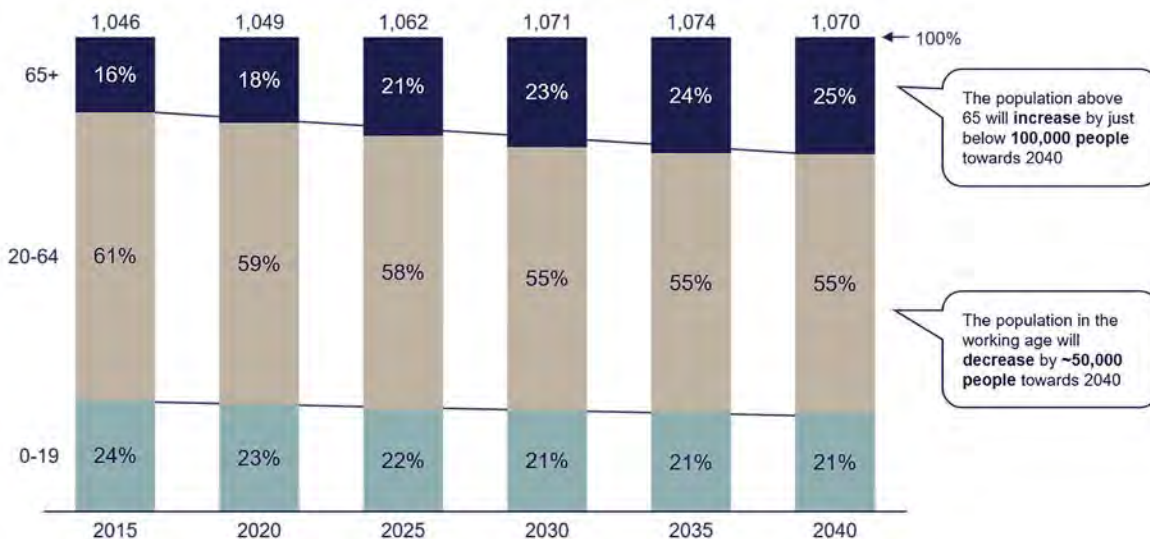
Source: Bureau of Economic Analysis

Between 2016 and 2018, advanced industry employment grew by 3.4% while non-advanced industry employment grew by 1.3%. Moreover, the decline in GDP per worker in non-advanced industries has reversed between 2016 and 2019, returning Rhode Island to a positive development in average GDP per worker.

Since 2016, Rhode Island has put itself on the right trajectory by growing employment in advanced industries faster than in non-advanced industries. It is crucial that Rhode Island continue the growth momentum in its advanced industries to increase average GDP per worker. Nevertheless, non-advanced industries still employ the vast majority of the Rhode Island workforce, and Rhode Island will have to push to increase economic output and productivity for these workers if it is to see greater impact on GDP growth.

Between 2015 and 2040, the projected proportion of Rhode Island’s working age population (between 20-64) is expected to decrease from 61% to 55%, an absolute

**Rhode Island age distribution 2015- 2040**  
Population (thousands)



Source: Rhode Island Statewide Planning Program, 2013

decline of ~ 50,000. Meanwhile, the population above the age of 65 will increase by nearly 100,000 residents in the same period.<sup>6</sup> If GDP per worker does not continue to grow, Rhode Island's economy risks contraction simply as a result of a declining workforce. Moreover, attracting talent from outside the state, as well as retaining talent within state, will become increasingly important in the next decade.

## The performance of Rhode Island's prioritized industry clusters

Rhode Island is strategically located at the center of the country's densest megalopolis, stretching from Portland, Maine to New York City. The state hosts an abundance of assets and boasts world-class academic and research institutions with deep expertise in, for example, food and the culinary arts, biotechnology and the life sciences, data science, design, mathematics, and oceanography. The state is also home to innovative industries within manufacturing, the Blue Economy, cybersecurity, and data analytics. Rhode Island's previous economic development plan successfully prioritized expanding the state's asset and knowledge base within certain key competitive industries.

In January 2016, Rhode Island released its first economic development plan: *Rhode Island Innovates: A Competitive Strategy for the Ocean State*. This report focused on advanced industries, mostly comprised of companies in advanced manufacturing and services sectors, which anchor the U.S. economy as a whole by paying higher wages, growing exports, and generating knowledge synergies that drive productivity growth across both advanced and non-advanced industries.

The 2016 economic development plan identified five advanced industry clusters and two opportunity clusters in which Rhode Island had a strong asset base that could be leveraged to increase economic growth in the state.

*The five advanced industry clusters are:*

1. Biomedical Innovation
2. Defense Shipbuilding and Maritime
3. IT-Software, Cyber-Physical Systems, and Data Analytics
4. Design, Food, and Custom Manufacturing
5. Advanced Business Services

**Since 2016, Rhode Island has put itself on the right trajectory by growing employment in advanced industries faster than in non-advanced industries. It is crucial that Rhode Island continue the growth momentum in its advanced industries.**

*The two opportunity clusters are:*

1. Transportation, Distribution, and Logistics
2. Arts, Education, Hospitality, and Tourism

Of the five core advanced industry clusters, three have significantly grown employment: Biomedical Innovation; IT Software, Cyber-Physical Systems, and Data Analytics; and Advanced Business Services all grew employment by 13% or greater between 2013 and 2017. Defense Shipbuilding and Maritime increased its employment base by 4%, while Design, Food, and Custom Manufacturing decreased by 1%.<sup>7</sup>

The two opportunity clusters (Transportation, Distribution, and Logistics as well as Arts, Education, Hospitality, and Tourism) also significantly increased employment by 15% and 14% respectively between 2013 and 2017.

Overall employment in the prioritized clusters grew 12% between 2013 and 2017 compared to 7% across all industries in Rhode Island.

## **Project Methodology**

The project team utilized a variety of methodologies and data to allow for source triangulation and validation:

- The Bureau of Labor Statistics Quarterly Census of Employment and Wages (QCEW) survey is the only official survey with detailed industry data and is the primary data source for this report's industry cluster performance evaluation.
- Due to raw data inconsistencies, the QCEW data was enhanced and triangulated using Moody's analytics data and interview estimates from industry experts, participants, and reports in order to increase data validity.

A peer group consisting of the following U.S. states is continued from the previous report and will be used as benchmarks for key economic indicators: Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, and Vermont.

### **Statistical data sources:**

Several data sources were used to access economic and statistical data in order to describe and quantify Rhode Island's recent economic development.

### **Official government sources:**

- U.S. Census Bureau
- Bureau of Labor Statistics
- Bureau of Economic Analysis
- National Science Foundation
- National Center for Education



- Statistics Rhode Island Annual Economic Reports
- Department of Health and Human Services
- Small Business Innovation Research Program
- USA Spending (Dept. of Treasury)

**Private sources:**

- Moody’s Analytics U.S. Detailed Database
- PWC MoneyTree
- Providence Business News Business List

To ensure consistency with the Brookings report, employment figures have been collected from the Bureau of Labor Statistics. The data from the Bureau of Labor Statistics is categorized using the North American Industry Classification System (NAICS). NAICS is the standard used by Federal statistical agencies for classifying business establishments for the purpose of collecting, analyzing, and publishing statistical data related to the U.S. business economy. NAICS contains 5 levels of detail, and the advanced industry clusters in this report are defined at the most detailed level.

The recorded time period starts in 2013, picking up on the latest figures presented in the Brookings report. The time period ends in 2017, due to data availability from the Bureau of Labor Statistics. A similar two-year time lag existed in the Brookings report, which was launched in early 2016 and included employment data up to 2013.

Several terms applied in the analysis merit definition:

- **Industry clusters:** Industry clusters are geographic concentrations of interconnected businesses, suppliers, service providers, coordinating intermediaries, and associated institutions like universities or community colleges in a particular field.
- **Advanced industries:** The Brookings Institution Metropolitan Policy Program has identified a set of 50 advanced industries that together constitute the commercial innovation sector that turns technical invention into industrial-scale business enterprise. These advanced industries are defined by deep investments in R&D and STEM workers; an intense orientation towards innovation; and high productivity, good pay, and strong export levels. They include a wide range of manufacturing industries such as boatbuilding as well as engineering, software and computer services, and commercial research and testing services. Because of their long supply chains and sizable multiplier effects, these industries drive disproportionate amounts of a location’s economic activity. Advanced industries anchor the U.S. economy by encompassing “the nation’s highest-value economic activity. As such, these industries are the country’s best shot at innovative, inclusive, and sustainable growth.”<sup>8</sup>
- **Opportunity industries:** Opportunity industries are industries that offer good jobs with livable wages. Traditionally, the key metric of economic development success is “jobs, jobs, jobs.” However, far too many low-skilled jobs fail to offer



wages and benefits that afford a decent standard of living. This reality has prompted a new appreciation of industries outside the advanced industry sector that generate jobs that offer livable wages, benefits, and pathways to career advancement for workers without a bachelor’s degree. While opportunity industries tend to be locally oriented, some bring new income and economic growth to Rhode Island by selling goods or services outside the state. For instance, the arts, hospitality, and tourism sector, which employs many less-educated workers, helps grow Rhode Island’s economy by serving out-of-state visitors. Local-serving industries such as construction and hospitals can also provide good jobs for Rhode Islanders.

**Interviews:**

The project team also conducted extensive stakeholder and expert interviews to gain deep insight into the drivers of economic, industry, and policy development. Those interviews represented Rhode Island’s public, private, and civic sectors.

**Cluster Analysis**

We now analyze the economic development of the five advanced industry clusters identified in 2016, their key sub-clusters, and the clusters’ assets and potential barriers for growth. We also identify two additional clusters that show great potential for Rhode Island and that have emerged and/or strengthened since the 2016 report.

Advanced Industry Clusters	Employment 2017*	Employment growth 2013-17	Empl. growth vs. peers 2013-17**	Specialization vs. peers 2017*	Proportion of "good jobs"
Advanced Business Services	40,194	14%			48%
Biomedical Innovation	36,288	13%			50%
Defense, Shipbuilding and Maritime	19,513	4%			57%
IT-Software, Cyber-Physical Systems	14,296	13%			49%
Design, Food and Custom Manufacturing	10,581	-1%			34%
<b>Opportunity Industry Clusters</b>					
Arts, Education, Hospitality and Tourism	48,845	14%			16%
Transportation, Distribution and Logistics	24,086	15%			42%
<b>Total Advanced &amp; Opportunity Clusters</b>	<b>193,803</b>	<b>12%</b>			<b>49%</b>
<b>Total Rhode Island</b>	<b>458,884</b>	<b>7%</b>			<b>NA</b>

Source: Bureau of Labor Statistics, FRED Economic Research and Brookings Institution and Battelle, Rhode Island Innovates (2016).<sup>2</sup>

**Biomedical Innovation: Solid employment growth with industry niches that hold great potential**

Biomedical Innovation advances scientific knowledge of biological processes and systems

in ways that reshape our understanding of disease, medical diagnostics and devices, and treatment options. These advances converge with technological developments in other fields—including electronics, information technology, imaging, and nanoscience—to offer new insights that inform the creation of biomedical products. Biomedical Innovation requires close connections between basic research, translational and clinical research, and industry development. Its reach extends “from bench to bedside.”<sup>10</sup>

The Biomedical Innovation cluster is the second largest of the five advanced industry clusters, with 36,288 employees in 2017. With 13% employment growth between 2013 and 2017, the cluster was in the top half of employment growth among peer states, while being in the bottom half in specialization, with a location quotient (LQ) of 0.82. The sub-clusters within Biomedical Innovation in this report were drawn from the Brookings report (2016) to facilitate longitudinal comparisons. The sub-clusters that have experienced particularly strong growth are:

- *Hospitals and Healthcare Centers* are the primary source of employment as this sub-cluster employs ~30,900 employees and thus makes up 85% of the cluster. The sub-cluster grew 13% between 2013 and 2017 and was in the bottom half on specialization compared to peers, with an LQ of 0.72. The sub-cluster’s employment growth between 2013 and 2015 was 29% but then declined again between 2015 and 2017 by 12%.
- *R&D and Medical Labs*<sup>11</sup> employ ~2,000 employees and grew employment by 9% between 2013 and 2017, which was in the top half of peer states growth. The specialization rate is at the U.S. average, with an LQ of 1.01, but is unspecialized compared to neighboring peers. Massachusetts had an LQ of 3.34 in 2017.
- *Surgical and Medical Device Manufacturing* employ ~1,800 employees and grew 13% between 2013 and 2017. The sub-cluster is specialized, with an LQ of 1.68, which is among the top half of peers. The sub-cluster’s specialization is aligned with Rhode Island’s long history and capabilities within small-scale and custom manufacturing.

Coordination between cluster participants has improved since 2016. This improvement is largely attributable to the efforts of the business intermediaries RI Bio and RI BioHub, which formed following the launch of the 2016 economic development plan. RI BioHub has, however, highlighted that improved coordination across the state’s Biomedical Innovation cluster remains a work in progress as its Biomedical Innovation resources are still somewhat fragmented.<sup>12</sup> Cluster participants agree that organizations remain largely siloed within corporate, educational, and public institutions, underlining the point that it takes time to transition a number of autonomous actors into a focused innovation-driven cluster that collectively pulls in the same direction. Increasing the cluster’s cohesion remains their focus and will strengthen Rhode Island’s brand as a Biomedical Innovation hub.

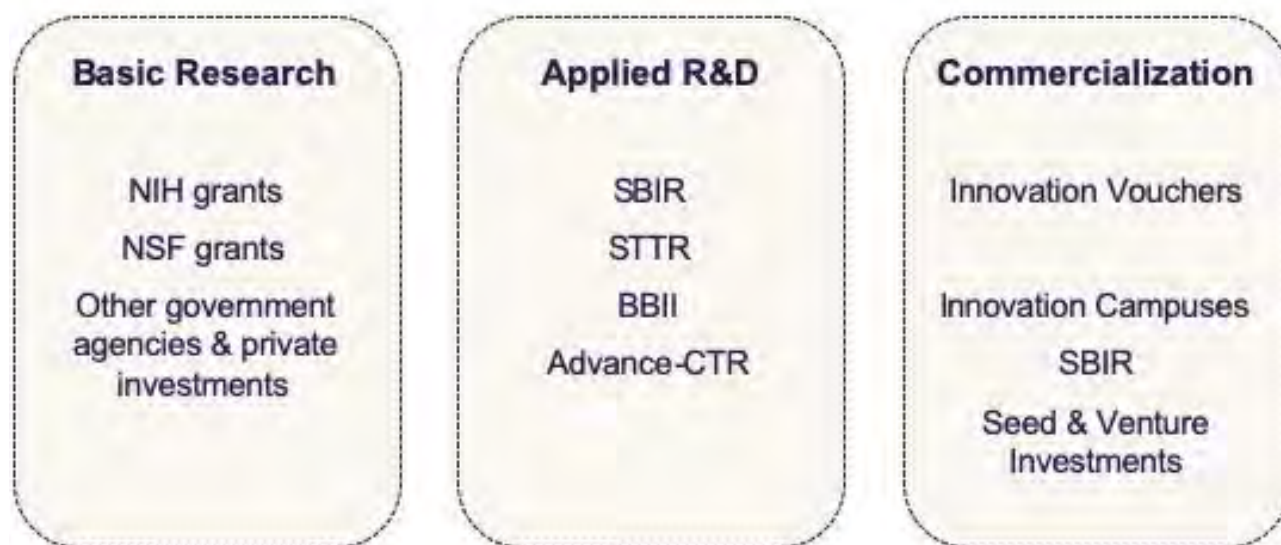
The talent pipeline for Biomedical Innovation is also growing in Rhode Island. Within the current workforce, the Real Jobs RI initiative has partnered with RI Bio to invest in life sciences training for companies including Amgen, EpiVax, Rubius, etc. The University of Rhode Island now officially has a Biotechnology degree program (ranked

4th in the country) and has facilitated biotechnology training at the high school level since 2017, with funding support from Amgen to strengthen the future workforce.<sup>13</sup> Universities are graduating large numbers of students with degrees in the STEM fields and economic development efforts are working to ensure that there are jobs to keep these students in Rhode Island.

*The cluster's key assets are anchored in Rhode Island's universities and corporate innovation niches*

Rhode Island's research capabilities within the cluster are strong and established. Brown University and the University of Rhode Island are world-class institutions within the bio cluster niches of neuroscience, oncology, and medical devices. Both universities continue to strengthen their capabilities within the field and are investing in life sciences research infrastructure by supporting and expanding new innovation campuses. The infrastructure, financing, and support for identifying, creating, and moving IP off of university campuses and into the market is beginning to coalesce at the universities (e.g., Carney Institute for Brain Science at Brown University and the University of Rhode

**Funding Sources for Research and Commercialization**



Island's Center for Biotechnology and Life Sciences) and at the innovation campuses. However, the lack of available wet lab space will limit future growth potential. Only with a coordinated state-led effort that meets the infrastructure requirements with regard to commercialization trajectories will Rhode Island be able to retain the value created in the state.

There exist funding pathways progressing from pure basic research to commercialization, but applied research grants and commercialization funding leave room for improvement. These factors prevent Rhode Island's Biomedical Innovation cluster from reaching its full potential.

The largest sources of research funds from federal and state sources are as follows:

- National Institutes of Health (NIH) Grants: The largest funder of biomedical research in the world. Grants for basic and applied research across multiple categories.

- Small Business Innovation Research (SBIR): Investment of federal research funds in private sector innovation.
- Small Business Technology Transfer (STTR): Cooperative R&D between small business and research institutions.
- Innovation Vouchers & Innovation Campuses: Rhode Island programs to assist the development and commercialization of IP.

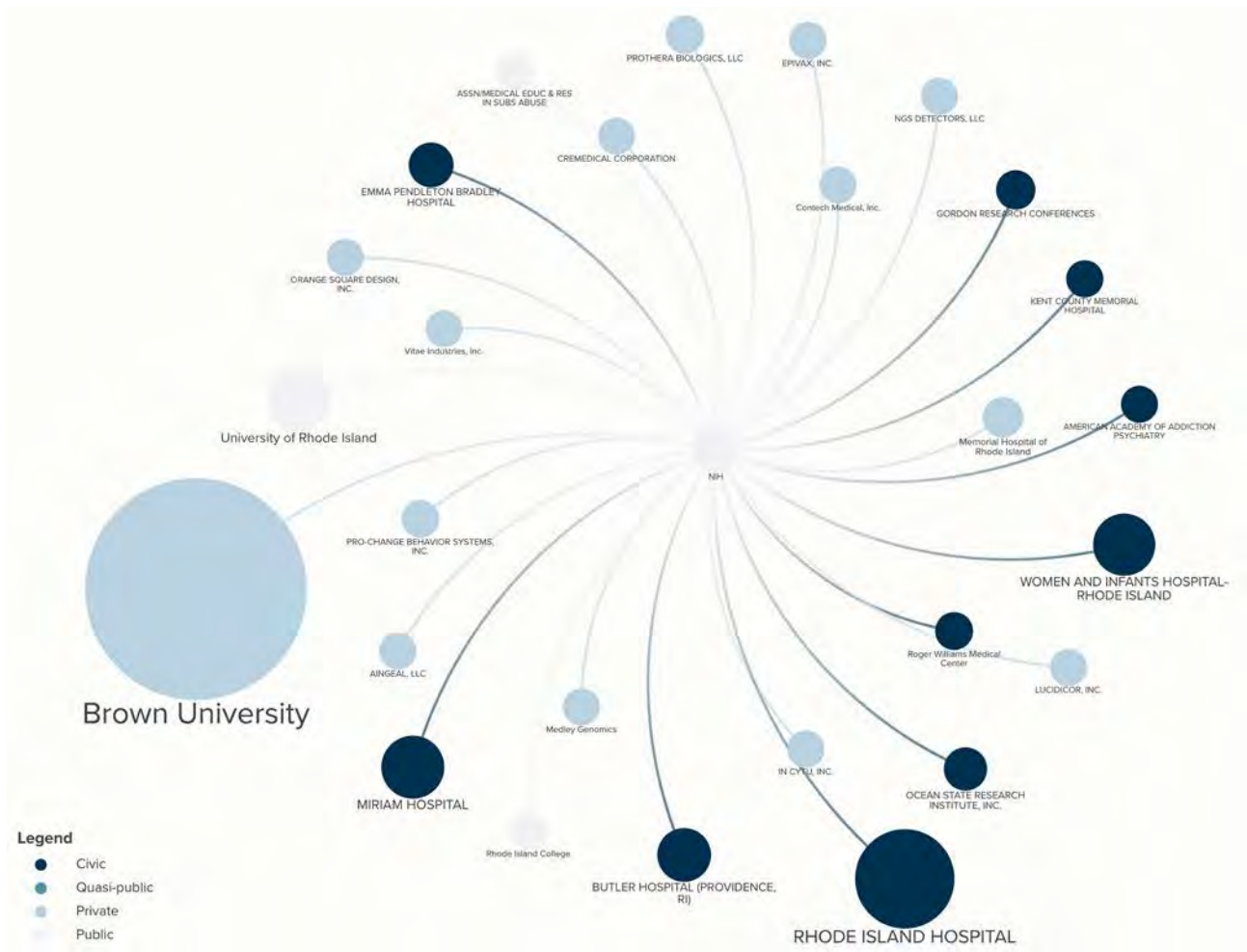
Rhode Island NIH grant recipients are found across the three sub-clusters: Hospitals and Healthcare Centers, Surgical and Medical Device Manufacturing, R&D and Medical Labs. But the vast majority flows through universities and hospitals. The research with the highest potential for commercialization is in the Surgical and Medical Device Manufacturing and the R&D and Medical Labs sub-clusters, in addition to research occurring at universities that needs pathways off campus through startups and partnership models with existing companies.

**NIH Grant Recipients in Rhode Island, 2016-2019**

Organization / Firm	Amount
Aingeal, LLC	\$458,853
Assn/Medical Educ & Res in Subs Abuse	\$146,490
Brown University	\$367,213,842
Butler Hospital (Providence, RI)	\$33,460,924
Contech Medical, Inc.	\$222,943
Creomedical Corporation	\$150,000
Emma Pendleton Bradley Hospital	\$15,803,558
Epivax, Inc.	\$4,751,993
Gordon Research Conferences	\$4,962,738
In Cytu, Inc.	\$879,408
Kent County Memorial Hospital	\$578,624
Lucidicor, Inc.	\$224,985
Medley Genomics, Inc.	\$299,670
Memorial Hospital of Rhode Island	\$7,456,105
Miriam Hospital	\$51,837,343
Ngs Detectors, LLC	\$225,000
Ocean State Research Institute, Inc.	\$12,626,358
Orange Square Design, Inc.	\$241,302
Pro-Change Behavior Systems, Inc.	\$1,840,033
Prothera Biologics, LLC	\$3,092,136
Rhode Island Hospital	\$124,018,084
Roger Williams Medical Center	\$1,924,611
University of Rhode Island	\$52,168,707
Vitae Industries, Inc.	\$149,163
Women and Infants Hospital-Rhode Island	\$50,184,669

Source: National Institutes of Health

**NIH Grant Recipients Scaled by Amount, 2016-2019**



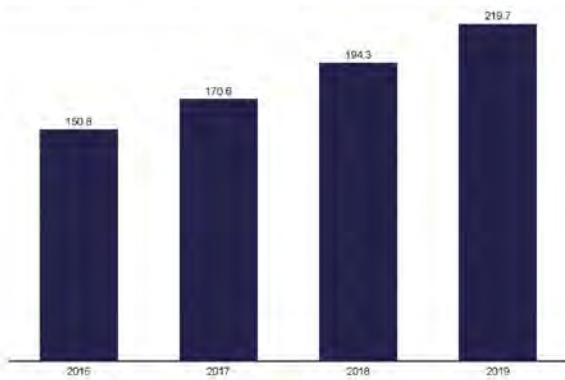
Source: City Facilitators Analysis

The state’s excellence in neuroscience research is bolstered by the Ryan Institute at URI, which was founded in 2013 and received an additional \$24 million in 2019 as part of a \$35 million gift from Tom and Cathy Ryan, and the Carney Institute at Brown University, established in 2018 with a \$100 million namesake gift from Brown University alumnus Robert J. Carney and Nancy D. Carney. Brown University’s success in NIH grant-funded projects has been remarkable. In 2019, Vincent Mor received a five year grant to improve care for those with Alzheimer’s disease and related dementias from the National Institute on Aging totaling \$53.4 million, the largest federal award in Brown University history. Universities in the state must continue to drive translational research, organized around strategically assessing the commercialization potential of the basic and applied research conducted on campus. Federal basic research grants are a gateway to marketable biomedical advances with clear pathways to further development on campus and then in startups.

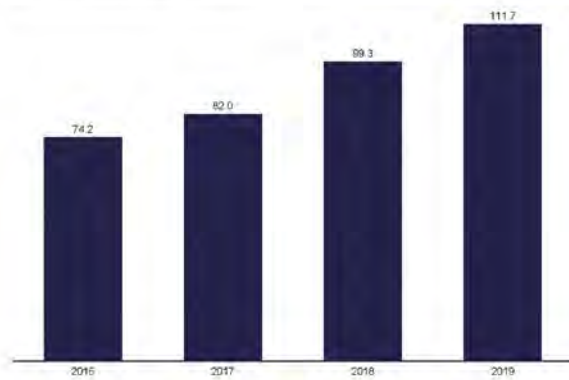
**Further support for startups and commercialization of research-led IP needed**

To capitalize on Rhode Island’s innovative research, the state must mature its startup ecosystem. While Slater Technology Fund and the Cherrystone Angel Group provide limited early stage capital, industry cluster participants draw attention to the significant

Rhode Island NIH Grants, 2016-2019  
USD (Millions)



Brown University NIH Grants, 2016-2019  
USD (Millions)



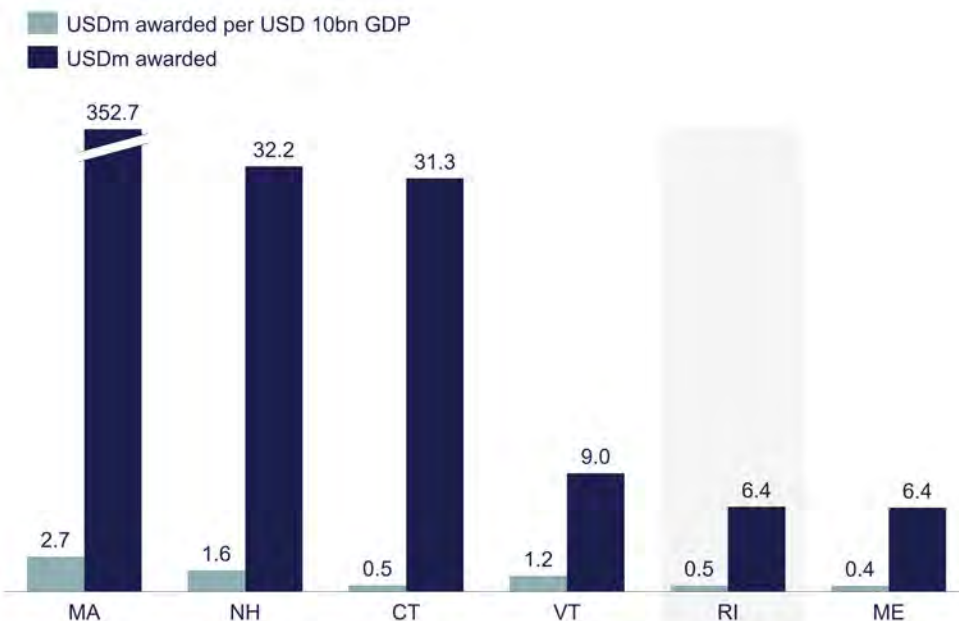
Source: National Institutes of Health

gap in private and public funding at the early stages of the startup lifecycle, resulting in some Rhode Island startups moving north to the Boston area or west to the University of Connecticut's Technology Incubation Program.

Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) grants are intended to assist private companies in conducting high-value R&D. They are thus designed to bridge the gap between basic and applied research and onward toward commercialization. The success of Rhode Island-based firms in winning grants creates further opportunities for commercialization, though relative to peer states, Rhode Island businesses have received limited SBIR and STTR funding from the Department of Health and Human Services. Massachusetts was awarded \$352.7 million between 2016 and 2018, the equivalent of \$2.7 million per \$10 million GDP, whereas Rhode Island was awarded \$6.4 million during the same period, the equivalent of \$0.5 million per \$10 million GDP.<sup>14</sup>

**Relative to peer states, businesses in RI have received limited SBIR & STTR\* funding from the DHHS\*\*, this points to a potentially underutilized resource in RI's Biomedical Innovation sector**

SBIR & STTR funds from DHHS, 2016-18



Source: Bureau of Economic Analysis and SBIR.gov



**SBIR / STTR Recipients and Amounts in Biomedical Innovation, 2016-2018**

<b>Company</b>	<b>Source</b>	<b>Amount</b>
Computational Textiles, Inc.	SBIR	\$224,998
Contech Medical, Inc.	STTR	\$222,943
Epivax, Inc.	SBIR	\$1,098,810
In Cytu, Inc.	SBIR	\$879,408
Medley Genomics	SBIR	\$299,670
Nanosoft, LLC	SBIR	\$225,000
Ngs Detectors LLC	SBIR	\$225,000
Pro-change Behavior Systems Inc.	SBIR	\$1,690,860
Prothera Biologics, LLC	SBIR	\$2,092,137
Vitae Industries, Inc.	SBIR	\$149,163

Source: SBIR.gov

The mandate of Rhode Island’s Procurement and Technical Assistance Center (RI PTAC) expanded in 2018 to include working with private companies applying for SBIR or STTR grants. The opportunities that this valuable source of federal money brings should be utilized to the fullest extent possible, especially now that companies are supported in the application process. URI Ventures has taken a leading role in organizing a SBIR workshop to support local entrepreneurs as well as bringing in the New England I-Corps to help early stage entrepreneurs develop their business market fit.

Rhode Island’s Innovation Vouchers are crucial for advancing innovative biomedical solutions from R&D to commercialized products. However, the awards are for a maximum of \$50,000, which is little more than a stopgap, bearing in mind the costs of clinical trials. Furthermore, the mandate that recipients work with a university-based knowledge partner prevents firms with in-house expertise from accessing this finance stream.

Rhode Island’s nascent innovation campuses and startup support ecosystem are just starting to become operational. The state is taking the next step in facilitating the process of advancing research knowledge to reach productized solutions by building innovation campuses that create pathways between researchers, universities, institutions, and private firms. As long as the innovation campuses are in an early stage development, it is crucial to continue concentrating resources to build up the startup support ecosystem.

If startups remain in Rhode Island and eventually go out in search of economies of scale, they may end up considering other cities due to a lack of talent retention in Rhode Island. Accessing and retaining talent in Rhode Island, especially among graduating students, is a key challenge. The Brookings Institution reported a 36.5% retention rate among Providence region college graduates, compared to an average of 72.8% among the top-10 regions.<sup>15</sup> Establishing a mature and innovative startup ecosystem is a crucial asset in creating further growth as this supports attracting larger biotech companies to the state. Such companies gravitate to the locations where entrepreneurial innovation is occurring.

## Innovation Voucher Awards in Biomedical Innovation

Agcore Technologies, LLC  
Alcinous Pharmaceuticals, LLC (x2)  
Circadian Positioning Systems, Inc. (CPS)  
CoreMechanics, LLC  
CRE Medical  
Electro Standards Laboratory, Inc.  
EpiVax, Inc. (x2)  
Gliaview, LLC  
Materials Science Associates, LLC  
Medley Genomics, Inc.  
MindImmune Therapeutics, Inc. (x2)

NanoDe Therapeutics, Inc.  
Nanosoft, LLC (x2)  
Onvector, LLC  
Phoenix Medical Technologies  
ProThera Biologics, Inc.  
S2S Surgical LLC  
Sproutel, Inc.  
Tech Against Assault, PBC  
Vacuum Processing Systems, LLC  
Videology Imaging Solutions, Inc.  
Vitae Industries, Inc. (x2)

Source: Rhode Island Commerce Corporation

In order to increase the cluster's attractiveness to private and public capital investments, Rhode Island must improve branding and communication of its position and focus on key sub-clusters where there is a strong local asset base (e.g., neuroscience and medical device innovation and manufacturing). Work should continue to ensure that the 2016 strategy is fully embraced by all relevant stakeholders.

Moreover, few Rhode Islanders see themselves as benefitting from innovation and research investments, which often receive limited political and legislative attention. This must be improved to create a platform on which this promising industry cluster can thrive. Cluster participants agree that greater efforts regarding coordination and communication can help overcome this challenge. Rhode Island has several success stories in the Biomedical Innovation field (for example, the growth of Amgen's state-of-the-art BioManufacturing, Rubius Therapeutics, as well as Vertex's recent \$900 million acquisition of Semma Therapeutics), which also need to be better communicated and understood by the public and the state legislature. The attractiveness of these firms was greatly aided by Real Jobs RI, Qualified Jobs, and Rebuild RI tax credits.

Rhode Island's proximity to Boston is both an advantage and a challenge, according to representatives of the Biomedical Innovation cluster. Talent migration to Massachusetts and other nearby life sciences clusters must be turned into a two-way street to maximize spillover from research and innovation activity north of Rhode Island's border. Furthermore, the state's Biomedical Innovation strategy must address how to leverage proximity into an asset in order to accelerate competitiveness and to attract and retain talent within Rhode Island's Biomedical Innovation sub-clusters. While a continuous flow of talent out of Rhode Island is to be expected, there needs to be a corresponding movement into Rhode Island as well. A dedicated push to market Rhode Island as a leader within the most promising sub-clusters as this advanced industry grows will support the attraction of both talent and capital.

**Rhode Island's Innovation Vouchers are crucial for advancing innovative biomedical solutions from R&D to commercialized products.**

In summary, the key issues that challenge further growth acceleration in Rhode Island's Biomedical Innovation cluster are:

1. A startup ecosystem that remains immature, with limited access to private funding, as well as limited laboratory capacity. The lack of wet labs is a particular barrier to growth in the cluster. The need for universities to better understand their assets and potential for commercialization through tailored support programs.
2. The need to continue developing common understandings of the niche strongholds in which Rhode Island possesses a powerful competitive position and could create a unique brand to attract new talent and capital.
3. The need to more effectively communicate the success stories needed to gain wider public approval for research and innovation investments and for the wider public to understand the positive economic spillover effects of growing Rhode Island's biotechnology industry.

## **Defense Shipbuilding and Maritime: A strong asset base and high degree of specialization with potential carryover to grow Rhode Island's position in Offshore Wind energy**

The breadth of defense shipbuilding and other maritime industry activities taking place across Rhode Island is unique. Submarine construction, ship or vessel renovations and servicing, advanced materials and component development, boat/ship IT systems,

**As the “Ocean State,” Rhode Island has a long history and a multitude of capabilities across the maritime sectors.**

marine tourism, the recreational marine sector, and technology for the preservation of coastal environments are among the key areas in Rhode Island's maritime industry. While other significant aspects of Rhode Island's defense industry (e.g., undersea technology, Cyber-Physical Systems, and security IT) are either officially part of the IT Software, Cyber-Physical Systems, and Data

Analytics cluster or are not included in the labor economic statistics presented below because of the absence of NAICS codes directly related to these defense efforts, these also have extensive carryover to the state's Defense Shipbuilding and Maritime industry and are qualitatively discussed in this section.

The cluster employed 19,513 employees in 2017, which is up 4% from 2013. Employment growth has been lower compared to other advanced industry clusters and in the bottom half of growth among peers. The specialization is, however, very high, with an LQ of 3.15, which is in the top half compared to peers. With a 57% proportion of “good jobs,” the cluster has the highest proportion among both advanced and opportunity clusters. The sub-clusters that are particularly interesting and have performed particularly well in Rhode Island over the past few years are:

- *Shipbuilding* employs ~4,300 employees across the state, up by 15% since 2013. With an LQ of 3.43, in the top half of peers in 2017, shipbuilding is a strong industry in Rhode Island. The sub-cluster's heavy specialization and its clear synergies with the emergence of the Offshore Wind energy sector create opportunities to further accelerate the shipbuilding industry.
- *Industrial Machinery Manufacturing* employs ~1,200 employees, down by 16% from 2013, and is specialized, with an LQ of 2.27 in the top half of peers in 2017. Despite the decline in employment, the cluster's output is estimated to have increased by 37%<sup>16</sup> between 2013 and 2017, indicating an active automation effort within the sub-cluster. With a solid foothold in manufacturing, automation is an important tool for Rhode Island to elevate productivity across industries.

*An expansive asset base spanning defense, industry, and education shows promise for future growth*

As the "Ocean State," Rhode Island has a long history and a multitude of capabilities across the maritime sectors. There are industry leading companies as well as prominent institutions such as the Naval Undersea Warfare Center (NUWC) and its Narragansett Bay Test Facility, the national Undersea Technology Innovation Consortium (UTIC), and the University of Rhode Island's oceanographic cartography expertise. Additionally, the U.S. Naval War College, and its international programs, has for many years contributed to spreading the name and reputation of Rhode Island by training senior Naval officers from the U.S. and 45-50 countries every year.

State initiatives have improved state-industry coordination. Real Jobs RI has added to the supply of skilled labor. Cluster representatives emphasize that their own ability to design training and internship programs ensures relevant curricula and a greater chance of employment for the trainees. Some industry players have also made use of the Innovation Voucher program and advocated expanded funding of Innovation Vouchers for Rhode Island's maritime businesses. Furthermore, an expansion of the program that matches federal SBIR grants to include companies with over 50 employees could help boost innovation in the cluster.

With unique assets and infrastructure such as shipyards, marine equipment manufacturing, and expertise in nautical infrastructure, Rhode Island's maritime industry cluster is well positioned to leverage and expand into the Offshore Wind industry. Industry representatives, however, drew attention to several structural challenges that must be considered. The prospect of Offshore Wind as a prioritized industry is discussed later in this report.

### **Defense in depth**

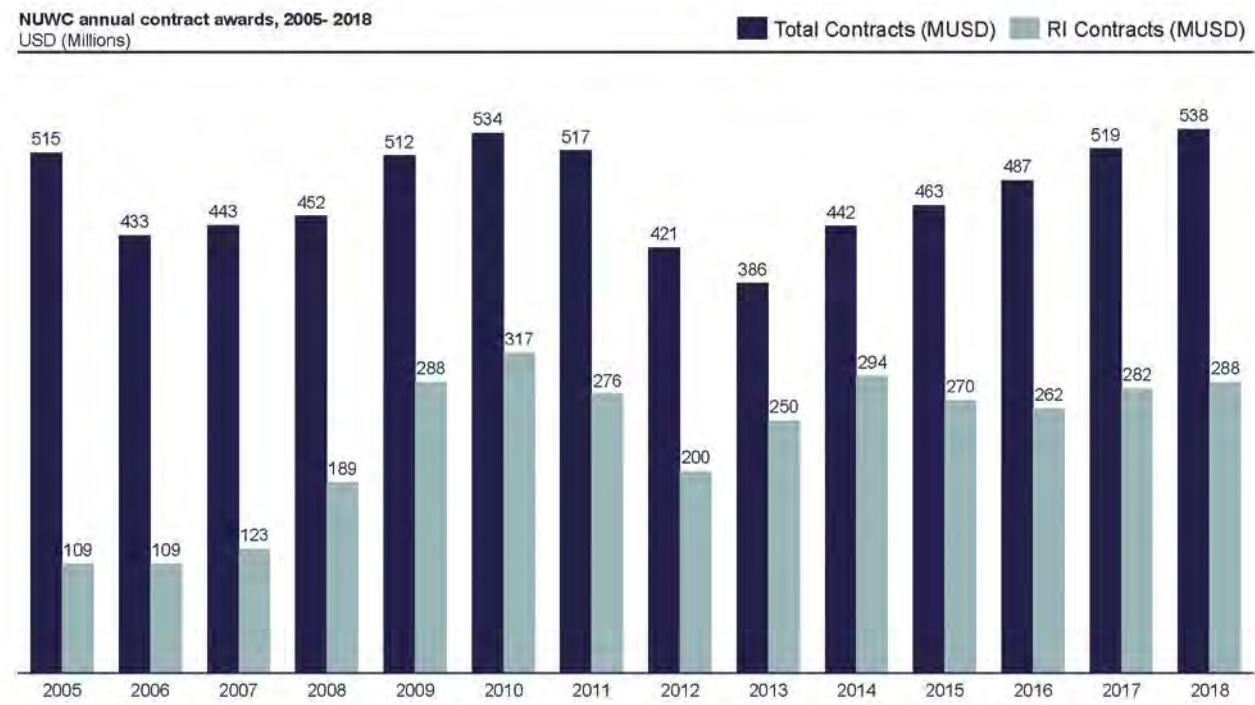
The defense cluster has strong connections between core firms through intermediaries in addition to a large number of unorganized service providers. Rhode Island is a major recipient of contracts from the Department of Defense, with General Dynamics Electric Boat and Raytheon leading the way. Defense jobs have a strong multiplier effect, and direct defense spending reaches far beyond defense manufacturing into Rhode Island trades and services:

- The ecosystem analysis makes a case for expanding support for small businesses that receive Department of Defense contracts providing construction, supply procurement, and other generic services beyond the cluster organizations of SENEDIA and UTIC, which predominantly represent the research, engineering, and manufacturing companies focused on technology development and sustainment.
- The job training program Real Jobs RI is another existing Rhode Island program that clearly aligns with and has supported this sector's institutions and policy goals.
- Expanding programs like SupplyRI across the defense sector is a way to further align an existing program to achieve state economic goals.
- While productivity has increased by an estimated 37% between 2013 and 2017, employment has decreased by 16% in the same period. Attention should be paid to the state's sub-contractors and small- to medium-sized businesses in the cluster in order to grow jobs and reduce dependence on cyclical federal defense spending. Of note, Electric Boat is forecasting significant growth in workforce to meet the demand of building submarines.

Rhode Island's two defense sector organizations, Southeastern New England Defense Industry Alliance (SENEDIA) and Undersea Technology Innovation Consortium (UTIC), create vital industry connections. While SENEDIA and UTIC organize anchor firms and connected cluster businesses (specifically related to research, engineering, and manufacturing focused on technology development and sustainment), direct Department of Defense spending reaches beyond members of these organizations, extending into construction, procurement of supplies, and other generic services. SupplyRI is an ideal program for expansion into these Department of Defense-funded services in the state. Currently, the only SupplyRI anchor firm in the defense cluster is Electric Boat, and its participation is not at full capacity.

Defense jobs and the defense industry have a far-reaching impact on Rhode Island's economy. One way to see this is through Rhode Island's share of Naval Undersea Warfare Center (NUWC) contracts, which have increased and thereby retained contracts in the state.

## Naval Undersea Warfare Center Annual Contract Awards



Source: Rhode Island Commerce Corporation

While defense spending is determined at the federal level, effective state policies and programs should be oriented toward assisting small Rhode Island businesses in winning local procurement contracts and providing matchmaking services for large defense contractors and installations.

Defense research follows the same general model as the Biomedical Innovation cluster: from basic to applied research, testing and evaluation, and then on to commercialization. SBIR grants are a vital source of public research funds to advance applied research.

### Sample of Rhode Island Recipients of SBIR Grants (Defense and Technology), 2016-2019

Company	Source	Amount
American Ecotech L.C.	SBIR	\$1,713,869
AQUANIS, INC.	SBIR	\$224,969
Btech Acoustics, LLC	SBIR	\$150,000
Electro Standards Laboratory, Inc.	SBIR	\$998,238
Lilac Solutions, Inc.	SBIR	\$149,155
Prisere Llc	SBIR	\$149,864
T.E.A.M., INC.	SBIR	\$124,933

Source: SBIR.gov

Defense spending seeks to advance basic understandings of fundamental scientific questions to the point of transformative scientific breakthroughs. Brown University and the University of Rhode Island received a total of \$9,850,159 from the Department of Defense between 2016 and 2019:

- Brown University received funds from the Army and DARPA.
- The University of Rhode Island received funds from the Air Force, Army, Navy, and Defense Threat Reduction Agency.
- Research funds are roughly split between basic and applied research.
- Rhode Island Commerce and cluster organizations should cooperate to increase the number of recipients to advance basic and applied research.

Increasing the value of local procurement in the defense cluster is a top priority. Rhode Island can improve the level of defense spending retained in state, adding to its multiplier effect:

- Not all small local suppliers, contractors, and service providers are fully accounted for in the defense cluster but represent a vital part of Rhode Island's small business ecosystem.
- State policies and programs oriented toward assisting small Rhode Island businesses win local procurement defense contracts should be expanded (e.g., RI PTAC).
- The cluster and state intermediaries should expand matchmaking services between small Rhode Island businesses and large defense contractors.

### **Greater capacity of surrounding land, ports, and skilled labor is necessary for fueling growth**

For many of Rhode Island's maritime companies, finding suitable commercial land with water access remains a challenge in a supply-constrained environment. The industrial market vacancy rate was 1.8% at the end of 2018.<sup>17</sup> Increasing capacity both in and around ports is also key for enabling physical expansion and growth in the maritime industry. Several representatives of the Defense Shipbuilding and Maritime cluster highlight the need for capacity expansion in shipyards to handle upcoming demand, especially as Offshore Wind is expected to increase demand for shipbuilding and shipyard capacity.

The Rhode Island maritime and defense industry also reports a lack of talent and skilled labor. Several companies report a daily shortage of employees, which they mitigate by sourcing labor from other states, such as Virginia. The demand for skilled and certified labor is particularly high among the small- and medium- sized enterprises in Rhode Island's shipbuilding industry as they have fewer resources to upskill and train people themselves compared to their larger competitors. There is a shortage of skilled labor across the businesses' functional areas, from manufacturing to management. Several

cluster representatives from maritime manufacturing and boatbuilding firms also report a weak outlook for succession as owners age.

Despite Rhode Island's long history and significant presence in the maritime industry, the cluster remains largely siloed. Several cluster representatives call for a better coordinated effort to market and grow Rhode Island's Blue Economy to promote common interests in the cluster. This includes branching out beyond the confines of what are currently considered marine industries to include information technology and cyber security as well as suppliers to the Offshore Wind industry. A common concern among the maritime cluster representatives involves innovation and how to better leverage new technology from startups to improve competitiveness. Many of Rhode Island's maritime companies find it difficult to tap into the startup ecosystem for inspiration and collaboration purposes because there are few formal coordination mechanisms between the traditional Rhode Island maritime companies and the startup community. While Rhode Island's maritime industry cluster has physical assets, a knowledge base, and data, it lacks coordination to feed off innovation in adjacent industries. Establishing a more formal infrastructure to support the commercialization of IP and research from universities would also help grow and advance the competitiveness of Rhode Island's maritime industry.

**Increasing capacity both in and around ports is also key for enabling physical expansion and growth in the maritime industry.**

In summary, the key issues challenging further acceleration of growth in Rhode Island's Defense Shipbuilding and Maritime cluster are:

1. A lack of capacity in ports and inland to support expansion as well as the expected upcoming demand from the Offshore Wind industry.
2. A lack of qualified and skilled labor across the organizations' hierarchies.
3. A lack of formal infrastructure and forums to coordinate and communicate the interests of the maritime industry and expand the dialogue to include the Blue Economy as a whole, leveraging technology and knowledge from adjacent industries, such as IT, cyber security, and Offshore Wind energy.

## **IT-Software, Cyber-Physical Systems, and Data Analytics: Expertise in the growing field of IT services has the potential to not only spur cluster growth but also stimulate growth in neighboring industries**

Cyber-Physical Systems—also known as smart devices, connected devices, or IoT (Internet of Things)—are at the forefront of the next frontier of the information technology revolution. Cyber-Physical Systems are comprised of complex engineered



systems that integrate advanced sensing, imaging devices, and robotic devices with software applications for data management, machine learning, AI, and data analytics. Advances in Cyber-Physical Systems are expected to increase the functionality of big data by improving its adaptability, scalability, and security to inform real-time decision-making. New smart Cyber-Physical Systems will drive innovation and competition in sectors such as agriculture, energy, transportation, infrastructure, building design and automation, healthcare, and manufacturing.

The cluster grew employment by 13% between 2013 and 2017, but with just 14,296 employees in 2017, the cluster is the second smallest of Rhode Island's five prioritized industry clusters measured by number of employees. The cluster is specialized, with an LQ of 1.92, which is in the top half compared to peer states. The sub-clusters within IT Software, Cyber-Physical Systems, and Data Analytics that have had the strongest growth are:

- *Custom Computer Programming Services* are firms primarily engaged in writing, modifying, testing, and supporting software to meet the needs of particular customers. The sub-cluster grew employment by an impressive 47% between 2013 and 2017 to ~1,900 employees and is in the bottom half of specialization compared to peers, with an LQ of 1.35.
- *Computer Systems Design Services* are firms primarily engaged in designing computer systems that integrate hardware, software, and communication technologies. The sub-cluster grew employment by 26% between 2013 and 2017 to ~5,200 employees. Despite being specialized in the top half compared to peers, with an LQ of 2.34, the industry is highly fragmented, with an average of 6 employees per establishment, indicating a broad startup community in the field.
- *Instruments* comprises establishments primarily engaged in navigation, measuring, and control instruments in manufacturing. The sub-cluster employs ~1,700 employees and is in the bottom half of specialization compared to peers with an LQ of 1.49. On employment, the sub-cluster declined 28% between 2013 and 2015 but has stabilized and increased by 7% between 2015 and 2017. The estimated output follows a similar trend, with a decline of 40% between 2013 and 2015, and an increase of 21% between 2015 and 2017.<sup>18</sup>

**The cluster's key asset is that it crosses all four other clusters, a unique feature for expansive and compounding growth**

Rhode Island has an established and growing expertise in the IT and data analytics sector. Rhode Island's IT and data analytical capabilities have potential to spillover to other industry verticals if synergies are appropriately leveraged, such as within agriculture, healthcare, manufacturing, and automation.

The Community College of Rhode Island's cyber security program is a critical enabler of Rhode Island's niche expertise within the field. Cyber security is a growing market, which attracts enormous interest especially from the U.S. defense sector and large corporations. According to an industry representative, the Community College of Rhode

Island's cyber security program is graduating students after two years, placing them in jobs with starting salaries of around \$60,000. The global cyber security market is expected to reach \$345.4 billion in 2026, growing at a CAGR of 12.3% between 2018 and 2026.<sup>19</sup>

Rhode Island's expertise in digital technologies also extends to the Blue Economy, establishing attractive niche areas within undersea capabilities, such as submarines and autonomous underwater vehicles.

Rhode Island is investing to grow its talent pipeline, having introduced computer science into public schools (CS4RI), which feed into the state's prominent institutions within computer science and data analytics at Brown University, the University of Rhode Island, Bryant University, and Rhode Island College.

**The Community College of Rhode Island's cyber security program is a critical enabler of Rhode Island's niche expertise within the field. Cyber security is a growing market, which attracts enormous interest especially from the U.S. defense sector and large corporations.**

### **More active cross-cluster coordination is required to effectively mine growth potential and reap cross-industry synergies**

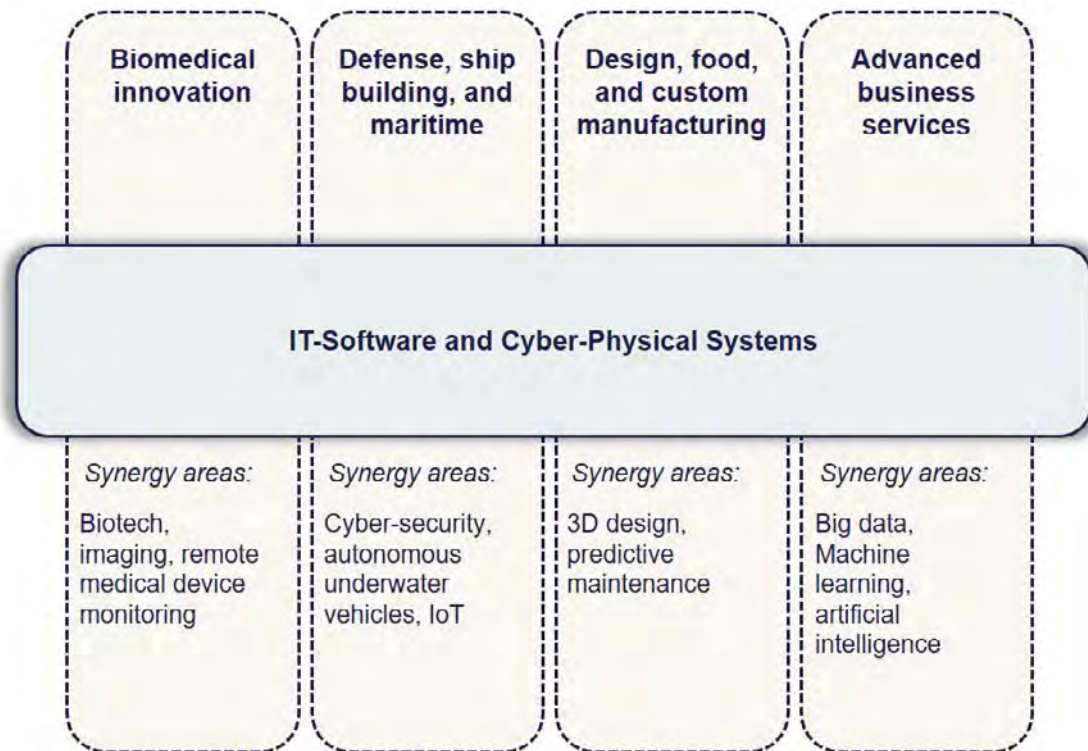
Limited formal coordination exists within the diverse clusters, with limited formal interaction across other verticals, curbing the synergy potential that Rhode Island's IT cluster could bring to the other prioritized industry clusters. Representatives from multiple clusters, especially in maritime and defense, express strong interest in increasing coordination across clusters and grasp the numerous opportunities that could result from enhanced collaboration.

Rhode Island faces an ongoing shortage of IT talent, despite efforts such as early workforce development through computer science in all public schools. Growing, retaining, and recruiting IT talent will be vital for propelling the cluster's growth trajectory.

In summary, the key obstacles to further acceleration of growth in Rhode Island's IT Software, Cyber-Physical Systems, and Data Analytics cluster are:

1. Limited centralized coordination to enable synergies within the cluster as well as between stakeholders in other clusters and the state as a whole.
2. Despite recent efforts, a relatively small IT talent pool is likely to be the greatest barrier to growth.
3. Lack of private investment capital.

**Illustration of IT-Software and Cyber-Physical Systems' Synergies with Adjacent Clusters**



## **Advanced Business Services: A core cluster that is one of the cornerstones of Rhode Island’s economy**

Advanced Business Services are a crucial component of modern companies, providing the systems for back office and headquarters operations including: data processing, marketing, client management, human resources, financial services, and consulting services. Advanced Business Services is Rhode Island’s largest cluster in overall workforce numbers with 40,194 employees in 2017. The cluster experienced strong growth of 14% between 2013 and 2017, in correlation with a rising employment rate and income levels. However, overall specialization in the cluster is in the bottom half with an LQ of 1.43. Nearly half (48%) of the jobs in the sector are “good jobs,” which is comparable to IT-Software, Cyber-Physical Systems (49%) and Biomedical Innovation (50%). Employment growth data compared to peer states was unavailable.

Highlighted sub-clusters within Advanced Business Services are Real Estate Credit, Investment Management, and Insurance. Real Estate Credit and Investment Management are specialized, with respective LQ’s of 1.85 and 1.21, and experienced high employment growth rates in the top half of peers (32% and 43%). Key players in Real Estate Credit in Rhode Island include: CBRE, MG Commercial, and Hayes & Sherry/Cushman & Wakefield. Investment management related activities is a sizable and specialized industry experiencing significant growth in employment. Fidelity Investments is a large player within investment management in Rhode Island, employing over three thousand people throughout the state.

Insurance related activities is specialized across all activities compared to peer states, yet it experienced a slight decline in employment at -4% between 2013 and 2017. Specialization in the sub-cluster is at LQ 1.48. The largest players within the industry in Rhode Island are Blue Cross & Blue Shield of Rhode Island, Amica Mutual Insurance, and FM Global with a combined total of 3,500 employees in the state.

A challenge for the cluster in Rhode Island is a significant undersupply of office space both within and outside of Providence. Limited transparency in the commercial real estate pipeline limits the attractiveness for private developers and financiers. Additionally, there have been limited intermediary efforts within the cluster or attempts to coordinate and leverage other clusters and/or states to benefit Advanced Business Services in Rhode Island. The Back Office market and the Tech Adjustment Initiatives, discussed in the recommendations, are avenues to drive growth in this cluster.

### **Professional services: Opportunity to leverage and support a fast-growing sector that is well placed to support adjacent advanced industry clusters**

To ensure a comprehensive overview of attractive industries to support and accelerate in Rhode Island, the industry cluster analysis looked beyond the prioritized advanced industries highlighted in the 2016 economic development plan. First, 60 additional advanced sub-clusters were analyzed, identifying professional services as an attractive sub-cluster with growth potential.

Professional services comprise various types of consulting services, ranging from civil, environmental, and construction engineering services to administrative and strategic management services, agricultural consulting services, and chemical consulting services. This cluster falls outside of Advanced Business Services, but is closely related and shares similar infrastructure and workforce requirements.

The sub-cluster employed ~ 4,800 employees in 2017, up 26% from 2013, and is specialized compared to peers, with an LQ of 0.88, which is nevertheless below the national average.

The professional services industry holds great importance and potential in Rhode Island as it anchors deep expertise within advanced industries, ensuring a local private platform to support growth across verticals. Furthermore, knowledge developed in professional services has strong carryover to other industries in terms of skills development and expertise. In particular, services within engineering and marine technology have critical spillover to supporting the Blue Economy.

Since professional services is a highly diverse sector representing a multitude of skills, it may not merit the creation of a discrete industry cluster. Yet, professional services that advise on topics of relevance to existing industry clusters should be included to a greater extent within wider industry initiatives, such as talent creation and attraction, private and public capital attraction, and physical innovation campuses and industry hubs.

## Design, Food, and Custom Manufacturing: Local innovation is creating new growth potential in Rhode Island's industries

Industrial design can provide a significant competitive advantage for a variety of companies and industries. The fourth industrial revolution and the IoT (Internet of Things) have been driving a rapid expansion into technology, product development, and digital experiences. In consumer goods and packaging, which value brand and customer usability, these technological developments and new applications, such as 3D printing technology, are helping to minimize costs and place emphasis on design.

As it stands, this broadly defined area is the smallest of the prioritized clusters, employing 10,581 employees in 2017, but is heavily specialized, with an LQ of 9.63. It is the only prioritized cluster in which employment declined between 2013 and 2017, shrinking by 1%. This decline is particularly driven by a 6% decline in the Jewelry sub-cluster, which represents 32% of the cluster. With 34% “good jobs,” the cluster has the lowest proportion among the prioritized advanced industry clusters. Admittedly, this cluster area contains sub-clusters that have seen continuously changing dynamics in Rhode Island for some time. The sub-clusters within Design, Food, and Custom Manufacturing that are especially compelling in Rhode Island are:

- *Jewelry* employs ~ 3,400 employees, representing 32% of the cluster, and is extremely specialized, with an LQ of 19.6. Despite employment having declined by 6% between 2013 and 2017, the cluster's output is estimated to have increased by 28% between 2013 and 2017,<sup>20</sup> indicating automation within the industry and a gradual increase in average GDP per worker.
- *Primary and Secondary Textile Mills* employed ~ 2,300 employees, up 2% from 2013, but is highly specialized in Rhode Island with an LQ of 10.78. The sub-industry Narrow Fabric Mills represents 39% of the sub-cluster and has an LQ of 21.38, indicating a strong niche in Rhode Island within textile manufacturing.
- *Perishable Foods Manufacturing* comprises establishments primarily engaged in manufacturing prepared foods, such as salads, sandwiches, pasta, and peeled or cut vegetables. The sub-cluster employed ~ 2,800 in 2017, down 2% since 2013, and is specialized, with an LQ of 2.16 in the top half of peers. The Rhode Island gastronomy scene has for many years been highly renowned, and a wide range of local food production establishments hold great potential.<sup>21</sup>
- Rhode Island's design sector has shown employment gains in recent years that help us highlight this asset locally. With around 4,000 jobs, the sector grew employment between 2014 and 2016 by 5%, with an LQ of 7.5.

### **The cluster's assets are built on notable educational institutions rooted in art and design**

One of the nation's premier art and design colleges – Rhode Island School of Design – is housed in the state, and most of the other colleges and universities contribute to this cluster ecosystem. There are approximately 44 design programs across Rhode Island

universities and colleges, with approximately 1,100 students graduating annually in Rhode Island. Industry representatives do, however, highlight the lack of design degree programs at the state colleges and universities, including the University of Rhode Island, Community College of Rhode Island, and Rhode Island College. This is a challenge for the cluster as state-based students are generally more likely to stay and work in Rhode Island post-graduation than are students from, for example, Rhode Island School of Design whose student population is 37% international.

Rhode Island continues to house an innovative food ecosystem with a high level of entrepreneurship. Since 2010, Rhode Island has experienced strong growth in small-scale agriculture, and one-third of graduates from Johnson & Wales start new businesses. The incubator Hope & Main also contributes to the startup ecosystem, having helped 200 entrepreneurs launch local sustainable food companies over the past four years.

The end-to-end food value chain in Rhode Island is highly localized, which representatives from the food cluster say leads to strong, stable, and intimate relationships between firms. 11% of agricultural products are marketed to consumers—a likely testament to local product recognition among consumers—compared to less than 1% nationwide. The proximity of producer to consumer aligns with culinary trends that value natural and locally sourced ingredients.

The food cluster is increasingly well organized, especially following the launch of the Rhode Island Food Strategy in 2017.<sup>22</sup> A well-organized industry cluster and active state efforts have contributed to Rhode Island’s solid brand within food, yet branding efforts could be strengthened outside the state sector.

Since the release of Rhode Island’s 2016 economic development strategy, coordination between state and industry has increased, leading to tangible investments in, for example, DESIGNxRI and their “Design is Rhode Island” social media effort. Programs such as Design Catalyst and Design Forward invest in design sector businesses and individuals. DESIGNxRI’s Design Catalyst program for example uses a combination of state and city funds and will have invested over \$1 million in 50 design businesses by June 2020. To date the program has helped these businesses add 31% more jobs and grow product lines by 69%.

Rhode Island has a burgeoning innovative ecosystem within design and manufacturing, in large part due to 401 Tech Bridge led by Polaris MEP with partners such as the Composites Alliance of Rhode Island, the Rhode Island Textiles Innovation Network, DESIGNxRI, and Rhode Island School of Design. Rhode Island is increasingly recognized both within and beyond state borders as a center for design excellence. However, more can still be done to leverage the design competencies and apply them to Rhode Island’s other industries, including advanced manufacturing, maritime, and medical device manufacturing. All are sectors that could benefit and leverage the design skills within Rhode Island’s design industry cluster.

## **Stronger branding in Food & Design and investment in local businesses are still required**

### *Food*

The risk-laden profile of small food businesses continues to pose a challenge for attracting private funding or receiving debt funding through small business loans. While there are success stories in Rhode Island involving smaller companies expanding nationally with help from state grants and initiatives—for instance The Family Cake Co., which went through Hope & Main’s incubator to expand outside Rhode Island—these are not enough. Cluster representatives call for increasing efforts on branding the state’s food outside Rhode Island to facilitate the growth of Rhode Island companies beyond state borders.

The marine food industry is also challenged by regulation and emerging offshore industries. The industry is caught between regulatory regimes as temperatures rise and fish migrate and the impact of emerging Offshore Wind parks, which are affecting some fishing areas.

### *Design and Custom Manufacturing*

Inconsistent cross-pollination between Rhode Island’s design businesses and adjacent industries potentially limits the growth of the Rhode Island design industry and the value it can bring to Rhode Island’s economy. Industry representatives suggest that there is a desire to collaborate with other industries, such as manufacturing and medical devices, but that dialogues have yet to materialize because, as has been noted, “there seems to be a translation issue.” Historically, limited opportunities for overlap have likely contributed to an unnecessarily large divide between the old industries that have been in Rhode Island for decades and newer strands of the design industry that go beyond, for example, jewelry and textile design. Industry representatives highlight the need for increasing marketing and branding of design businesses within and outside Rhode Island as well as engaging local corporations.

Limited opportunity between Rhode Island design businesses and the state is also highlighted as an inhibitor. Industry representatives express interest in doing business for the state, such as renovating public schools, but argue that the state always chooses the lowest bidder on projects, even when the lowest bid is not best suited for the project in question.

The manufacturing industry is also hindered by limited vacant industrial space for both custom manufacturing and newer initiatives like vertical farming. The industrial market vacancy rate was 1.8% at the end of 2018.<sup>23</sup> Currently, just 8% of Rhode Island Mushroom Company’s production occurs in the state due to lack of industrial space.<sup>24</sup> Industry representatives argue that increasing manufacturing capacity is a critical challenge for the manufacturing industry to accommodate the expected demand from, for example, the Offshore Wind industry.

### *Design’s vast and diverse potential for Rhode Island’s economy*

Design is truly part of the DNA in Rhode Island. Whereas the industrial revolution was born in Pawtucket in the late 1700s, design was a key part of fueling its success.

Indeed, the premier Rhode Island School of Design was founded to hone the craft behind manufacturing—ultimately creating a structure to continuously nurture and grow the talent needed for invention, innovation, iteration, and experience. This structure appears to be continuous and thriving in the state today. While design becomes a recognizable force throughout the globe, Rhode Island has an opportunity to unleash this local power and leverage its capacity to advance the state.

Pointing to design’s global value is the well-regarded Design Value Index, a market cap-weighted index comprised of design-driven companies produced by the Design Management Institute (DMI). In 2014, the Index found that corporations with a significant investment in design showed 10-year returns with a remarkable 219% over that of the Standard & Poor’s 500 index (“S&P 500”) from 2004 to 2014. DMI included in its findings insights like: “developing design capabilities is moving higher on the strategic agenda of American corporations as they believe the creative, integrative and empathy-based skills that designers bring can help crack new markets and add to their competitive advantage in customer experience.”<sup>25</sup>

Design can be considered a lateral cluster in that it is utilized inside every industry sector, similar to IT. This is often why the cluster is hard to truly quantify, as it is often absorbed in the outputs of other industry sectors. Industrial designers design and produce products in life sciences, healthcare, information technology, manufacturing, defense, and marine trades. Architects, landscape architects, and interior designers work in the construction, hospitality, and urban/place making fields and are increasingly addressing issues such as accessibility, climate change, and education. Graphic design visualizes communications for all industry sectors. Additionally, user experience design—while originally birthed alongside web development and the digital world—has now become a needed strategic approach alongside design thinking and human-centered design across all industries and sectors, making it more about a process with output that is difficult to quantify in traditional metrics.

While design often blends in these other sectors, this capability is what also makes the Design cluster unique and critical to the overall economic development of Rhode Island. Rhode Island’s design sector has shown employment gains in recent years that help us highlight this asset locally. With around 4,000 jobs, the sector grew employment between 2014 and 2016 by 5%, with an LQ of 7.5.<sup>26</sup> Compared to national figures, Rhode Island is ahead of the curve with growth in employment in a few notable design disciplines: Rhode Island’s Industrial Design sector increased 57% in employment compared to 24% nationally; Interior Design increased 38% locally compared to 17% nationally; and Computer Systems Design increased 16% in Rhode Island compared to 11% nationally.

**With global interest, corporate expansion, and a growing understanding of design’s value, Rhode Island has a real opportunity to tap the design segment of the economy to help activate and accelerate all areas of the state’s economy.**



With global interest, corporate expansion, and a growing understanding of design's value, Rhode Island has a real opportunity to tap this growing segment of the economy to help activate and accelerate all areas of the state's economy. Focusing on ways to integrate the designers and design potential that exist in Rhode Island with government, corporations, institutions, and other industry business leaders will give Rhode Island a unique competitive advantage over other U.S. states. While most of these design businesses export their talents to clients and companies throughout the world, creating opportunities for designers to focus their strategic capabilities locally will give the state testing opportunities to then showcase why Rhode Island is THE place for design.

In summary, the key obstacles to further acceleration of growth in Rhode Island's Food, Design, and Custom Manufacturing cluster are:

1. The food industry is challenged by regulation and the emerging offshore industries as well as difficulties in attracting investment.
2. Limited coordination between the Design cluster, adjacent clusters, and the state leads to untapped local business opportunities.
3. Attracting and retaining talent, especially design talent from local schools, inhibits growth.
4. Limited vacant industrial space is significantly limiting growth opportunities for local custom manufacturing businesses and is a key barrier for Rhode Island to successfully operate in parts of the manufacturing value chain in, for example, the Offshore Wind industry.

## **Beyond the prioritized clusters, Offshore Wind possesses significant growth potential in Rhode Island**

The industry cluster analysis looked beyond the prioritized advanced industries highlighted in the 2016 economic development plan. While statistical cluster identification methodology is a powerful and neutral way of identifying high-performance industries, the method is based on NAICS codes that often do not include newer or emerging industries. Therefore, we examined advanced industries not included in NAICS coding. Of the other opportunities we have considered, Offshore Wind is a clear frontrunner for future attention and prioritization in Rhode Island.

### **Offshore Wind: Rhode Island should establish a strategy for Offshore Wind with clear value chain focus to capture the early potentials in operations and maintenance, logistics, and technological innovation**

The rapidly growing Offshore Wind industry represents a significant opportunity for Rhode Island, especially considering that Rhode Island has a clear first-mover advantage as the first U.S. state with wind turbines in the water, off the coast of Block Island.

The Offshore Wind capacity on the East Coast is projected to reach 20 GW toward 2035, exceeding the current European capacity of 18.5 GW, and has associated CAPEX investments estimated to be worth ~\$70 billion.<sup>27</sup> Rhode Island is well positioned to be the leading state in certain parts of the Offshore Wind value chain.

Moreover, existing Rhode Island industry clusters like the marine and shipbuilding sector should be able to support and feed off the growth of the Offshore Wind sector on the U.S. East Coast. The accumulated East Coast job creation from Offshore Wind is estimated to grow between 20,000 and 35,000 fulltime jobs by 2028.<sup>28</sup>

Many New England states have an explicit interest in becoming the East Coast Offshore Wind hub, forcing Rhode Island to identify its competitive niche. As in Europe, states will use their investments as negotiating leverage to own large parts of the supply chain. Rhode Island is currently projected to be the smallest investor in the industry, with \$1 billion in 2020, and is unlikely to have the equivalent investment capacity of larger neighboring states. Additionally, some states already possess key assets that provide early advantages in some areas, such as Connecticut's New London pier, which is among the only ports on the East Coast with unobstructed access to open water.

**The rapidly growing Offshore Wind industry represents a significant opportunity for Rhode Island, especially considering that Rhode Island has a clear first-mover advantage as the first U.S. state with wind turbines in the water, off the coast of Block Island.**

For Rhode Island to best position itself as a leader in Offshore Wind, it is vital to identify which parts of the supply chain the state is best positioned to win and how the government and local industry players can capture these opportunities. An early analysis suggests that three areas hold high potential:

1. *Operations and maintenance* on the East Coast are already established in Rhode Island, which as a first-mover is home to the only maintenance vessels and crew in the U.S.
2. *Logistics* holds particularly high potential considering Rhode Island's geographic position between large states with large Offshore Wind pipelines.
3. *Technological innovation* within the Blue Economy is established in Rhode Island, which already has existing technology companies driving innovation in Offshore Wind.

### **Rhode Island must ensure capacity expansion as well as cross-industry and cross-state collaboration to maximize opportunities in the Offshore Wind industry**

Rhode Island's manufacturing capabilities are technically able to meet demand from the Offshore Wind industry. The current lack of capacity, however, threatens the degree to which local manufacturing companies can accept demand and therefore also Rhode Island's ability to position itself as a central East Coast hub for wind energy. Besides manufacturing capacity, increasing port capacity is essential to accommodate growing demand. Currently, Rhode Island's ports are competing against each other, yet industry representatives agree that a larger, regional focus is needed to make the most of the opportunity. There is at present no state-level strategy for the ports and little coordination between states regarding how to cooperate across the value chain to avoid duplicate investments and potentially lower returns.

The public may need to be convinced of the necessity of prioritizing Offshore Wind. An earlier period of collaboration with Vineyard Wind created a negative public image of the industry, and Rhode Island's significant marine food industry is thought to be impacted by the establishment of Offshore Wind parks. This conflict needs to be managed accordingly as the Offshore Wind industry can benefit Rhode Island as a whole.

Increasing skilled labor is equally crucial for Rhode Island. Real Jobs RI is making significant strides in upskilling the workforce to meet demand, but perceptions present challenges too, as European stakeholders believe that Rhode Island cannot train workers to the required standards.

Capturing the potential in the value chain is highly dependent on the state and local industries proactively collaborating to establish a business environment capable of meeting future demand. The key obstacles to Rhode Island's growth in the Offshore Wind industry are:

1. A lack of port and inland capacity to support the expected demand on manufacturing of parts for wind turbines and ships for operations and maintenance.
2. A lack of qualified and skilled labor as well as approval of worker qualifications from European stakeholders.
3. The management of the public image of the Offshore Wind industry.

## **Finally, the Arts and Culture cluster is both an integral part of Rhode Island's economy and cultural fabric**

The arts are a key—and growing—sector in Rhode Island's economy. The U.S. Bureau of Economic Analysis (BEA) assessed the annual value of the Arts and Culture sector in Rhode Island at \$1.9 billion in 2016. Over 17,700 people are employed in the sector, with annual compensation of over \$1.1 billion.

BEA reports that the Arts and Culture sector comprises 3.3% of the Rhode Island economy and 3.7% of state employment. In terms of the "value added" by workers in the sector, the arts rank third behind retail and construction, and ahead of education, transportation, and utilities.

The sector is also fourth in compensation in Rhode Island. Criticisms of the sector often center on the supposed low wages and demand for workers. However, the BEA report states that "Average compensation per wage-and-salary job in Rhode Island's ACPSA industries was \$59,285 in 2016, compared with \$62,502 for all salaried jobs in the state." A further point to consider is the impact of the arts on other clusters: the arts help communities prosper, put people to work, attract tourism revenue, serve as a business magnet, give industries a competitive edge, and enhance property values. Broadway shows at PPAC or performances by Trinity Rep and the Rhode Island Philharmonic fill restaurants and other nearby businesses. Further, shows at local venues, like Greenwich Odeum in East Greenwich, bring people to Main Street. All of these impacts are felt beyond the direct economic benefits within the sector discussed above.

The Rhode Island State Council for the Arts (RISCA) has invested in career and technical education in the arts. For example, it developed a pilot workforce development program in cooperation with New Urban Arts, the City of Providence Department of Art, Culture + Tourism, and Roger Williams University. It is modeled as a three-credit college course, and participants in three arts disciplines (fashion, visual art, and music) spend a semester learning together. The goal of this program is to equip young artists with the business and professional skills they need to have a career in the arts.

While RISCA's grant budget has held steady for the past seven years, the arts are currently under-resourced when compared to their economic contribution. RISCA can only fund about 40% of its current applications. It is in Rhode Island's interest to grow the Arts and Culture sector through supporting revenue producing activities and building careers and employment in the arts. More investment in local communities and in urban centers means more economic activity for artists and arts organizations and the businesses that depend on them.

Increased funding should be directed at supporting projects that have an impact on local economies, strengthen employment in an important sector, and stem the flow of young people leaving the state for other opportunities through professional development for artists "to scale," perhaps in partnership with Rhode Island Commerce and the Department of Education.

Growing the Arts and Culture sector is a matter of intentionality and investment. Current efforts are:

1. Providing professional development to artists working to build small businesses.
2. Providing workshops on marketing, financials, legal issues for artists, and so on.
3. Cooperating with Massachusetts Museum of Contemporary Art (Mass MoCA) through the "Assets for Artists" program.
4. Developing networks—online and in person—designed to bring people together for collaborative learning experiences.

## **The key challenges to Rhode Island's growth across the advanced industries are associated with lack of physical capacity, talent, coordination, and innovation infrastructure**

Rhode Island reached 1.8% vacancy on industrial space at the end of 2018 and is struggling to meet land and port demand for its growing industries. The demand for increased capacity is highlighted as a challenge by almost all advanced industry cluster representatives, but especially from Biomedical Innovation, the shipbuilding and maritime industry, and manufacturing. Expanding wet labs, manufacturing, and office capacity across the state should be a key priority to enable growth in advanced industries.

Rhode Island lacks talent and skilled labor across all its advanced industry clusters. Unmet demand ranges from design talent from local institutions, to skilled and certified

labor in shipbuilding, to IT-Software and data analytics across several clusters. Between 2014 and 2017, Rhode Island increased the proportion of STEM degrees awarded by universities from 14.7% to 17.8%, but the state still struggles to attract and retain talent.<sup>29</sup>

Rhode Island's advanced industries lack the coordination to capitalize on synergies. Significant progress has been made in recent years in the Biomedical Innovation, Design, and Food clusters, but intermediating efforts within the Blue Economy, IT-Software and Data Analytics, and Advanced Business Services are completely absent, despite explicit demand from some of the clusters.

Rhode Island's innovative ecosystem is still maturing and remains underexposed to private funding, startup support, and a culture of commercializing IP from research institutions when compared to most other New England states. As argued by representatives from the Biomedical Innovation cluster, it will take time for Rhode

**Expanding wet labs, manufacturing, and office capacity across the state should be a key priority to enable growth in advanced industries.**

Island to transition from a predominantly manufacturing economy to an innovative economy. The state and industry must tackle lack of access to private and public funding, supply of local talent, and support of early stage startups with facilities such as laboratories and kitchens. Becoming clearer around the narrative positioning that each individual cluster holds outside of

Rhode Island and proactively marketing the innovations and extensive knowledge bases that have emerged over the past four years will be crucial for attracting more attention to the state from private venture capital investors and large infrastructure investors.

In summary, in order to accelerate growth across Rhode Island's advanced industry clusters, the state must:

1. Expand capacity in industrial, residential, and office space, both in ports and inland to reduce physical limitations to corporate growth.
2. Strengthen talent attraction and retention across all clusters.
3. Continue improving coordination and intermediary efforts within and across industry clusters, educational institutions, and state agencies to leverage synergies and attract out-of-state capital.
4. Continue to mature the startup and innovation ecosystem with more startup incubators within clusters as well as better commercialization of university IP and research in both public and private universities.



# Rhode Island's Business Climate and Tax Competitiveness

The 2016 Brookings report found that Rhode Island lagged behind most of the country in creating an attractive business climate. In particular, the Brookings report found the state's tax and regulatory environment to be burdensome to businesses, with high unemployment insurance and property taxes, as well as frustrating regulations with compliance costs that outweigh perceived government benefits.<sup>30</sup> Small businesses particularly bore the financial and operational burden of these policies, and as such, multiple ratings deemed Rhode Island to be inhospitable to young firms.<sup>31</sup>

Over the past several years, the state government has started to improve the business climate by streamlining regulations, reducing key taxes, and deploying technology.

- The corporate tax burden is now more in line with other states after strategic reductions in the corporate minimum tax rate and unemployment insurance contributions and the repeal of the sales tax on energy. Rhode Island's position in the *State Business Tax Climate Index* improved from 45th in 2015 to 39th in 2020 due to these reforms, with the unemployment tax insurance rating subset climbing to 31st place from an original ranking of 50th. Notably, Rhode Island's unemployment insurance reforms earned the state an Outstanding Achievement in State Tax Reform award from the Tax Foundation.
- The state has repealed more than 150 regulations and eased the process for common business practices (e.g., opening restaurants, constructing buildings). As a result, complaint volumes have gone down considerably.
- Along the same lines, the state has made some progress reducing the proliferation of licensing requirements for certain occupations, eliminating over 15 licenses.
- The state has used technological advances to reduce business time/hassle. Rhode Island is the only state where building permits can be obtained electronically via the state for most cities and towns.

Despite these and other advances, Rhode Island's position is mixed on recent business climate rankings. On the positive side, WalletHub ranked Rhode Island's economic environment as the 7th best in the country and the state's job market as 17th best.<sup>32</sup> The *2018 Chief Executive Officer (CEO) Index* listed Rhode Island 32nd in its rankings, a jump from previous rankings in which Rhode Island never scored higher than 37th. The *CEO Index* points directly to the state government's investment in trained labor and economic development initiatives as justification for the improved ranking. Rhode Island was also recognized by CNBC for its ability to attract millennial workers, and the Providence metro area is listed as the 4th best job market. However, Rhode Island struggled on several analyses. CNBC and Forbes, for example, ranked Rhode Island's business climate at 50th and 41st respectively amongst U.S. states in their 2019 indices (Forbes was up from 46th in 2015). The state ranked 40th for small businesses in the *Fit Small Business Index*, which focuses on business environments for smaller firms; however, Rhode Island's small business survival rate is the strongest in the country.<sup>33</sup>

It is noteworthy that Rhode Island fared competitively when the analysis was limited to its Northeastern peers. Within the Northeast, Rhode Island ranked 2nd in 2019's *Chief Executive Officer Index*.<sup>34</sup> Rhode Island also has a higher business formation rate per capita than the New England region. Regional comparisons arguably provide a more accurate benchmark for the state's business environment and as such recognize Rhode Island's competitive advantages in the Northeast.

Furthermore, efforts by the state to update its aging infrastructure, reform problematic business regulations, and adjust the tax burden take time and are likely to register positively in national rankings in future years. For example, CNBC recognizes the state's upward trajectory and future potential, affirming that these improvements are no small feat and that Rhode Island should be pleased with the planned changes. Rhode Island's public sector leadership can and should continue to build upon its recent reforms and leverage and emphasize the state's distinctive assets, such as its workforce, access to capital, and high quality of life for residents, to foster a solid platform for economic growth and continue to boost its position relative to neighboring states.

### **Importance of the business environment**

Business climates are determined by a range of factors that affect a business's ability to conduct operations in a given area. Factors that contribute to stronger or weaker business climates include the area's available workforce, a company's ability to raise capital, the overall cost of doing business in an area, and the relative burdens of regulations and taxes. Favorable business climates foster the growth of existing companies, creation of new companies, and establishment of new offices or facilities in a state. Conversely, unfavorable business environments can stifle economic growth and are associated with lower levels of job creation and a lesser ability to attract new companies or expand existing ones. Over time, poor business sentiments can become self-fulfilling prophecies, with states losing out on the creation and attraction of companies simply because of the perception of the area as being a "bad place to do business."

In practice, what does a favorable business climate look like? States can create business climates designed for economic progress by enacting policies to improve the quality of the workforce, increase access to capital, and lower the cost of doing business. Easing unnecessary regulatory burdens improves the private sector's competitiveness as well.

### **Rhode Island shows strengths in its well-educated workforce, companies' abilities to access capital, and future plans to address low-scoring areas**

In general, business climate rankings generally assess a range of a state's performance on a range of criteria. The quality of a state's workforce, access to capital, and the caliber of infrastructure (e.g., air connectivity, roads and bridges, commute times) are critical elements. Cost of doing business also factors strongly, taking into account labor cost, energy cost, and tax rates. Additional factors typically include economic strength, quality of life, technology/innovation, education, business friendliness, access to capital, and cost of living.

Rhode Island does have a significant strength in its workforce and access to capital, which have improved the state's scores in those categories. Further, a number of reforms in recent years could improve Rhode Island's future scores in infrastructure, tax rates, and cost of doing business, as there is lag time before business climate indices recognize these efforts. Within New England, Rhode Island is typically ranked in the middle of the region's six states.

Rhode Island's workforce ranks well, with levels of education appropriate for a state looking to attract STEM companies. 36.3% of the population has a bachelor's degree or



higher, and the state also boasts a low unemployment rate that is not only in line with the rest of the country, but is also a 30-year low for the state. Rhode Island also employs a large percentage of its workers in the healthcare and social assistance sectors, which are projected to grow at a CAGR of 5% through 2023.<sup>35,36</sup> Real Jobs RI is well-regarded in the private sector for its placement statistics and skills-building curriculum designed in tandem with industry needs. There are over 20,000 workers in Rhode Island engaged in R&D activities across the state's universities and companies.<sup>37</sup> Future generations are also gaining skills that will be needed by advanced industries through the CS4RI program, which provides computer science and advanced placement computer science courses in the vast majority of Rhode Island high schools.

As described below, the state is also a national leader in helping companies adjust to the future of work. Arguably, the state's first-mover position in this area could figure heavily in the decisions of companies to locate or expand as the deployment and disruption of next generation technologies accelerates throughout the economy.

Rhode Island has been able to garner support from globally significant companies—Infosys, GE Digital, Johnson & Johnson, Rubius—in leading advanced industry clusters. Other existing companies in advanced sectors (e.g., Electric Boat, Amgen) are increasing employment and over \$2 billion in private investment has been committed to new facilities.

Business climate rankings, positive or negative, fail to pick up intangible perceptions about the extent to which a state is “open for business.” As the company examples above show, states are rewarded when they are open to next generation technologies and capable of carrying out complex transactions that involve tax benefits, land use and regulatory reforms, and customized workforce development. To that end, Rhode Island has shown a nimbleness and receptivity to change that sets it apart from larger and (often) better-resourced states.

Rhode Island is showing strong signs of progress in areas in which it scored in lower tiers on the Forbes and CNBC analyses. The state is taking steps to improve its infrastructure, committing \$1.5 billion to projects in the last three years alone and planning for more road repair efforts through the RhodeWorks initiative. In addition, the state has taken multiple approaches to lowering the tax burden on companies. Rhode Island is also supporting innovation through five innovation campuses to speed technology commercialization.

In comparison to nearby states Maine (45th) and Connecticut (37th), Rhode Island ranks similarly in overall business climate in the CNBC and Forbes analyses. Neighboring Massachusetts ranks 8th in the U.S. because of an outstanding workforce that is highly educated with opportunities to continue that education. Even with a high cost of living and doing business, Massachusetts sets itself apart with a very strong workforce. Rhode Island may be able to replicate some of Massachusetts' success and attract companies considering New England through the promotion of its own highly skilled workforce, good quality of life, and lower labor costs in comparison to Massachusetts, as well as through regulatory changes to reduce the cost of doing business.

## **Rhode Island is overcoming historically negative perceptions by small businesses, and the state's strengths directly address small businesses' most pressing challenges**

Small businesses are often the engines of growth in the U.S. economy. Despite their individual size, together they comprise 99% of employer-owned firms and are responsible for approximately 50% of American jobs.<sup>38</sup> Rankings regarding the small business and startup climate are mixed and contradictory. The 2018 *Fit Small Business Index* compiles a ranking for states best suited to the creation of small businesses, taking into account the cost of starting a business, labor market, startup activity, access to capital, quality of life, and taxes. For the creation of small businesses Rhode Island ranks 40th among U.S. states in the *Fit Small Business Index*, with a lower ranking primarily due to high taxes, a high cost of living, and lower levels of startup activity. Its rankings were bolstered by its labor market, access to capital, and quality of life. However, according to the U.S. Chamber Foundation, Rhode Island is pulling ahead to the 10th best state for the creation of new startups.<sup>39</sup> Rhode Island also has the strongest survival rate for small businesses in the country, with over 76% of businesses continuing operations at least two years after inception.<sup>40</sup>

- **Rhode Island's workforce is a significant strength to small businesses.** According to the *Voice of Small Business in America: 2019 Insights Report*, hiring and retaining qualified employees is the #1 challenge of small business owners. Two-thirds find it difficult to find employees with relevant skills, making strong workforce initiatives all the more important to small business.
- **Rhode Island performed well in access to venture capital and small business loans.** 80% of small business owners start their financing journey through personal savings, credit cards, or investment from family and friends, but access to outside capital allows for strategic innovation and growth. Rhode Island's strengths in access to capital bode well for small businesses looking to scale.
- **The state struggled with higher tax rates and a complex regulatory environment.** During the first few years of operation, startups and small businesses are typically not profitable. It often takes five to seven years for these companies to turn a profit, at which point existing tax credits have expired and are of no help to a company that is now liable to pay a positive tax rate. To benefit these businesses, Rhode Island could consider extending its tax credit timeline. In addition, Rhode Island ranks 45th in the U.S. for the complexity of its regulatory environment. Complex regulatory environments particularly affect small business owners, who spend substantial amounts of time and resources to navigate them.

Rhode Island's rankings, again, need to be put in a regional context. Rhode Island (40th overall) places in the middle of the pack for Northeastern states, performing better than Maine (41st), Connecticut (43rd), and Vermont (45th), but falling behind New Hampshire (30th) and Massachusetts (38th).

### **Rhode Island's tax rates are competitive within the Northeast**

Tax rates can influence a company's decision to invest in a state due to the impact taxes have on the cost of doing business. Higher taxes lower profits, which in turn

can limit the number of employees a business is able to hire, decrease the value of stocks to shareholders, or contribute to higher costs that are passed on to consumers through raised prices. Relevant taxation methods to business profits include individual, corporate, property, sales, and unemployment insurance taxes. Rhode Island ranks 39th among U.S. states according to the *2020 State Business Tax Climate Index*, an increase from its 2015 ranking of 45th.<sup>41</sup> The state showed particular improvement in its unemployment insurance tax ranking, increasing its position in 2020 to 31st from its 2017 ranking of 50th. Rhode Island is in its lowest position for property taxes, ranking 45th in the U.S. The state also exhibits higher sales and corporate tax rates, with the second-highest sales tax rate in the U.S. Despite the state's low ranking, it has climbed two rankings in recent years. The highest ranked states have low tax rates, or in some cases, even no major taxes.

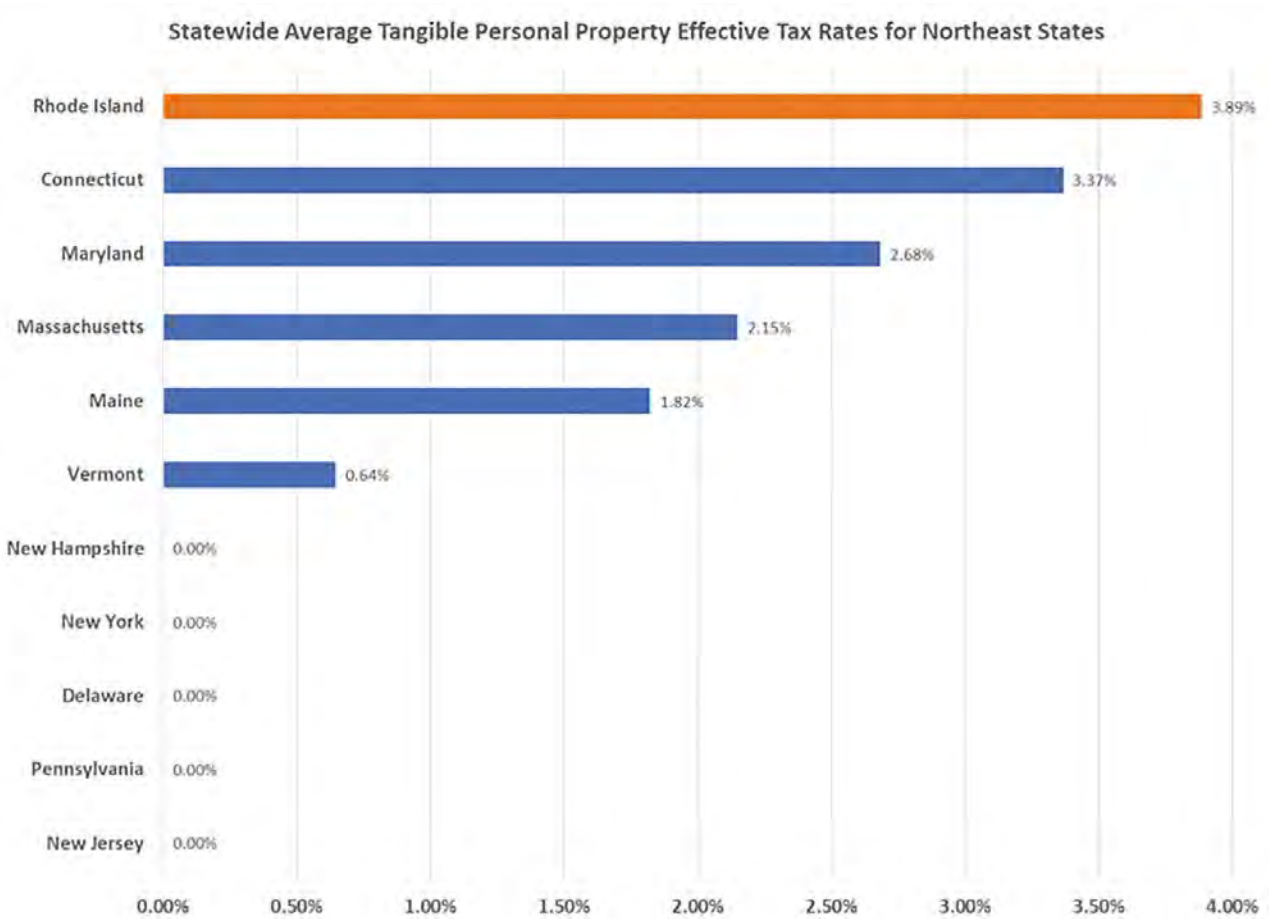
Businesses, of course, tend to weigh effective tax rates against the benefits received from state and local governments from tax spending, such as public safety and transportation. In many respects, the tax-to-benefit ratio provides a better understanding of how tax rates are perceived by businesses. According to Ernst & Young analysis, the benefits offered to industries Rhode Island is looking to attract are in-line with benefits offered by other comparable states for a 30-year facility timeline.

Since 2015 Rhode Island has taken steps to improve the tax environment such as the Investment Tax Credit, tax increment financing, and phasing out capital stock taxes. The state recently enacted a ten-year statute of limitations for sales, corporate income, personal income, and estate taxes.<sup>42</sup>

Further, the state offers a job incentive tax credit on a per-job basis renewable for up to ten years. However, Ernst & Young also found that Rhode Island's tax competitiveness ranking remains stable even when statutory credits are taken into consideration. The state's statutory tax incentive package is generally strong and fairly similar to Massachusetts.

On taxes Rhode Island generally fares very well among the Northeastern states. There are a few potential areas for improvement. Property taxes including tangible personal property taxes are more burdensome in Rhode Island than the Northeast average. Ernst & Young's analysis suggests lowering the property tax rate to be in line with neighboring states such as Massachusetts and specifically lists a number of options for tangible personal property tax reform to be more in line with other states in the Northeast. Implementing a strategic selection of business-related property tax reforms could increase Rhode Island's competitiveness and distinguish the state as the choice location for businesses in the Northeast.

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### Bottom line

Recent analyses show that Rhode Island has made substantial progress in the past few years, and more reform is needed for the state to continue to become a more favorable place for businesses to grow. Investments in infrastructure are a long-term play that take significant time and resources but will ultimately ease the cost and improve the speed of doing business. Rhode Island also needs to capitalize on its distinctive strengths, including a well-educated workforce suited to advanced industry jobs as well as access to venture capital and business loans. Rhode Island can also appeal to small and growing businesses that list the regulatory environment as a primary concern by decreasing its complexity through digital government tools and other specialized initiatives. While specifically addressing small business concerns, this reform would have spillover benefits for businesses of all sizes. Finally, Rhode Island should continue to reform its tax environment to increase its competitiveness within the Northeast—including possibilities such as taking aim at the regionally less competitive property tax (e.g., the tangible personal property tax)—to attract back office operations and additional facilities for companies looking to expand within the region at lower costs.





# Policies and Programs

Over the past four years, Rhode Island pursued a wide-ranging set of policy, program, and institutional initiatives to advance the objectives laid out in the 2016 Brookings report. The efforts required a range of program building across agencies, necessitating expertise in such varied activities as data analysis, administrative guidance, deal structuring, public-private partnerships, and stakeholder management. These efforts often received legislative support in the form of direct appropriations and/or tax incentives. Analysis in the report connected policy and program mandates to recipients and their respective impacts. The complete list of programs enacted since 2015 is below, while select programs are evaluated in

depth in this section. Rhode Island has undergone a paradigm shift in function, but not in recognition of the comprehensive character of its policy and program portfolio. The state is effectively using the tools it developed to prompt smart economic growth in Rhode Island.

## RI has aligned policies and programs to grow the state's advanced industry clusters

Workforce development and talent attraction	Tax and regulatory reforms	Business attraction	Quality of Place	Innovation and R&D	Resources and intermediaries
PROGRAMS SINCE 2015					
<ul style="list-style-type: none"> <li>•Wavemaker Fellowships</li> <li>•Real Jobs RI</li> <li>•CS4RI</li> <li>•Rhode Island Promise</li> <li>•PTECH</li> <li>•PrepareRI</li> </ul>	<ul style="list-style-type: none"> <li>•Investment Tax Credit</li> <li>•Tax increment financing</li> <li>•Regulation elimination</li> <li>•License reforms</li> <li>•UI Reduction</li> <li>•Eliminated tax on energy</li> <li>•Reduction of corporate minimum tax</li> </ul>	<ul style="list-style-type: none"> <li>•Qualified Jobs</li> <li>•Rebuild Rhode Island tax credit</li> <li>•Site readiness initiative</li> </ul>	<ul style="list-style-type: none"> <li>•Main Street RI</li> <li>•Pawtucket/Central Falls Rail Station</li> <li>•Rebuild RI tax credit</li> <li>•Tax increment financing</li> </ul>	<ul style="list-style-type: none"> <li>•Innovation Campus</li> <li>•Innovation Network Matching Grant</li> <li>•Innovation Vouchers</li> </ul>	<ul style="list-style-type: none"> <li>•Partnership for Rhode Island</li> <li>•Small Business Assistance Program</li> <li>•Industry Cluster Grants</li> <li>•SupplyRI</li> </ul>

Source: Rhode Island State; QVARTZ analysis

## SupplyRI

SupplyRI is the connecting node in an “anchor collaborative network” between large anchors and local suppliers. Anchor firms range from non-profits to for-profit corporations, but share the common trait of being rooted in their local communities. SupplyRI is the only statewide anchor network and has the most diverse collection of anchors in the country, two key achievements that show the program’s potential for growth and effective management.

SupplyRI is working to perfect one plank of a broader statewide mission: to boost Rhode Island’s economy through the existing spending power of its large anchor firms. With 14 anchor institutions (Amica, Blue Cross Blue Shield, Brown University, CVS Health, Care New England, Citizens Bank, Delta Dental, General Dynamics Electric Boat, Infosys, Lifespan, Roger Williams University, Rhode Island School of Design, Shawmut, and Gilbane), SupplyRI is well on its way to fundamentally changing the orientation of the state’s economy, but there is more work to be done.

SupplyRI’s role is to facilitate connections between anchors and suppliers. Anchor-side support focuses on increasing anchors’ supplier database and their supply chain forecasting. SupplyRI also supplements supplier diversity efforts. Supplier-side support includes assisting small businesses to respond to requests for proposals, maintaining the SupplyRI eCenter database, organizing procurement events, and connecting businesses to training resources and capital through Rhode Island’s Small Business Assistance Program (SBAP). If a small business is short on the capital necessary to scale up for large orders, SupplyRI can step in with funds through the SBAP, providing loans that private banks may be unwilling to provide. SupplyRI connects local demand with supply and then connects small businesses to the support and finances they need to grow.

**SupplyRI is working to perfect one plank of a broader statewide mission: to boost Rhode Island’s economy through the existing spending power of its large anchor firms.**

SupplyRI’s activities should be driven by the understanding that inclusion and diversity are cost effective goals for Rhode Island’s anchor institutions. One way in which SupplyRI is realizing this goal is through supplier diversity events. The supplier database currently includes 207 active minority-owned or women-owned businesses as well as 18 active veteran-owned businesses.

There are early metrics of success. Since 2018, \$2.2 million have moved through SupplyRI to local suppliers. General construction is the leading sector, accounting for \$1.7 million of the total. The food industry is next at \$365,380. 1,774 suppliers have benefited from SupplyRI’s matchmaking to date and 370 remain active in the program. SupplyRI is currently using its limited staff effectively through countless contact points with anchors and small businesses, many leading to in-depth strategy sessions that



focus on building capacity for organic growth. The Anchor Feasibility Study, published in 2017, set a goal of six anchor firms, which has already been surpassed. The report identified construction and food as two sectors essential to the program's success, and it is here that the majority of contracts are currently located. The other four categories are supplies and equipment, professional services, facilities and transportation, and medical/laboratory. Perfecting SupplyRI as a program, an institution, and a shared mission across the state to expand its reach into these potential impact fields is of more immediate importance than increasing the number of anchors.

#### **SupplyRI success stories**

**Professional Services:** Lifespan connected to Thrive Cleaning Solutions to provide janitorial services to two different Lifespan locations worth approximately \$75,000 per year.

“I attended the SupplyRI event not knowing what to expect. I was very impressed to say the least. I made a lot of great contacts on my own since there were so many folks there for the same reasons. I haven't been to a networking event where every person you spoke with was willing to talk, listen and help out...the food was good too! I was scheduled to meet with a rep from the Lifespan purchasing department. As a business owner, meetings like this don't happen that easy, at SupplyRI it did. After the meeting I felt really good. I made a new connection and learned more about needs of one of the largest employers in Rhode Island. A few months later I received an email from Lifespan asking if we could bid on some janitorial work. We bid on a couple, and then lucky number three ended up being ours. Without attending the SupplyRI event I would have never been able to sit down and have a conversation about each other's companies. Now that we are working with Lifespan-everyone wants to work with us, amazing!”

- Ted Rampini, Owner of Thrive Cleaning Solutions

**Construction Industry:** Rhode Island School of Design connected with Heroica Construction, a minority-owned small business, to provide restoration to the gallery wood flooring worth \$132,777.

“Heroica was awarded a contract from the Rhode Island School of Design through SupplyRI. Our first contact was through Doris Blanchard and Savannah Martin—through their effort, we met Rhode Island School of Design. I didn't know who Rhode Island School of Design was, they didn't know who I was. Supply Rhode Island was how I met them—and it's close to a \$150,000 contract. It's a good opportunity.”

- Jhonny Leyva, Owner, Heroica Construction

#### **SupplyRI and RI PTAC are mutually reinforcing programs working at the ground level to increase opportunities for Rhode Island-based businesses**

The resources currently dedicated to SupplyRI do not match the aspirations and potential economic impact of the program. SupplyRI currently has 1.5 (FTE) staff members tasked with development and execution. In comparison, Rhode Island's

Procurement and Technical Assistance Center (RI PTAC) has 4 FTE personnel. RI PTAC is a highly effective and experienced group that aids private companies applying for federal, state, and local contracts and, as of 2018, grants such as those in the SBIR and STIR programs. SupplyRI should be seen as a complementary asset to RI PTAC, the latter of which has a nation-wide network of state offices to draw upon for expertise.

SupplyRI would benefit directly from full-time staffing for strategic sourcing, event planning, and supplier readiness. The footprint of anchors represented in the program thus far constitutes a substantive aggregated demand that must be met with value-added resources if the program is to grow to its full potential. SupplyRI has made significant progress, but it needs more time and sustained backing to realize its full potential. Capturing the potential of SupplyRI requires dedicated and repurposed resources outlined in full among our recommendations below.

## Rebuild RI

Rebuild RI helps create catalytic place-based change. Rebuild RI assists companies in relocating to Rhode Island, expanding the state's economic base, creating jobs, and raising tax revenue. The program does so by having two distinct components: placemaking and business attraction. Rebuild RI replaced a number of separate programs. In doing so it reined in state spending, including state matching federal historic tax credits, and created a more effective tool to improve quality of place and attract businesses to the state. Furthermore, through the program the state becomes an equity investor and can see returns on successful developments (exempting non-corporate tenancy, smaller historical developments, and affordable housing). With tax credits usually remaining less than 10% of development costs, the program's demonstrated need-based requirement is an effective tool to close funding gaps to deploy private capital in Rhode Island.

Projects such as Innovate Newport's redevelopment of the Sheffield School, which resulted in a co-working space focused on underwater technologies and cyber security, have the potential to create catalytic change in Newport and to grow key sectors of its economy. Bringing high-skilled and quality jobs into Newport will produce multiplier effects from targeted developments. Another beneficiary, Infosys Limited's Innovation & Design Center in Providence, will employ 50 people in 2019, and this figure is projected to increase to 500 by 2023, with an average annual salary of \$79,400. Infosys received \$750,000 in Rebuild RI tax credits in addition to an exemption from sales and use taxes on construction materials and furnishing, Qualified Jobs tax credits (est. \$8.5 million), and \$500,000 from the First Wave Closing Fund.

Another example of the state effectively bundling its resources is Rubius Therapeutics. The firm, founded in 2013, is pioneering the development of a new class of medicine, Red Cell Therapeutics. It was granted Rebuild RI tax credits up to a maximum of \$2.7 million along with being approved for Qualified Jobs tax credits at an estimated \$9.3 million over the coming 10 years. The company will create 154 full-time jobs and train employees for biopharma skills and certifications in a reused and adapted manufacturing facility in Smithfield.

Farm Fresh in Providence is a representative project where a modest amount of Rebuild RI tax credits unlocked a very complicated but catalytic development. Farm Fresh is a distributor of local food and a host of farmers markets that currently operates out of Pawtucket. It planned to expand into a larger facility in Providence to bring its product closer to its largest market, while creating a cornerstone of development in the currently-underserved Valley neighborhood. The 60,000 square foot facility will roughly double its current footprint, while also providing half of its floor space to third-party food-related small businesses. Projected new jobs at the finished development are estimated at 51 at completion and 102 by year five.

This \$15.5 million project has a financing plan that combines city and state Department of Environmental Management grants, private philanthropy, New Market tax credits, and Rebuild RI tax credits. After extensive discussions that lasted over a year, Rhode Island Commerce committed \$2.2 million in tax credits to the project. Rebuild RI tax credits were the last dollars in and made this change-making development and the jobs it will generate in a transitional neighborhood possible.

**Rebuild RI increases Rhode Island’s quality of place and combined with Qualified Jobs tax credits are irreplaceable tools for the future of the state.**

To build on the success of Rebuild RI, future efforts should:

1. Continue to offer business support programs in combination with place-based support programs to maximize the effectiveness of Rhode Island’s tools to attract and retain key businesses. State coordination of bundling resources will continue to facilitate advanced job growth in targeted economic sectors.
2. Work closely with communities surrounding recipients of Rebuild RI tax credits. State efforts should be directed towards harnessing spin-off effects to benefit entire communities.
3. Take a proactive approach by working with developers and increasing municipal capacity. A Rebuild RI tax credit for a historic building could, for example, be leveraged into surrounding development through planning and dialogue.

## **PrepareRI**

PrepareRI is a multifaceted career awareness and training program that reaches Rhode Island students from middle school to high school. The state launched the program in 2016 after winning a New Skills for Youth grant from JPMorgan Chase and the Council of Chief State School Officers (CCSSO).

The first part of the program is focused on career exploration for K-12 students. 18 middle schools were awarded grants in 2019 to develop curricula and implement career programs. These included bringing representatives from Rhode Island firms like Electric Boat to campus to engage with students in small groups and taking students on visits to colleges and technical schools. This stage of PrepareRI exposes students to possible careers and builds the framework for them to understand the steps they need to take

to achieve their goals with realistic assessments of their learning styles, interests, and abilities. Early exposure will lead to a more focused high school education.

PrepareRI also makes it possible for every Rhode Island high school student to graduate with either college credit or industry credentials. Course choice works through dual enrollment, advanced placement, work-based learning, and career preparation. The range of opportunities is designed to keep the doors open to education and training for all students.

The next level of career training is an internship program for high school students, regardless of their grade point average. The inclusivity of this requirement reinforces the program's objective of not turning young people away from receiving the training they need to gain a foothold in the economy as they transition to adulthood. In the summer of 2020, 375 students are slated to earn \$11.25 per hour in internships the summer before their senior year of high school. The comprehensive approach to training can be seen in the 40-hour "boot camp" through which students are put prior to starting the internships and the effort that Skills for Rhode Island's Future (Skills RI) invests in vetting, training, and matching students to opportunities at which they can excel.

**PrepareRI makes it possible for every Rhode Island high school student to graduate with either college credit or industry credentials.**

PrepareRI aligns with Real Jobs RI in its employer demand-driven orientation, extending its target to students.

The program must be expanded if it is to achieve its full potential:

1. The internship program should be scaled up and maintain its focus on career pathways with clear placement opportunities.
2. A nexus should be created between PrepareRI and Real Jobs RI, connecting high schools, the Community College of Rhode Island, and technical schools with employers to close the circuit of a training and placement system of career exploration, skills training, and employment.

## **Community College of Rhode Island and Rhode Island Promise**

In recent years, the Community College of Rhode Island has launched several high-impact and evidence-based practices to advance a completion and equity agenda. This is in line with a strategic plan to improve student pathways to graduation or transfer to a four-year college, collaborate with employers on creating academic and workforce training programs that meet labor market needs, and strengthen institutional effectiveness. The Community College of Rhode Island has had early successes in, for example, strongly increasing first-time, full-time two-year graduation rates, which in 2018-2019 rose to 18%, relative to 4% for the previous school year. As a result of this and similar improvements, the college awarded more credentials in 2018-2019 than in

any other year over the past two decades, helping to upskill the state’s workforce. The college’s three-year graduation rate is expected to reach 29% by summer 2020, making it one of New England’s top-performing community colleges.

This success is in part grounded in the college’s Guided Pathways program, which assists students in developing their study program and plan at an early stage, thereby assisting them in navigating their way toward achieving credentials—and ultimately enter the workforce or transfer to a four-year college—in a timely manner.

In 2019, the Community College of Rhode Island enrolled 14,775 students, a 1.6% rise over the previous year and the first time the college has increased enrollment since 2011. Significant in this achievement is the Rhode Island Promise program, which was launched in 2017 and coincided with a 134% increase in enrollment of first-time, full-time, straight from high school Rhode Islanders. Impressively, this figure includes significant rises in enrollment of low-income (173%) and minority (183%) students. This has been complemented since 2019 by efforts to boost student retention through the Starfish program and to support students with non-tuition expenses through a Food Pantry. In addition, a Diversity, Equity, and Inclusion working group is creating a Campus Inclusion Plan that seeks to enhance staff and faculty diversity, cultural skills, and inclusivity of work and education at the college.

## **CCRI awarded more credentials in 2018-2019 than in any other year over the past two decades.**

The Community College of Rhode Island has benefited from significant charitable funding, which has supported Promise Plus; an Innovation Lab; and a Career Lab and accompanying Career Services, capable of engaging 8,000 students per year. Strengthened workforce partnerships have assisted the college in both leveraging state and federal workforce development funding and

guiding students toward careers. The Community College of Rhode Island has initiated or expanded 75 partnerships with companies as diverse as Amica, Eaton Manufacturing, and General Dynamics Electric Boat, with an Infosys partnership leading to the creation of a Digital Economy Aspirations Lab and a pledge for the company to hire 45 graduates from the Community College of Rhode Island by the end of 2019. The college is furthermore collaborating with Rhode Island Commerce and the Department of Labor and Training on developing a Rhode Island Wind Education Center.

To continue building this strong educational option for Rhode Islanders, the state should:

1. Create comprehensive educational, vocational, and upskilling options in the state by expanding Rhode Island Promise to more residents. Rhode Island Promise is a crucial tool that fills a complementary role in state workforce development initiatives including: PrepareRI, Real Jobs RI, and Wavemaker Fellowships.
2. Expand Rhode Island Promise to small business owners in targeted industries taking business courses at the two- or four-year college level.
3. Increase funding to match demand.

## Wavemaker Fellowships

The Wavemaker Fellowship is a workforce development program run by Rhode Island Commerce to help the state recruit and retain workers in key STEM and design fields. This program looks to Rhode Island's future by building a stronger employment base for advanced industries while also supporting workers outside of the advanced industry clusters. With over 150 fellowships awarded in 2019 (through November) and 820 since the program's inception in 2016, this is among the furthest-reaching Rhode Island Commerce programs in terms of direct assistance. The Wavemaker Fellowship program has benefitted professionals within Rhode Island's workforce with a broad range of educations, skills, and experiences.

### 2019 Wavemaker Fellowship recipients by cluster

<b>Advanced Industry Clusters</b>	
Biomedical Innovation	23
Defense, Shipbuilding, and Maritime	32
IT-Software, Cyber-Physical Systems	20
Design, Food, and Custom Manufacturing	21
Advanced Business Services	48
Renewable Energy	1
<b>Opportunity Industry Clusters</b>	
Transportation, Distribution, and Logistics	2
Arts, Education, Hospitality, and Tourism	6
<b>Total:</b>	<b>153</b>

Source: City Facilitators Analysis

### **The Wavemaker Fellowship program has helped counteract low GDP growth in non-advanced industries by attracting and retaining skilled workers, while continuing support across the state's economy**

Economic analysis determined that despite increases in advanced industry job creation, absolute job creation is higher in non-advanced industries, which stifles GDP growth. Wavemaker Fellowships are an effective debt relief tool, but the current application requires individuals to have accumulated debt and be employed. Further benefits could be achieved by supporting Rhode Island residents who are considering furthering their education but are hesitant to take on (additional) debt, extending the reach more broadly to those who may be starting businesses, or supporting those in high-demand secondary education roles.

In order to make the most of the Wavemaker Fellowship program, it is important to consider:

1. Extending Wavemaker Fellowships to students currently attending targeted degree programs to encourage existing state residents to continue their education. This shift would open the program beyond post hoc debt relief into being part of a student's informed decision making, while retaining its focus and current mandate.
2. Target Wavemaker Fellowship awards to people starting businesses in STEM/design fields. Target people employed in or working towards a teaching credential in STEM to bring additional support to workforce development in this crucial field.
3. Consider Rhode Island's workforce development initiatives including Real Jobs RI, Rhode Island Promise, PrepareRI, and Wavemaker Fellowships as a comprehensive set of initiatives with clear targets. Their combined impact is matching training to state needs.

## Real Jobs RI

Rhode Island has made a paradigmatic shift in workforce alignment by taking a company-driven, train-and-place approach, in which skills training aligns with market opportunity and company needs for skills. Training-job alignment—and the wider ecosystem surrounding using the procurement demand of large companies and institutions to enhance the strengths of small enterprises and clusters—has already yielded measurable results. For example, Rhode Island has collaborated with companies such as Infosys and Electric Boat to meet their hiring needs with data-driven and demand-driven work by the Community College of Rhode Island.

This shift is seen most clearly in Real Jobs RI, a market and company demand-driven program for upskilling and training existing and prospective employees. Real Jobs RI is highly praised among industry participants and has pioneered innovative approaches in a sector that often pursues “silver bullets” (e.g., coding initiatives). Real Jobs RI has been at the vanguard of what Don Kettl calls “Networked Government,” moving from serving companies to serving clusters, convening stakeholders to solve serious labor shortages or talent gaps, and recognizing that every industry—from commercial fisheries to manufacturing—feels the impact of advances in technology.

Real Jobs RI is an effective tool for aligning employee job skills with current and future employer demand in the state. Real Jobs RI has forged partnerships with the key industries in Rhode Island, and the Legislature's allocation of \$7,065,500 in FY2020 indicates a high level of political support. It is a testament to the program's success that it has already placed nearly 3,000 trainees into new jobs.

## Real Jobs RI investments by cluster 2016-2019

Aquaculture	\$732,342
Business Services	\$1,909,858
Commercial Fishing	\$314,100
Construction	\$4,903,951
Defense	\$2,747,845
Design	\$1,324,969
Energy	\$225,700
Finance	\$8,103,553
Health and Life Sciences	\$9,309,785
Horticulture	\$652,410
Hospitality	\$1,566,032
Manufacturing	\$9,933,203
Marine Trades	\$13,062,855
Offshore Wind	\$451,212
Social Enterprise	\$949,276
Tech	\$4,795,085
Transportation	\$635,000
Other	\$597,650
Total:	\$62,214,827

Source: City Facilitators Analysis

Real Jobs RI aligns with the state's key growth clusters targeting talent building and retention. 6,745 new hires or existing workers have gone through Real Jobs RI programs. The annual average new hire salary is \$32,901 for job training graduates. 72% of trainees find employment upon completion of their training, and 75% are still employed after two quarters. 47% of existing workers received a wage increase after completing a training program.

There are many success stories from this program in the key clusters. 1,333 job seekers have been placed through the Pipeline to Manufacturing Careers in Ship Building program. Electric Boat was the lead applicant that brought together five other employer partners and a host of strategic partners. Another example is the Digital Economy Aspirations Lab. While too new to evaluate, this Community College of Rhode Island program drew in several employers, including Bank of America and Infosys, to build a partnership to develop rapidly-deployable educational solutions for the digital economy. A third example is Rhode Island College's Healthy Jobs RI, which includes Care New England and other employment partners in a collaboration to increase skills in behavioral healthcare. 14 jobs seekers have been placed, and 81 existing workers have been trained to date.

### **Real Jobs RI should continue aligning employee training and business demand**

Currently, the Real Jobs RI program is primarily run to respond to the workforce needs of individual firms. To capture the full potential of Real Jobs RI, it should maintain this service as well as:



1. Broaden its focus from individual firms to industry clusters.
2. Expand its perspective from present workforce demands in existing industries to future demands in new growth industries, such as Offshore Wind.
3. Introduce programming in closer alignment with cluster intermediaries, thereby enabling a broader long-term and cluster-wide perspective.
4. Design and implement a Technology Adjustment Initiative to help companies, clusters, and intermediaries respond to disruptive technologies (e.g., artificial intelligence, additive manufacturing) that require significant and urgent change in skills and work patterns.

## Westerly Education Center

Westerly Education Center is a public-private partnership dedicated to educating Rhode Island workers to meet projected workforce growth. Opened in 2017, the center resulted from the dedicated work and funds from the state, the Town of Westerly, private corporations, and foundations. The Town of Westerly is situated between the shipyards in Quonset, RI and Groton, CT, ideally positioned for the Center to work with Electric Boat as its anchor partner. The Center partners with CCRI for its Electric Boat courses. In its first two years, 1,000 employees have been trained in maritime pipefitting, sheet metal, and electrical in a simulated environment. Courses are organized around the Electric Boat shift schedule, and capacity is available to run three training shifts if demanded.

**In the first two years of the Westerly Education Center, 1,000 employees have been trained in maritime pipefitting, sheet metal, and electrical in a simulated environment.**

Apart from training Electric Boat employees, other workforce programs and higher education courses are offered as collaborations with CCRI, URI, RIC, and RISD. One enabling feature of Westerly Education Center's institutional arrangement is that the building is managed by the Rhode Island Office of the Postsecondary Commissioner, allowing the Center to include all higher education partners that are interested and pivot to meet employer needs for pre-employment, new hires, or incumbent worker training. In total, the Center has trained over 3,000 people in a workforce program or a higher education class in three years. Another measure of its impact is the \$170,000 in local direct spending such as catering, local trades companies, and consumables. The Center is financially self-sustaining and does not draw on the state operating budget.

The state is currently working to replicate this highly successful and effective educational model in Woonsocket.

# Innovation Vouchers

Innovation Vouchers promote business-university collaborations by funding R&D and commercialization research to accelerate product development, and internal R&D for manufacturers. In this role, the state helps fill a market gap by directing resources to clusters with high R&D costs that lack private capital to bring their products to market: Biomedical Innovation; Defense Shipbuilding and Maritime; Design, Food, and Custom Manufacturing. The program matches the needs of custom manufacturing, biomedical, biotech, agriculture, and maritime firms well because of the types of product innovation they pursue. In contrast, there was only one Innovation Voucher recipient in the Advanced Business Services cluster. The program has clear successes that have increased efficiency and pushed R&D in participating firms.

## Innovation Vouchers by Cluster 2016-2019

<b>Advanced Industry Clusters</b>	
Biomedical Innovation	24
Defense Shipbuilding, and Maritime	11
IT-Software, Cyber-Physical Systems	4
Design, Food, and Custom Manufacturing	32
Advanced Business Services	1
Renewable Energy	7
<b>Opportunity Industry Clusters</b>	
Transportation, Distribution, and Logistics	0
Arts, Education, Hospitality, and Tourism	1
<b>Total:</b>	<b>80</b>

Source: City Facilitators Analysis

One example of Innovation Vouchers being used to facilitate a university-business collaboration is between Rite Solutions and the University of Rhode Island. The two partners will advance the capabilities of machine learning algorithms to identify submerged mines, a critical threat to submarines. Noah M. Daniels, Ph.D., Assistant Professor at URI’s Department of Computer Science and Statistics noted, “We are very excited for the opportunity to take cutting-edge ideas in applied mathematics (computational topology) and computer science (deep learning) and bring them to bear on image-recognition problems that are intrinsically hard but also have real-world applications.” Daniels continued, “Essentially, we are investigating the problem of identifying three-dimensional objects without regard to their orientation or position, which has clear applications to the undersea detection of mines, shipwrecks, or other navigational hazards or objects of interest.” This grant will further Rite Solutions’ expertise in undersea applications of artificial intelligence.<sup>43</sup>

Another example of the successful use of Innovation Vouchers is a collaborative project between Bouckaert Industrial Textiles and Aspen Aerogels. The two firms are building a new textile product by leveraging state funds to increase cooperation between their R&D departments. Bouckaert Industrial Textiles, based in Woonsocket, received \$50,000 to improve upon its fiberglass mat used in energy pipeline insulation by developing superior thermal conductivity for the mat. Activities included physical testing of the fiberglass mat's weight, thickness, and tensile strength. Bouckaert worked closely with East Providence-based Aspen Aerogels, which received \$49,998 to utilize its state-of-the-art pilot manufacturing line to trial the use of three different prototypes, seeking to achieve a rapid refinement to meet or exceed specification limits required by the production process. This collaboration created new top-line revenue growth potential.<sup>44</sup>

Rhode Island has strong capabilities across the Blue Economy. In addition to URI's Graduate School of Oceanography, ranked in the top 5 universities globally in the field of Geosciences, Rhode Island has an unparalleled industry ecosystem, historically focused on supporting the U.S. Navy's undersea technology prowess, and anchored by but not limited to the Naval Undersea Warfare Center (and its Narragansett Bay Test Facility or "NBTF"), Raytheon, General Dynamics Electric Boat, the Naval War College (NWC), the Southeastern New England Defense Industry Alliance (SENEDIA), the Undersea Technology Innovation Consortium (UTIC), as well as the newly established 401 Tech Bridge Innovation Campus, and the associated rich cluster of small- and medium- sized innovative materials businesses. With unique assets and infrastructure such as shipyards, marine equipment manufacturing, and expertise in nautical infrastructure, Rhode Island's maritime industry cluster is well positioned to leverage and expand into the Offshore Wind industry. Some industry participants advocate for the focused expansion of Innovation Vouchers into this cluster. Furthermore, the continuation of matching funds from federal SBIR grants will continue advancing innovation in the cluster.

Another opportunity would be to tap the state's design firms, which cater primarily to out-of-state clients, to innovate public use and public space in locations such as the 195 District. This could be accomplished by expanding the reach of Innovation Vouchers into Design, a strategic cluster underrepresented in this program, while using state funds for direct public benefit. R&D in the Design cluster can benefit from being conducted in the open, in contrast with the tendency toward protecting product IP and trade secrets in other clusters. For example, design firms working on products ranging from trash cans and park benches to streetlights and signage could be drawn to use the 195 District as their testbed through Innovation Vouchers. This would both improve the quality of the 195 District and provide a launch pad for innovative new products developed by Rhode Island-based firms.

### **The Innovation Voucher program connects partners in collaborative R&D, producing growth in advanced industries**

To expand the strong success of the Innovation Voucher program, future efforts should include:

1. Continuing evaluation criteria based on the potential impact on a firm's strategic growth through technical and commercialization factors.

2. Expand Innovation Vouchers to firms capable of deploying in-house expertise by making a university partnership optional, rather than mandatory, in line with the current exception for manufacturers. Companies should not be able to use Innovation Voucher funds to contract private companies with R&D. Outside assistance should remain at universities, and the funds should support internal company growth.

## Innovation Campuses

In 2016, Rhode Island voters approved a \$20 million general obligation bond measure to fund the creation of innovation campuses in the state. The initial public investment is now projected to attract ten times that amount in matching private investments across the designated sites.

The Governor announced the allocation of \$12 million of the \$20 million bond allocated to three campuses at the beginning of 2018:

- RIHub joined URI with Brown, IBM Alpha Zone, and MassChallenge. RIHub's mission is to help turn innovative ideas for products and/or services into startups, and then those startups into viable, stand-alone enterprises that will address high-impact market needs. RIHub will do this by both "incubating" and "accelerating" start-up companies, and RIHub is agnostic to the target industry segment. RIHub will foster "innovation density" and facilitate and force collaborations between industry, startups, entrepreneurs, and academic research entities. RIHub also has a long-term goal to catalyze the arrival of venture capital firms to fund those start-ups as well.
- The URI and Arizona State University (ASU) Alliance Innovation Hub teams URI with ASU, and Cisco Systems Inc. ASU will partner with URI to build: (1) an interdisciplinary program for education and workforce development; (2) enhanced research capacity; (3) a center for commercialization and start-up support; (4) programs for community outreach; and (5) the facilities and platforms to support all of these activities. ASU has also chosen to become a Member company of RIHub (see above) and place their Providence-based "Commercial and Start-Up Support" office therein.
- The Rhode Island Agricultural Technology Park (RIAT) project will be a 40+ acre agriculture innovation park campus that will be built adjacent to the URI Kingston campus where it teams URI with RI Agriculture Technologies and seed company VoloAgri and plant genomics company Verinomics as tenants. In anticipation of the successful venture, Verinomics has signed a lease for temporary lab space at URI, clearing the way for the business to relocate in Rhode Island in the future when operations commence. It is worth noting that business additions to the venture are now envisioned to include a joint composting facility for URI.

Subsequently, a second round of designations was announced in October 2019 wherein two new projects were provisionally awarded:

- The Polaris MEP “401 Tech Bridge” initially teams URI with Polaris MEP, the Office of Naval Research (ONR), the Naval Undersea Warfare Center (NUWC), the Composites Alliance of Rhode Island, the Rhode Island Textile Innovation Network, and DESIGNxRI. 401 Tech Bridge will include two Catalytic Centers, one at URI Kingston and the second on Aquidneck Island (near NUWC), where visionaries from partners such as ONR and the Rhode Island Bridge and Transportation Authority (RIBTA) can inject sponsored textile and composite projects for rapid development with industry sponsors and URI. The 401 Tech Bridge has begun the process of designing the new “collision space” facility in Portsmouth, RI.
- The Roger Williams Medical Center (RWMC) will create an immunotherapy nursing training program and also form an immunotherapy research collaboration laboratory with URI. This RWMC-URI collaboration will form the Rhode Island Cell Therapy Training Institute or “RI-CTTI,” which will function as part of a broader Rhode Island CAR-T Design and Development Center (RI-CDDC) focused on treating hard tumor cancers. RWMC has begun renovations in the RI-CDDC clinical and production spaces.

Rhode Island’s innovation campuses are taking the definitive next step in creating the infrastructure to draw IP off campuses, connecting it with private capital, and then driving the commercialization of new products in startups. Just as critically, the innovation campuses are simultaneously creating physical and virtual focal points of cross-linked activity for entrepreneurs, innovators, and innovative teams and divisions within legacy companies, who will critically and ultimately create the companies and industries of tomorrow in Rhode Island.

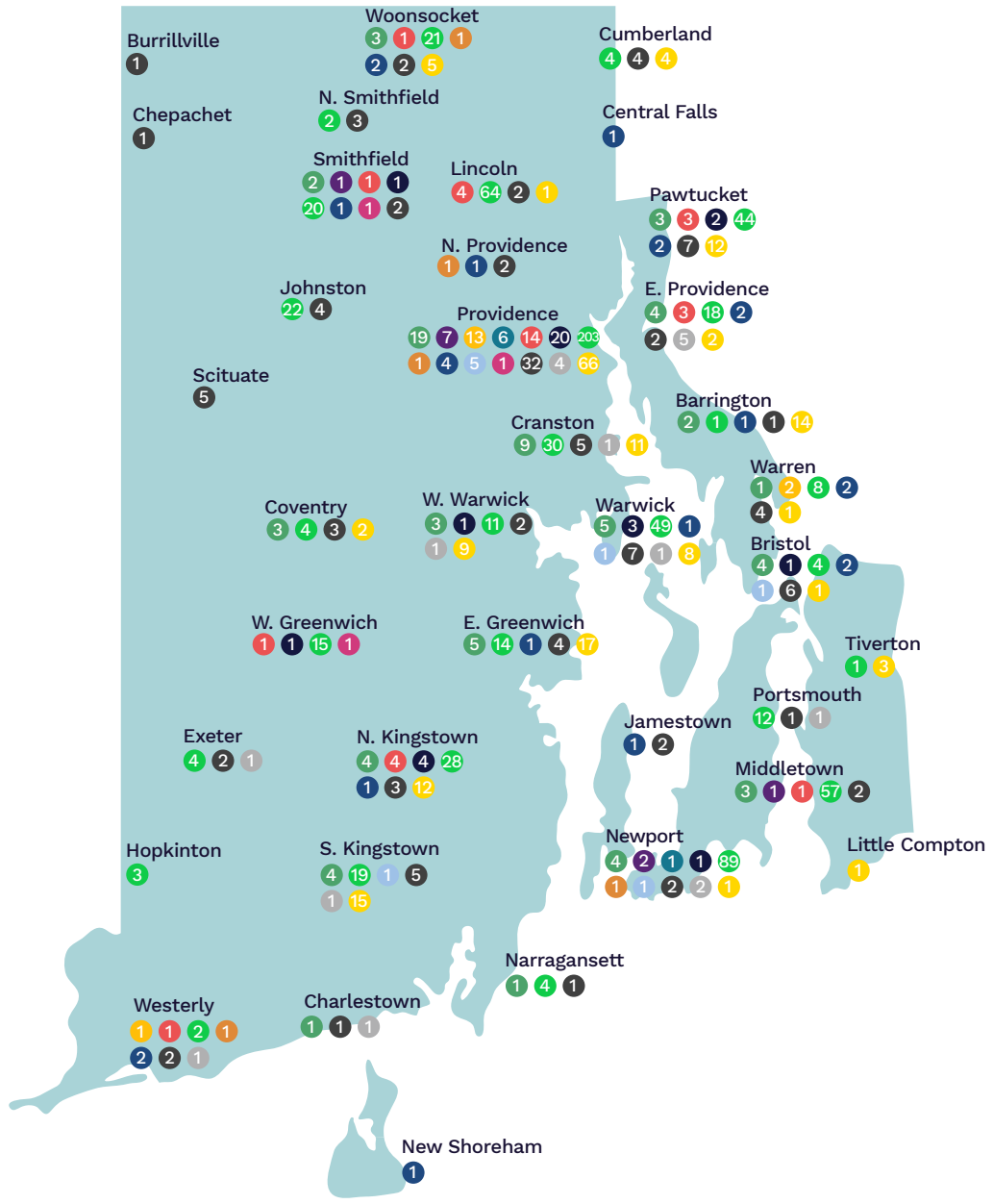
In short, innovation campuses are completing the pathway from basic research to commercialized products and pairing these products with people who will create companies and countless jobs.

**Innovation campuses are completing the pathway from basic research to commercialized products and pairing these products with people who will create companies and countless jobs.**

While all five initially designated campuses now show significant promise and progress, and are already attracting private investments, they are all in their early stages of formation and growth, making an in-depth assessment premature. To date, \$14.4 million of the

\$20 million bond has been allocated. Furthermore, it is important to note that it has been generally agreed across expert and respected ecosystem stakeholders that ideally two additional innovation campuses would be catalytic and critical to Rhode Island’s long-term success and associated with URI and key Rhode Island ecosystem partners: (1) an Ocean Technology or “BlueTech” Innovation Campus and (2) a BioTech/BioScience Wet Lab Incubator facility. These campuses are projected to each require \$5 million to \$10 million in funding to consummate.

# Program Summary



- Innovation Vouchers
- PTECH
- Industry Cluster Grants
- Main Street
- Network Matching Grants
- Tax Increment Financing
- First Wave
- Tax Stabilization Incentive
- Qualified Jobs
- Small Business Assistance Program
- Rebuild RI
- Small Business Loan Fund
- Wavemaker
- Innovate RI Small Business Fund

## 1279 Investments since 2016

\*The Wavemaker Fellowship is a benefit for companies to recruit & retain talent in RI, paid directly to the recipient (considered an 'investment'). Numbers on map represent total recipients working in each town

## **Innovation Campuses**

Rhode Island's innovation campuses are creating the infrastructure to take IP off university campuses by seeding private investments. \$14.4 million of the \$20 million bond measure, passed in 2016, has been allocated across five innovation campuses. The innovation campuses have partnered Rhode Island universities with non-academic entities such as MassChallenge, IBM Alpha Zone, Cisco Systems Inc., VoloAgri, Verinomics, the Office of Naval Research (ONR), the Naval Undersea Warfare Center (NUWC), and many others in promising collaboration constellations that should continue to draw investment and produce tangible results for the state.

## **Innovation Vouchers**

Innovation Vouchers promote business-university collaborations and internal R&D for manufacturers. One measure of the program's success is the \$2.6 million in state funds invested between 2016 and 2018 drawing \$1.6 million in private investment to advance Rhode Island's businesses across the targeted clusters.

## **Main Street RI Streetscape Improvement Fund**

\$2 million in state investments seeded \$3.4 million in private investments between 2016 and 2018.

## **Qualified Jobs**

The Qualified Jobs program has provided tax relief to companies expanding their workforce through new hires or relocation to Rhode Island. With a total investment of \$65.1 million between 2016 and 2018, the program is creating 3,210 jobs.

## **Real Jobs RI**

The Real Jobs RI initiative has gained broad support and recognition for its paradigm-changing approach, allowing industries to design and implement training programs and ensuring a strong fit between training and on-the-job skills. The initiative has trained 6,745 people, including 2,982 who were placed into a new job, and another 3,763 incumbent workers and entrepreneurs who were upskilled.

## **Rebuild RI Tax Credits**

Rebuild RI helps create catalytic place-based change by assisting companies relocating to the state. The program's placemaking and business attraction functions concentrate state resources to develop and drive the state's economy in a cost-effective manner. The tax credits in this program have attracted just above \$2 billion in private investments.

## **Small Business Assistance Program**

\$2.2 million in state funds supported \$7.0 million in private lending between 2016 and 2018.

## **Wavemaker Fellowships**

Over 800 fellowships have been granted since 2016 that provide a refundable tax credit certificate worth the value of their annual student loan burden for up to four years. The geographic reach and distribution across targeted clusters is a testament to their vital role in workforce development and talent retention in the STEM and design fields.

## **Westerly Education Center**

Westerly has trained over 3,000 people in a workforce program or a higher education class in three years.







# Next Steps

Rhode Island is in a significantly better place in 2019 because of the targeted initiatives outlined in this report. Many initiatives carried out on the back of the Brookings report achieved clear results by strengthening industry networks and creating jobs. This is an unambiguous story of policy-led economic growth reorienting the state toward the future.

Most promisingly, Rhode Island has aligned the design and implementation of multiple policies and programs to grow the state's advanced industry clusters. The level of intentionality, purpose, and shared vision across government agencies, industry sectors, universities, and other stakeholders is a marked departure from the fragmented state of affairs that preceded the Brookings report.

It is encouraging that Rhode Island has come this far when the comprehensive policy and program portfolio is still in its early stages. Investments in businesses, workers, and quality of place made over the last four years will continue to accrue benefits for years to come. The overall conclusion of this report is that Rhode Island should continue investing, while retooling and reorganizing in key areas to maximize effectiveness.

Rhode Island should also continue its aggressive efforts to improve dramatically and quickly the education of its children, the skills of its workforce, and the quality of its infrastructure. To this end, we are deeply encouraged by the state's takeover of the Providence public schools, the recruitment of a new education commissioner, its progress on workforce development (noted amply in this report), and its enhanced vision for and investment in transportation, energy, and other critical infrastructure. We are certain that the Governor's recent convenings of a series of workshops on the "future of work" will yield more progress. The future of Rhode Island's economy can only be secured by combining a sustained focus on fixing the fundamentals with the disciplined implementation of well-designed

and adequately-supported economic development initiatives.

**With that background, we recommend three main focus areas with 17 tangible and feasible suggestions for change.** For many of these recommendations, we suggest that multi-sector Implementation Teams take the next step and co-design the program and/or initiative, drawing heavily from the highlighted best-case examples.

**The future of Rhode Island's economy can only be secured by combining a sustained focus on fixing the fundamentals with the disciplined implementation of well-designed and adequately supported economic development initiatives.**

# Rhode Island needs to respond to new threats and embrace new opportunities

The period since the release of the Brookings report has elevated the importance of certain market and demographic dynamics. This plan, therefore, recommends six new and customized responses.

## 01 Pursue a Blue Economy initiative that builds upon Rhode Island's distinctive and formidable assets

In a rapidly changing economy, success flows to those places and companies that are first-movers, inventing technologies and deploying strategies in advance of competitors. Copenhagen's early shift to the Green Economy has built a strong industrial and export base in light of global concerns over climate change and the imperative to decarbonize. Likewise, Pittsburgh's emergence as a post-industrial city comes down to its sustained focus on next-generation technologies like artificial intelligence, genomics, robotics, and autonomous vehicles.

In this vein, Rhode Island has the potential to become a leader in the emerging Blue Economy, along with other first-movers like Rotterdam and San Diego. Rhode Island's "Ocean State" moniker is more than just a brand and encompasses more than just the state's beautiful beaches and long history of maritime industries. The University of Rhode Island, and particularly its Graduate School of Oceanography, has emerged as a globally-recognized leader in ocean science at the precise time that the United Nations has proclaimed a Decade of Ocean Science for Sustainable Development (2021-2030). Rhode Island also has an unparalleled industry ecosystem focused on supporting the U.S. Navy's undersea technology innovation. This ecosystem includes the Naval Undersea Warfare Center (and its Narragansett Bay Test Facility or "NBTF"), Raytheon, General Dynamics Electric Boat (GDEB), the Naval War College (NWC), the Southeastern New England Defense Industry Alliance (SENEDIA), the Undersea Technology Innovation Consortium (UTIC), as well as the newly established 401 Tech Bridge Innovation Campus and the associated rich cluster of small- and medium-sized innovative materials businesses. Finally, the state's first-in-the-water position in Offshore Wind

**The University of Rhode Island, and particularly its Graduate School of Oceanography, has emerged as a globally-recognized leader in ocean science.**

provides intriguing potential for growth (see recommendation below), and the state has already become home to an intriguing mix of startup companies, training facilities, and enterprising groups like SeaAhead.

As Rhode Island moves forward, one challenge is abundantly clear. The Blue Economy, unlike the Green Economy,<sup>45</sup> has not been defined in such a way that disparate places can understand their distinctive niches with rigor and exactitude. Rhode Island's strengths, for example,

extend far beyond the confines of what are currently considered marine industries to include information technology and cyber security, as well as suppliers to the Offshore Wind industry. Rising sea levels and the challenges associated with climate change adaptation mean that this super-sector will only grow over time and involve an increasingly broad array of stakeholders, including financial institutions, insurance companies, planners, architects, and builders. Employing the state’s universities and research institutions to carry out such an analysis is an urgent and immediate task, one that is currently underway.

The Coastal Resources Center at the University of Rhode Island is currently working on a comprehensive examination of the Blue Economy in the state. One early finding is that about 9% of Rhode Islanders work within the state’s ocean economy, a sector valued at \$5 billion. The report defines the Blue Economy “as the economic sectors that have a direct or indirect link to Rhode Island’s coasts and ocean—defense, marine trades, tourism and recreation, fisheries, aquaculture, ports and shipping, and offshore renewable energy.”<sup>46</sup>

Focusing on the Blue Economy provides a framework for creating and reinforcing connections between companies in diverse marine industries, between producers and consumers, and between researchers and practitioners. Place, proximity, and intentionality are important for nurturing a vibrant Blue Economy environment. San Diego, for example, today boasts one of the largest BlueTech industry clusters in the U.S., much of which is located in the Port of San Diego. The city’s Blue Economy includes a great diversity of industries, ranging from fishing to biomedicine, from robotics to climate science, from maritime transportation to ocean energy.<sup>47</sup> The sector’s importance for San Diego in particular is associated with the fact that the city is at the nexus of some of the major global challenges that the Blue Economy seeks to tackle, including shortages in food, water, energy, medicine, and real estate.<sup>48</sup> San Diego’s Blue Economy targets these challenges specifically, for instance, by exploring foods that can be grown in the ocean and by researching how the ocean can provide drinking water.<sup>49</sup> San Diego’s Blue Economy accounts for more than 1,500 companies, 45,778 jobs, and \$14 billion in annual revenues.<sup>50</sup> TMA BlueTech (formerly known as The Maritime Alliance) functions as the cluster organization for San Diego’s maritime technology community. Although an industry association, governed and funded by member companies, TMA BlueTech collaborates with academic and government actors and helped found the BlueTech Cluster Alliance, an international grouping of Blue Economy clusters. TMA BlueTech has a strong focus not only on creating links between actors in San Diego’s Blue Economy, but also on emphasizing outreach to the wider policy, research, and business environments.

**Rhode Island’s “Ocean State” moniker is more than just a brand and encompasses more than just the state’s beautiful beaches and long history of maritime industries.**

Rotterdam, the second-largest city in the Netherlands, is often regarded as a first-mover in the global Blue Economy. The city offers examples of how deindustrialized port areas can be successfully and innovatively converted to new uses. Blue City, for example, is located inside a building that formerly contained a derelict swimming center called Tropicana. Today, the building serves as a startup innovation hub centered on the

circular economy, with an emphasis on businesses that work to use plants for bioenergy, food, waste management, water, and soil cleansing. Blue City is furthermore a project partner in European initiatives related to sustainability and recycling and has hosted events for the local community. The Netherlands has a longstanding tradition of pursuing a circular economy, for example with its numerous greenhouses, which are used both to share heat and recycle waste.

At the Europe-wide level, the European Commission has a portfolio of policy responses to the changing nature of work due to technological change and globalization. One sector-specific example is the Maritime Alliance for fostering the European Blue Economy through a Marine Technology Skilling Strategy (MATES). MATES' primary objective is to "develop a skills strategy that addresses the main drivers of change to the maritime industry, in particular shipbuilding and offshore renewable energy. Both sectors are strongly linked and require new capacities to succeed in an increasingly digital, green, and knowledge-driven economy."<sup>51</sup> The European Union and member states invest significant resources in studying the changes in work and aligning educational and vocational programs to match future demands.

Two other relevant practices should be taken into consideration as Rhode Island launches a Blue Economy initiative.

First, it is essential that the state bulk up its scientific prowess by attracting the best researchers in the world in a range of Blue Economy fields. Tennessee offers a helpful example in this regard. Under Governor Phil Bredesen, the state created The Governor's Chairs program. Funded by the state and Oak Ridge National Laboratory (ORNL), the program attracts top researchers to broaden and enhance the unique research partnership that exists between the University of Tennessee—the state's flagship university and premier public research institution—and the nation's largest multi-program laboratory. The program seeks to hire as many as twenty scientists for existing institutes operated jointly by the University of Tennessee and ORNL in the areas of advanced manufacturing, advanced materials, biological sciences, energy sciences, nuclear security, and urban design. A similar effort could be forged between Rhode Island's two leading institutions, the University of Rhode Island and the Naval Undersea Warfare Center.

Second, it is critical that the state keep score on its progress in this emerging super-sector of the economy. One relevant best practice from Europe: the efforts by the Danish national government and city governments since the early 1970s to use ambitious climate targets as a way to spur economic growth, innovation, and job creation. Recently, the Danish Social Democratic government announced it would cut CO<sub>2</sub> emissions by 70% by 2030 (based on the 1990 baseline). The Danish confederation of private industry believes this will create 120,000 new private sector jobs and lift Danish welfare by more than \$16 billion.<sup>52</sup> In June 2018, the Danish government published the Energy Agreement between the government and all the key stakeholders in Danish society. The Energy Agreement aims for CO<sub>2</sub> neutrality by 2050, meaning that Denmark will absorb as much CO<sub>2</sub> as it releases. In connection with this, the Danish Agriculture and Food Council published a plan for achieving a 70% reduction in CO<sub>2</sub> emissions by 2030 and CO<sub>2</sub> neutrality by 2050 in the agricultural and food industries.<sup>53</sup>

We recommend that a vision for Rhode Island's Blue Economy emerge from the

visions and values of the state’s existing marine and maritime actors, (i.e., individuals, businesses, organizations, and institutions with a stake in the development of the state’s ocean-related industries). Such a vision should ideally be facilitated and promulgated through the work of a Blue Economy intermediary organization. With a unified and cohesive strategy targeting the Blue Economy, Rhode Island will be able not just to pursue growth in the abstract but to pursue growth with a purpose—to achieve economic development that serves the needs of the full range of the state’s residents and stakeholders.

A Blue Economy Initiative would include this platform-setting analysis as well as the following:

1. Working with related industry clusters, academia, and other research, science, and technology organizations, establish short-, medium-, and long-term goals for growing this sector.
2. Provide greater support for intermediaries that connect traditional Rhode Island maritime companies and the startup community.
3. Work with the University of Rhode Island to establish a Blue Economy Innovation Campus or Center, perhaps in concert with domestic or international university and corporate partners. We estimate that the budget for jump-starting such a Campus would be in the \$10 million range.
4. In collaboration with universities and private investors, the Innovation Campus should include a Blue Tech Accelerator to support the commercialization of intellectual property and research from universities.
5. Launch a Governor’s Chairs program in concert with the University of Rhode Island and the Naval Undersea Warfare Center.
6. Include the Blue Economy as part of the GlobalRI Initiative described below, given potential partnerships with Rotterdam and other global leaders.

**Budget Estimate:** We estimate that the budget for implementing this recommendation would be in the \$12 million-\$15 million range.

## 02 Maximize the state’s potential in Offshore Wind

The rapidly growing Offshore Wind industry has become a significant opportunity for Rhode Island, especially considering that Rhode Island has a clear first-mover advantage as the first U.S. state with wind turbines in the water off the coast of Block Island.

Offshore Wind capacity on the East Coast is projected to reach 20GW towards 2035, exceeding current European capacity. The associated CAPEX investments alone are estimated to be ~\$70 billion and tens of thousands of jobs are likely to be created.<sup>54</sup> Establishing the industry is an opportunity for states to capture supply chain elements in a currently open playing field.

Rhode Island has certain advantages and disadvantages as the race for Offshore Wind begins in earnest along the Eastern Seaboard. The key challenge is that Offshore Wind is generally an industry that requires large investments and vast space for the production end of the supply chain. Some states have key assets that place them at the vanguard in this area: Connecticut's New London pier, for example, is one of the few ports on the East Coast with unobstructed access to the open water.

Yet Rhode Island has intriguing possibilities. Existing Offshore Wind cluster participants identify operations and maintenance as the most promising area given the state's capabilities as well as the prospect of business opportunities across the full lifetime of Offshore Wind farms. As a first-mover in the Offshore Wind industry, Rhode Island is already home to the first crew transfer vessel (CTV) in the U.S., and its marine and shipbuilding sector should be able to support and benefit from the growth of the Offshore Wind sector on the East Coast. Rhode Island's close proximity to northern lease sites and geographic placement between states with large Offshore Wind pipelines is favorable, and Rhode Island already has companies driving technological innovation in Offshore Wind.

One study in Europe, based on data from Denmark, Germany, Spain, and the United Kingdom, found that operations and maintenance costs were approximately 1.3 eurocents per kilowatt hour (kWh).<sup>55</sup> These costs are split between administration, insurance, maintenance, repair, and spare parts. A more recent study found that operations and maintenance costs are 20-30% of the Levelized Cost of Energy (LCOE). The total operations and maintenance costs for a 400 MW windfarm 19 miles off Denmark's West Coast is 41.2 million Euros per year.<sup>56</sup> Tapping into this critical piece of the value chain has strongly contributed to the local onshore economy in Denmark, and Rhode Island should look to this potential in the evaluation of its advantages in the industry. Additionally, operations and maintenance takes less space and has a much

longer time proposition than other linkages in the value chain.

**Offshore Wind capacity on the East Coast is projected to reach 20GW towards 2035, exceeding current European capacity.**

Given the growing Danish presence in Rhode Island's wind ecosystem, it is instructive to review how Denmark became a global leader in this energy sector. When the first oil shock in 1973 rippled around the world, 90% of Denmark's energy needs came from the Middle East. The country took immediate steps to limit oil imports such as encouraging people not to drive on

Sunday and lowering speed limits. It also made two long-term moves. Denmark looked to the North Sea for oil and gas, while also looking to exploit its geography through wind energy. One early state investment came with the founding of the Risø National Laboratory to test and certify wind turbines, affiliated with the Technical University of Denmark.

Early turbines were most often community-owned and small scale. The national government covered 30% of equipment costs. Turbines were given grid access and utilities paid a fixed rate for their production. By the turn on the millennium, 8,000



turbines had been installed onshore throughout the country. Land scarcity pushed wind farms offshore. The national government continued its support for wind energy through this period with price subsidies and public research funds. Denmark entered the Nord Pool Spot market in 1999 and liberalized its energy market in the early 2000s.<sup>57</sup> The Nord Pool Spot market allows Denmark to buy and sell energy to neighboring countries, which created an incentive to increase wind capacity.

Denmark's strength in wind comes from the clustering of turbine manufacturers for both onshore and offshore wind production that source from local suppliers and invest in R&D. The developers and operators round out the cluster. Four Danish universities and two public technical research centers collaborate with the private firms for research, which pushes the technology forward. The largest research center is the Technical University of Denmark's dedicated wind energy department, which has 240 employees. This level of expertise is combined with broad government support from the Climate and Energy Ministry and the Ministry of Foreign Affairs, which has the target of doubling wind exports by 2030. The cluster is well organized by intermediaries, called institutions for collaboration, which span the value chain or are specifically targeted at key relationships, such as universities and companies.

**Existing Offshore Wind cluster participants identify operations and maintenance as the most promising area given Rhode Island's capabilities.**

With this background, Rhode Island's Offshore Wind supply chain strategy should contain the following:

1. Establish an Implementation Team (including representatives from Rhode Island's ports, the Rhode Island Manufacturers Association, Polaris MEP, the Composites Alliance of Rhode Island, and universities) to identify action steps to enable small manufacturing companies to support expected demand for manufacturing parts for wind turbines and ships for operations and maintenance.
2. The Implementation Team should also help design the governance, responsibilities, and public/private financing of an Offshore Wind supply chain entity and determine whether such an entity should be incubated within Rhode Island Commerce.
3. Establish a special Offshore Wind initiative within PrepareRI, Real Jobs RI, and the Community College of Rhode Island to equip workers with the skills they need for this burgeoning industry.
4. Identify and attract U.S. onshore wind companies that might locate a portion of their businesses to participate in the East Coast supply chain.
5. Lead an effort across New England (at a minimum) to build cooperation across the value chain and thereby avoid duplicate investments and potentially lower returns on investments.

**Budget Estimate:** We believe that the budget for implementing this recommendation would be included in resources provided for other state programs.

### 03 Target the technologically-advanced Back Office market

Given its strategic location, cost structure, and talent pool, Rhode Island should take advantage of its potential to be an attractive, affordable market for major companies in New England and beyond looking to improve their Back Office operations experiencing disruptions due to technological change.

As identified by the Rhode Island Public Expenditures Council, the state has several strengths that have the potential to be leveraged through purposeful policies and initiatives.

*Location/Geography:* The state is situated close to the Boston and New York metro areas with easy travel access by car and rail. Rhode Island generally has high-speed internet access and wide broadband access. The state's cost of commercial and office real estate is significantly lower than that of the Boston or New York City metro areas.

*Workforce:* The state has a highly educated available workforce and an educational system that is geared toward training and providing certification programs for companies (CCRI, RIC, URI, and many private institutions of higher education).

Due to its relatively low cost of doing business and other attributes, like affordability and quality of life, Rhode Island has advantages over the Boston and New York metro areas for certain backroom or support services operations which companies complete in-house or subcontract to other businesses. These services include but are not limited to: IT and cybersecurity, finance processing, accounting and auditing, human resource management, purchasing, marketing and sales support, in-house legal support, and call centers.

If Rhode Island could create an environment that promotes the development of a backroom or support service niche, over time the state could be considered as a headquarters location for other types of firms that may provide these services and with great potential to attract larger headquarters. There are many firms which exist today that could serve as the foundation for a niche set of businesses.

To leverage these distinctive strengths, Rhode Island could do the following:

1. Continue and scale workforce and education initiatives to prepare Rhode Islanders for advanced services.
2. Prepare easy-to-read guides to the office market in Providence and other Rhode Island hubs, particularly those that are located near serviceable rail stations. This

**If Rhode Island could create an environment that promotes the development of a backroom or support service niche, over time the state could be considered as a headquarters location for other types of firms that may provide these services and with great potential to attract larger headquarters.**

would include comparative information on rental or sale costs, amenities, skills base, and transportation/school options.

3. Prepare easy-to-read guides on Rhode Island tax, regulatory, and program environment, which are geared toward companies considering a relocation of back office functions. The guide would be prepared in concert with the Partnership for Rhode Island, to source the Frequently Asked Questions that similar large companies in comparable clusters would naturally ask.
4. Identify and communicate examples of companies which have located back office functions to Providence and other Rhode Island hubs.
5. Engage CEOs and other senior leaders of large Boston-based firms who either grew up in Rhode Island or graduated from a Rhode Island-based college.

**Budget Estimate:** We believe that the implementation of this program would be carried out by Rhode Island Commerce staff with existing resources.

## 04 Create a Minority Business Accelerator

Rhode Island is undergoing rapid demographic transition, well on its way to becoming a majority minority state. Like many parts of the U.S., however, the minority share of the population greatly exceeds the share of businesses owned by minorities. In addition, minority-owned businesses tend to be small in size and primarily situated within non-advanced sectors of the economy, with lower pay and benefits.

Demographic shifts compel us to dissect the current system for nurturing, growing, and capitalizing minority-owned businesses to create paths toward wealth building that have long been neglected in favor of homeownership. Most cities have thick and textured ecosystems for supporting tech startups and scale-ups: universities, incubators, accelerators, angel and seed funds, mentor groups, etc. The ecosystem for growing black- or Latino-owned businesses is less developed and—crucially—less funded, consisting mostly of government-focused MWBE programs and small business debt vehicles. There is a stark contrast between the robustness of the broader innovation ecosystem in many cities (well-capitalized, highly-networked, a blend of public/private/civic, etc.) and the meager system accessible to minority entrepreneurs (barely capitalized, overly governmental, non-profit led, etc.).

Rhode Island must make a quantum leap in the number and scale of minority entrepreneurs and minority-owned businesses. To this end, it should enact and capitalize a Minority Business Accelerator, modeled after the highly-successful initiatives undertaken in Cincinnati, Youngstown, and elsewhere. The Cincinnati Minority Business Accelerator, long backed by major corporations, has a portfolio of firms that are owned by African Americans and Hispanics, with annual revenues of \$1 million or more and with the potential for

**Rhode Island must make a quantum leap in the number and scale of minority entrepreneurs and minority-owned businesses.**

accelerated growth within two to five years. While the accelerator is platform agnostic, 35 firms with 3,500 workers in the construction, facilities management, packaging, and consulting industries are currently in the accelerator's portfolio. The accelerator now has a three-pronged strategy, armed with a new Kauffman Foundation grant. It seeks to identify 50 growing companies over the next five years as part of its portfolio. It is also working with REDI Cincinnati, the lead economic development agency for the region, to bring more minority-owned firms into the manufacturing, aerospace, and chemicals sectors. It has about 200 prospects. Finally, the accelerator is seeking to grow minority businesses by acquiring other businesses with no succession plans.

A Rhode Island Minority Business Accelerator could be structured as follows:

1. It could provide a series of services, including no-cost management, accounting, technical, financial, and contract procurement assistance in addition to loan and bond packaging services.
2. It could partner with higher education and medical institutions and leading corporate employers around discrete procurement opportunities.
3. It could design entrepreneurship curricula in close concert with the Community College of Rhode Island, Rhode Island College, and other universities.
4. It could, as in Cincinnati, work with Manufacturing Extension Program intermediaries on potential linkages between small manufacturing companies and emerging minority-owned businesses.
5. To help design the Accelerator, establish a Minority Business Implementation Team to assess how to adapt the Cincinnati Minority Business Accelerator model to Rhode Island. The Implementation Team should include representatives from the minority business community, universities, and the financial community.

**Budget Estimate:** We estimate that the budget for implementing this recommendation (i.e., incorporating and starting a Minority Business Accelerator) would be in the \$1.5 million-\$2.5 million range.

## 05 Enact a Technology Adjustment Initiative

Rhode Island, like the U.S. as a whole, is on the verge of technological disruption. A series of next-generation technologies (e.g., cyber security, artificial intelligence, machine learning, robotics) are sweeping through the economy, increasing the demand for specialized knowledge and, in some cases, reducing the need for manual, repetitive labor across a broad spectrum of sectors. At the same time, technological advancement has created new potential for product innovations that combine the expert knowledge of companies, workers, and educational partners. In the past, the U.S. has had a slew of trade adjustment strategies and programs. As Rob Atkinson of the Innovation Technology and Information Foundation has argued, now is the time for a Tech Adjustment Initiative.<sup>58</sup>

Rhode Island already has elements of a Tech Adjustment Initiative that can be expanded

to encompass lessons from other states and from Europe. Real Jobs RI is currently helping companies across a wide range of industries train workers for occupations that barely existed a few years ago. The Innovation Campus project 401 Tech Bridge is working with the Office of Naval Research and local manufacturers to solve specific challenges, resulting in new funding through a streamlined procurement process. Collaboration among Polaris MEP, the Composites Alliance of Rhode Island, and the Rhode Island Textile Innovation Network has resulted in expanded funding.

As these and other efforts proceed, previously unknown linkages between disparate stakeholders are coming to the fore. In the composites field, for example, the University of Rhode Island, Roger Williams University, and IYRS School of Technology and Trades have complementary expertise in engineering, instrumentation architecture, digital modeling, and fabrication that can be leveraged for product and other innovation.

It is time to bring coherence to these disparate efforts under one umbrella: a Rhode Island Technology Adjustment Initiative. The goal of this new effort would be to help companies, clusters, universities, and intermediaries respond to disruptive technologies that require significant and urgent change in skills and work patterns as well as to enable the next generation of innovation.

The Aspen Institute Future of Work Initiative, for example, recently released a study identifying ten policy interventions that states should consider adopting to modernize worker benefits and protections and increase skill levels.<sup>59</sup> The Aspen Institute research is complementary to the work being done by the Markle Foundation's Skillful Initiative.<sup>60</sup> We believe that a Rhode Island Tech Adjustment Initiative would make a distinctive contribution to the field since it would combine 1) a data-driven assessment of distinctive advanced industry clusters (prioritizing the focuses of the state agencies); 2) company- and cluster-driven skills training (e.g., with firms driving curriculum development and on-the-job engagement); and 3) an integrated approach across high schools, community colleges, workforce development programs, and four-year colleges and universities.

The Technology Adjustment Initiative would be a collaborative project of Rhode Island Commerce and the Department of Labor and Training to accomplish the following:

1. Establish an industry- and university-led panel that works on a continuous basis to identify emerging technological threats and opportunities, building upon the frontline experience of companies and entrepreneurs.
2. Provide flexible funding to respond to these threats and opportunities.
3. Position Rhode Island as a U.S. leader in technological adjustment, with seed funding made available for industry- and university- led applications for private, philanthropic, and government funding.

**Budget Estimate:** We estimate that the budget for implementing this recommendation would be in the \$5 million-\$7 million range.

## 06 Enact a Business Succession Initiative

Rhode Island is the quintessential small business state. The manufacturing sector reflects the challenges and opportunities associated with small business. The Rhode Island Manufacturers Association has identified 1,623 manufacturers with four or more employees, 220 of which generate revenue from defense-related projects.

As in other states, small manufacturing companies face an array of challenges, some of which are addressed by strategies like the Tech Adjustment Initiative recommended above. But small manufacturing companies in Rhode Island and elsewhere are also grappling with the twin issues of aging owners and workers. These demographic challenges deserve special consideration.

Across the country, small businesses face a succession crisis. In the *2015 Financial Planning Association/CNBC Business Owner Succession Planning Survey*, 78% of respondents say they plan to sell their businesses to fund their retirement.<sup>61</sup> However, fewer than 30% have a written succession plan. In simple terms, “The boss is looking to retire, and the kids don’t want to take over.”

This has particular implications in the manufacturing industry, where there are numerous family-owned businesses that have been passed down from generation to generation. Without succession plans, there is a threat that companies might close or be purchased by private equity firms that move them out of the region or pick them apart. The loss of companies—to state GDP, to worker incomes, and to manufacturing supply chains—can make a big impact on local and state economies.

A related issue is the aging of the workforce. The Rhode Island Manufacturers Association, for example, recently reported that the percentage of workers over the age of 55 ranged from 30% to 90% in individual companies. Unsurprisingly, workforce development (and health care) were designated as the priority issues facing companies.

Cities, metropolitan areas, and states are beginning to respond to these challenges in focused ways. In Connecticut, New Jersey, and elsewhere, manufacturing extension partnerships are being funded to work with individual companies on succession plans that serve the needs of not only owners but also workers, customers, and middle managers. In Chicago, an interesting partnership between business, labor, government, and the financial sector was launched in 2019. This so-called Re/Cast initiative aims to “help retain Chicago’s industrial base by arranging the acquisition of manufacturing companies through ownership succession by groups of employees and High Road entrepreneurs, particularly African-American and Hispanic men and women.”<sup>62</sup> Partners include Manufacturing Renaissance; the Chicago Federation of Labor; World Business Chicago, the city’s public-private economic growth agency; Local Initiatives Support Corp., a community development organization that will play a leading role in financing the acquisitions; the Illinois State Treasurer, whose banking relationships can facilitate financing; the Safer Foundation, a non-profit organization that helps formerly incarcerated people prepare for the workforce and can identify and assist interested entrepreneurs; and the Cook County Bureau of Economic Development.

A particular priority for the Rhode Island initiative will be to prepare manufacturing workers to take over the business once the boss retires, as they have industry expertise and a stake in seeing it succeed. A manager or superintendent could be groomed for ownership, or a group of employees could go in on it together.

A Rhode Island Business Succession Initiative could start with the manufacturing sector as a case study and include the following elements:

1. Establish an Implementation Team, with representatives from the industry and key intermediaries.
2. The Team should co-create an “early warning system” to identify companies at risk of succession issues.
3. Provide resources to industry intermediaries to develop and deploy best-in-class succession planning services, building upon efforts underway in other parts of the country.
4. Develop a system for identifying potential buyers (including the utility of the worker cooperative or ESOP model) as well as curated financial structures and products.
5. Provide a boost in resources to Real Jobs RI to work closely with companies, clusters, intermediaries, and the educational system on growing a new skilled workforce.

**Budget Estimate:** We estimate that the budget for implementing this recommendation would be in the \$500,000-\$1 million range.

# Rhode Island needs to stay the course, double down, and sharpen its focus on strengthening advanced industries

Even the most effective programs can take years to achieve their desired impact. Rhode Island has acted with urgency and alacrity to organize, fund, and implement policy reforms and programs to change its path, but many of these efforts are still works in progress, and their full impact has yet to occur.

We recommend seven large moves in this focus area.

## 01 Make critical Cluster Infrastructure Investments

Bryant University Professor Edi Tebaldi has rightly highlighted Rhode Island's longstanding underinvestment in infrastructure over the past several decades. Efforts have been made in recent years to enhance strategic investments around surface transportation (e.g., roads, bridges, rail stations, transit, bike paths) via the 2016 RhodeWorks legislation as well as green infrastructure (e.g., energy efficient buildings, climate mitigation) via the State Infrastructure Bank. The 2040 Rhode Island Master Transit Plan has garnered substantial input and enthusiasm from a variety of stakeholders and constituents.

Yet the term "infrastructure" is no longer confined to traditional investments or asset classes. The advanced industry clusters identified in the 2016 Brookings report also need a broad array of customized infrastructure investments in order to realize their full potential.

- Leaders in the **Biomedical Innovation cluster** have identified the lack of wet labs infrastructure as a barrier to the commercialization of research and company startup, expansion, and attraction.
- Leaders in the emerging **Blue Economy cluster** have discussed enhanced investments for a Smart Bay to enable the testing of undersea technologies, sensors, and systems.
- Leaders in the emerging **Offshore Wind cluster** are actively exploring enhancements to the Port of Providence and the Port of Davisville at the Quonset Business Park to ensure that Rhode Island can secure its portion of the Offshore Wind supply chain.
- Leaders in the **manufacturing sector** have identified large-scale site assembly and preparation as a critical need.

Beyond prioritized industries, there are spatial disparities that persist on key infrastructure needs, even in a state as small as Rhode Island. Affordable access to high-speed internet remains an issue on Aquidneck Island, despite the existence of extensive fiber optic infrastructure through the OSHEAN Beacon 2.0 network.



Several things are apparent from this early inventory of infrastructure needs. First, the definition of “economy-shaping infrastructure” is very broad, ranging from investments in energy, transport, telecommunications, and water/wastewater that provide a platform for an entire state to more pointillistic investments in facilities and foundations that fuel particular industries. Second, the cluster infrastructure needs are very distinct in terms of project design; market attributes; and how they are governed, regulated, owned, and operated. Finally, the cluster infrastructure projects require disparate kinds of public-private financing mechanisms, given the natures of the industries and sectors involved and the economic returns that flow from public investment.

We strongly recommend that Rhode Island become the first state in the U.S. to bring a level of rigor, objectivity, and financial sophistication to the role that customized infrastructure investments play in advanced industries. We hope that a Cluster Infrastructure Plan will ultimately become as routinized a document as now exists in the surface transportation arena and will be regularly used for budget planning purposes as well as for co-investment with private and civic sources. We believe that the Cluster Infrastructure Plan will grant Rhode Island’s advanced industry clusters, companies, and workers the predictability they need to invest in and innovate for the future.

**We strongly recommend that Rhode Island become the first state in the U.S. to bring a level of rigor, objectivity, and financial sophistication to the role that customized infrastructure investments play in advanced industries.**

We specifically recommend that Rhode Island become the first state to co-design—with companies, industry intermediaries, universities, and localities—a Cluster Infrastructure Plan that sets forth:

1. Long-term infrastructure needs for each of the prioritized advanced industry clusters.
2. Short-term projects that are in the final stages of design.
3. For each short-term project, investment plans that lay out proposed revenue sources and projected uses and impacts.

In the near term, we believe that funding should be provided, from new or existing sources, for a BioTech/BioScience Wet Lab Incubator facility and Smart Bay infrastructure.

**Budget Estimate:** We estimate that the budget for implementing this recommendation would be in the \$15 million-\$20 million range.

## **02 Expand and intensify the Innovation Campus Initiative**

As described above, Rhode Island has made an excellent start on the Innovation Campus Initiative. To date, five campuses have been designated and \$14.4 million of the \$20

million voter-approved bonding capacity has been allocated. The designated campuses cover a wide variety of sectors that match the state's natural competitive advantages, including biomedical innovation, agriculture technology, composites, and advanced materials. They also reward partnerships between leading universities, military research facilities, companies, and proven incubators and accelerators.

Rhode Island's innovation campuses reflect new dynamics in the spatial geography of innovation. Across the world, cities, states, and nations are observing and supporting the rise of Innovation Districts, where the co-location of major anchor institutions, business incubators, and entrepreneurs focused on the commercialization of innovation can reap the benefits of economic, physical, and network assets.<sup>63</sup> This concentration of innovation assets in small geographic areas represents a stark contrast to the trends of 30 years ago, when corporations tended to locate their innovation units in isolated facilities, generally far from urban centers and university campuses.

The Cortex Innovation Community in St. Louis is one of the best global examples of what these districts can generate. Its origin and evolution are recounted in *The New Localism: How Cities Can Thrive in the Age of Populism*:<sup>64</sup>

In 2002, a group of anchor institutions—Washington University, Saint Louis University, the University of Missouri-St. Louis, BJC HealthCare, and the Missouri Botanical Gardens—collectively established a non-profit corporation to oversee the development of a 200-acre innovation district in the heart of St. Louis. The district is known as the Cortex Innovation Community (Cortex is an acronym for the Center of Research, Technology and Entrepreneurial Exchange). The state and the city granted the corporation several critical powers: the power of eminent domain, the power to abate taxes, and the power to approve or reject building plans. In 15 years, Cortex has become the St. Louis area's largest innovation hub, generating 4,200 tech-related jobs and more than \$550 million in investment. Taking advantage of the proximity of major research universities, Cortex has leveraged the creative mix of university talent, mature companies, start-up firms, and research labs. In particular, Cortex has created six innovation centers, each with its own community and programming. In several cases, Cortex has attracted nationally-known intermediaries such as the Cambridge Innovation Center to base facilities in the district.

What does the innovation district phenomenon mean for Rhode Island?

As recommended above, it is essential that Rhode Island establish an Innovation Campus for the Blue Economy. Creating a new Innovation Campus, however, should not detract from ensuring that the five innovation campuses designated to date realize their full potential.

Two lessons are of utmost importance.

First, in a growing number of cities, multiple anchor companies, universities, and other organizations commit to co-locating their innovation units to create an innovation "hot-house" where innovators from disparate disciplines can share ideas and collaborate on pathbreaking business ventures. The Cortex Innovation Community in St. Louis described above started as a life sciences hub. Over the past 15 years, it has evolved to

include a major Boeing R&D lab as well as growing investments by Microsoft and other companies in cybersecurity. Similarly, the University of Cincinnati's 1819 hub has representation from Procter & Gamble and other local companies, and Tech Square in Midtown Atlanta has become one of the corporate R&D centers in the U.S. We recommend that a significant push be made to convince major corporate employers in the state—large financial institutions, manufacturing companies, and consumer companies—to consider placing innovation units in one or more of the designated Innovation Campuses. In other words, the partnerships that were formed to create the existing Innovation Campuses are a starting point, not an ending point.

Second, cities and their anchor institutions are experimenting with advanced forms of technology transfer and commercialization, so that ideas generated in the laboratory can ultimately be translated into products and processes for market adoption and can help grow and scale companies.

In a 2017 report entitled “Concept to Commercialization: The Best Universities for Technology Transfer,”<sup>65</sup> the Milken Institute found that the University of Utah was the top research university in the nation when it comes to commercializing technology innovations. (The Milken ranking is based on the *University Technology Transfer and Commercialization Index*, which uses indicators of technology transfer success such as patents issued, licenses granted, licensing income, and start-ups formed).

“Utah has a strong entrepreneurial culture and an incentive system that makes it attractive for research faculty and students alike,” the report said, praising the University’s Technology & Venture Commercialization as “among the best in the nation.”

Some key ingredients of Utah’s success:

“The Commercialization Engine Committee is a notable, unique asset and is comprised of a network of external experts from a variety of fields who offer counsel and make the process highlight efficient.”

“The University of Utah has many different sources of research and commercialization but its focus on biomedical is a key foundation. At its Center for Medical Innovation (Center), doctors and students drawn to innovation have a central resource. The Center functions as an information and gathering focal point for faculty, students and industry in the health sciences. Another resource is the Entrepreneurial Faculty Scholars program which coalesces innovative faculty who are dedicated to encouraging and enriching translational experiences for both faculty and student entrepreneurs. The university also has the Lassonde Entrepreneurship Institute that serves as a launching pad for student entrepreneurship programs ranging from business plan competitions, innovation courses, internship to commercialization opportunities.”

Remarkably, the same study placed Brigham Young University (BYU) as the fourth highest ranked university on technology transfer. This is highly relevant since BYU receives a relatively small amount of federal research grants, only \$32.2 million in 2015 compared to Johns Hopkins University, the largest recipient, with \$1.55 billion.

What BYU lacks in federal research expenditures it makes up with incentives for faculty researchers. Revenues from licensing are split: the inventor receives 45% as personal income, the university 55% for research support.

As Rhode Island examines studies assessing technology transfer, it should consider the fact that the state is building both a physical and programmatic infrastructure around innovation. The Innovation Campuses embody the physical side; Innovation Vouchers and intermediaries like the Cambridge Innovation Center, Venture Café, and Innovate Newport embody the programmatic approach. As Innovation Campuses evolve over time, the quality of programming and the access to support for innovative, targeted research will grow in importance. By creating dense ecosystems of mature companies, start-up firms, and researchers, Innovation Campuses are likely to increase demand for Innovation Vouchers and the kind of university/company partnerships they promote.

In summary, efforts to expand and intensify the Innovation Campus Initiative should contain the following:

1. The creation of an Innovation Campus dedicated to the Blue Economy. The University of Rhode Island is the natural entity to lead such an effort.
2. A major push to convince large corporate employers in the state to consider placing innovation units in one or more of the designated Innovation Campuses.
3. Adaptation of Utah's Tech Transfer success to the Rhode Island context.

**Budget Estimate:** We estimate that the cost of creating an Innovation Campus dedicated to the Blue Economy would be no less than \$10 million.

## 03 Expand investments in Cluster Networks and Small Business Intermediaries

As described above, targeted state support has helped build mature and capable intermediaries for key industry clusters. Intermediaries like RI Bio, DESIGNxRI, the Rhode Island Textile Innovation Network, Polaris MEP, the Composites Alliance of Rhode Island, the New England Medical Innovation Center, the Southeastern New England Defense Industry Alliance, the Rhode Island Marine Trades Association, and Social Enterprise Greenhouse, individually and together, provide a solid platform for growth in areas of the economy where the state has clear strengths and special competitive advantages.

At the same time, the state has enhanced support for small businesses (new start-ups as well as existing companies) by providing resources to intermediaries such as the Cambridge Innovation Center, MassChallenge, Innovate Newport, the Rhode Island Hispanic Chamber of Commerce, and the Rhode Island Black Business Association.

These intermediary organizations—and other efforts like SupplyRI and Innovation Vouchers—directly and indirectly catalyze growth and enhance prosperity.

First, they strengthen the innovation ecosystem in the state by pulling together universities, mature companies, small business enterprises, incubators, accelerators, educational institutions, skills providers, and cluster intermediaries around common goals and specific tasks. Second, they serve as match-makers, connecting entrepreneurs and small businesses with the financial capital and advisory services that they need to succeed. Third, they act as de facto ambassadors for the state economy through a range of marketing strategies and convening activities. Finally, they have spillover effects, given the convergence of industry clusters and the concentration of particular businesses in particular geographic areas.

The focus on building a robust network of organizations that can cohere clusters and service small businesses should be scaled. The return on investment on what are relatively small expenditures in organizational capacity are substantial.

As Rhode Island contemplates how to scale these efforts, it is informative to look at examples within and outside the U.S.

Pittsburgh, largely through philanthropic capital, has built and sustained a deep and reinforcing web of intermediaries at the district, city, and metropolitan scale. For example, the InnovatePGH public-private partnership works to boost the city's innovative capacity through a collaboration between Allegheny County, City of Pittsburgh, University of Pittsburgh, Carnegie Mellon University, University of Pittsburgh Medical Center, Allegheny Conference on Community Development, and regional philanthropic bodies. InnovatePGH has helped advance the Pittsburgh Innovation District, including the facilitation of the Avenu business startup and development initiative.

Meanwhile, Pittsburgh Technology Council is a business association, funded and operated by its industry members, which works to strengthen industrial networks and collaboration within the city's tech sector as well as to advocate in these networks' interests regarding public policy. The Allegheny Conference on Community Development engages in long-term planning aimed at developing the city's economy and enhancing its quality of life through industry-government collaboration. It is led by a cross-sectoral Regional Investors Council, consisting of over 300 industry members.

A complementary model has been developed in Denmark, in the form of the CLEAN cluster organization for energy and environmental technology. CLEAN consists of industry, university, philanthropic, and government members, striving to create green jobs and green growth at Danish businesses as well as to more broadly push for environmentally and socially sustainable development. By deploying a Triple Helix approach, CLEAN sets out to identify and then support potential growth areas and innovative fields. CLEAN is involved in a wide range of projects, including the development of innovation models, the Clean Tech Innovation business support program to enhance industry collaboration with the Technical University of Denmark, the Circularity City project to envision and gather knowledge concerning sustainable urban futures, and the CLEAN Green Plan Region Syddanmark initiative to offer rebates for use of green energy consultants and experts.

An effort to expand investments into Cluster Networks and Small Business Intermediaries should contain the following:

1. Continued, multi-year (if feasible) support for existing organizations that have a proven track record and need additional investment support to sustain momentum and explore revenue models that are self-generating in nature.
2. A special focus on growing/importing a strong intermediary that can help define, service, and advance a multi-sector Blue Economy initiative should be of high importance.
3. An annual gathering of all intermediary organizations which receive state resources to explore common challenges, potential synergies, and concrete collaboration.
4. Adapt Denmark's CLEAN model and work with one cluster intermediary, after an open competitive process, to solve a distinct technological or societal challenge.
5. Create an international conference on design and/or a marketing showcase on Rhode Island design. Travel with the Rhode Island showcase to targeted conferences and events to increase business opportunities for the state.
6. Develop a Rhode Island Design Center that draws upon the design expertise of private and public universities including RISD. The Center, potentially based in the 195 District, should enable partnerships between universities and emerging as well as established companies in order to catalyze commercialization and other such activities.

**Budget Estimate:** We estimate that the budget for implementing this recommendation would be in the \$2 million-\$4 million range.

## 04 Intensify quality of place initiatives

One of Rhode Island's competitive advantages is its exceptional quality of urban place, particularly the number of historic city and town centers strategically located along waterfronts and served by road, rail, and water infrastructure and containing (depending on the city) old production and manufacturing facilities and warehouses. These centers have benefited from state investments (e.g., Rebuild RI and historic preservation tax credits) in the past and have also been designated as Opportunity Zones and are eligible for new federal tax incentives.

The development of the Rhode Island Transit Master Plan by the Rhode Island Public Transit Authority, the Rhode Island Department of Transportation, and the Division of Statewide Planning gives new impetus to investment in city and town centers. These centers are critical nodes in the state's transit planning for the next five years and beyond and provide ample opportunities for adapting the successful transit-oriented development efforts of other cities, as described below. Rhode Island's Transit Master Plan identifies mixed-use transit-oriented development (TOD) around transit hubs as a key goal to improve quality of place and commercial vibrancy. For example, the

Pawtucket/Central Falls hub promises to impact the surrounding area by increasing public transit ridership as well as creating jobs in an underserved community, all with the end result of concentrating development that creates an environment conducive to community reinvestment. Other TOD projects in Providence, Warwick, and Wickford Junction, along with Pawtucket/Central Falls have benefited from special zoning from their host communities.

Restoring these cores via the co-location of strategic assets as well as smart investments in an integrated mix of transit, housing, small business, historic preservation, and arts and culture—an agenda long advocated by groups like Grow Smart Rhode Island and the Providence Preservation Society—could have multiple benefits.

Research shows that economic competitiveness is enhanced by the concentration of firms, people, and institutions.<sup>66</sup> Higher employment and residential density has been linked to higher rates of productivity and increased innovation, creating a platform for higher-value growth and quality placemaking that, in turn, attracts more firms and people.

Employment and residential density also yield positive fiscal benefits by both reducing the costs of sprawl associated with the provision of infrastructure and services and enhancing the returns associated with walkable communities and mixed-use development. Compelling research by the firm Urban3 shows the interplay of taxes, land use, and city planning.<sup>67</sup> Urban3 has shown, for example, that a coffee shop in downtown Pittsfield, Massachusetts generates 13 times the tax revenue per square foot as does a strip mall on the periphery of the city. Higher employment and residential density also create more demand for frequent, reliable, and quality transit service.

A growing number of cities and states have pursued relevant strategies to accelerate density, quality, placemaking, and business demand. The co-location of government agencies, corporations, and university assets can be a key part of core revival. Buffalo, Detroit, Durham, Phoenix, and Winston-Salem are among the many cities that have un-anchored anchor institutions and moved entire companies or pieces of government agencies, universities, and health care systems into core locations.

Quality placemaking is an essential component of shaping a robust economy. The list of inspiring examples—Detroit’s Eastern Market, food popups in Oklahoma City, riverfront festivals in Louisville, arts-led regeneration in Chester, Pennsylvania—are numerous. Traditional efforts such as Main Street façade improvements and historic preservation have been shown to enhance business demand and increase value in places that desperately need it.<sup>68</sup>

Cities are adjusting land use and zoning to enable the conversion of abandoned

**Restoring TOD cores via the co-location of strategic assets as well as smart investments in an integrated mix of transit, housing, small business, historic preservation, and arts and culture could have multiple benefits.**

warehouses and manufacturing facilities to a wide range of residential, entrepreneurial, restaurant, boutique hotel, and food manufacturing (e.g., craft brewing) uses. Memphis, Milwaukee, the Bronx, and Nashville have adjusted industrially zoned sites on the periphery of central business districts to accommodate new housing and other mixed-use developments.<sup>69</sup> Cities are also making their building inspection and permit processes more efficient and streamlined. Pittsburgh, through digitizing its inspection workflows and prioritizing an employee education/certification program, has increased the number of permits processed per month from a couple hundred to several thousand, paving the way for an almost unprecedented period of development in the city.<sup>70</sup>

As Rhode Island implements the Transit Master Plan, special attention should be paid to adapting successful transit-oriented development efforts of other cities. Denver stands out both for its long-standing commitment to large-scale investments in light rail and its adoption of several Transit Oriented Development Strategic Plans to maximize the economic, social, and environmental impact of these investments. In 2010, Denver launched a Regional TOD Fund with Enterprise Community Partners serving as administrative agent and the Urban Land Conservancy designated as the sole borrower. The fund was designed to assist in the acquisition of land or property needed

## Quality placemaking is an essential component of shaping a robust economy.

to create or preserve affordable housing located near mass transit. The City and County of Denver initially invested \$2.5 million of federal Community Development Block Grant dollars into the fund, which has

been leveraged with additional capital from private and philanthropic sources. In 2014, the fund was expanded regionwide, grew to \$24 million, and was opened to qualified affordable housing developers in the metro area.

Rhode Island should align the work on innovation campuses and innovation districts, discussed above, with its efforts on quality of place and quality placemaking into a central part of the physical evolution of innovation districts and campuses. Innovation districts, by their very definition, are a mix of uses and activities, including housing, neighborhood-serving retail, and community spaces. Their power rests upon physical proximity and the ambition to advance through the development of a collective research and innovation agenda, the sharing of technologies, and the redevelopment of the physical form to create magnetic, “buzzing” places that are valued by talent.

The development of HafenCity, Hamburg offers a roadmap for achieving the overarching objective of urban quality. In the 1990s, port modernization and relocation led to the freeing up of deindustrialized land in Hamburg’s city center. The city government created HafenCity Hamburg GmbH as a publicly owned and privately run corporation, tasked with redeveloping the former port district and funded through the district’s own land assets. The transformation of the former port into HafenCity has become a crucial testing ground for Hamburg’s innovative developmental model, with urban quality standing out as a core principle and goal.

Hamburg’s specific vision of urban quality has been defined in terms of vibrancy, diversity, and inclusivity, including working and living options across the socioeconomic



spectrum. The aim has been to create a vibrant and buzzing streetscape through an abundance of ground floor and street level activities. Vibrancy is also created through walking and bike paths, green paths, pocket gardens, and recreational areas. All of this is reinforced by new types of collective transit, such as a community-managed local carsharing system.<sup>71</sup> Urban quality also concerns architecture, which should be varied, nuanced, and in some cases outstanding. Multipurpose design is key to urban quality, with the ideal being to achieve an intimate coexistence of offices, residences, commercial sites, education sites, religious and civic spaces, and public spaces accessible to multiple population segments within a single building or neighborhood.

One exemplary manifestation of the HafenCity vision of urban quality is a project that deploys the ground floor of a residential building as a publicly open, multipurpose space, enhancing urban vibrancy in the neighborhood. Around the perimeter of the building are several local workshops, cafés, and restaurants. In the center of the ground floor, there are market stalls for the surrounding workshops and other local businesses to sell their goods. The cafés and restaurants reinforce the attractiveness of and increase public visits to the marketplace. The building furthermore adheres to Hamburg's affordable housing requirements.

Another example concerns an innovative mode of transportation. The development projects in the eastern section of HafenCity have introduced an e-mobility carsharing system, which allowed the parking spaces allotment per residential unit to be reduced from 0.8 to 0.4 per residential unit. HafenCity Hamburg GmbH helped establish a locally owned and managed carsharing company with 200 electric cars. Once local capacity was in place, in the form of a joint effort between HafenCity Hamburg GmbH and local residents, company management of the e-mobility carsharing system was handed over to a resident-driven community group. The carsharing system had four key motivations: 1) increasing local air quality through e-mobility; 2) reducing spatial requirements by reducing the number of parking spaces in buildings and moving cars off public roads; 3) freeing up additional building space and public road space for other purposes; and 4) establishing a local company, supply chain, market, and jobs, including many blue-collar jobs.

The application of the Hamburg model to Rhode Island in general and the 195 District in particular can make design a central part of the evolution of Innovation Campuses. Building upon Rhode Island's reputation for expertise in design and ensuring that parks and other public areas become vibrant and populated, the report recommends that the I-195 Commission employ a cultural curator to engage RISD and the many locally based design companies in realizing the development's vision. One idea could be to display RISD graduate students' sculptures in the park or ask students to paint murals on District Hall. The cultural curator could also engage with the Johnson & Wales College of Culinary Arts to establish a district dining hall where students cook for 195 District workers and residents and receive feedback from customers.

Rhode Island should continue the efforts to enhance the state's unique quality of place via investments in an integrated mix of transit, housing, small business, and arts and culture. Special attention should be made to regenerate historic centers in Central Falls, Woonsocket, and other communities which are targeted for special rail and transit investments as well as continue the quality placemaking underway in the 195 District.

Several elements are fundamental:

1. Spur the co-location of government agencies, corporations, university assets, startups and scale-ups, and amenities, particularly around transit hubs.
2. Animate public and private spaces to attract people to cores and corridors.
3. Match zoning to new uses.
4. Consider the creation of a RI TOD Fund, based on the Denver model.
5. Adaptation of Hamburg’s HafenCity model with a particular focus on design.

**Budget Estimate:** We estimate that the budget for implementing this recommendation would be in the \$1 million–\$3 million range.

## 05 Create a Local Development Fellows Program

Realizing the full developmental potential of Rhode Island’s communities requires that a disparate group of urban institutions act with purpose and intention along multiple fronts. Yet the current health and capacity of municipal governments and other institutions make this a challenge. In Rhode Island and elsewhere, many local governments simply do not have the capacity or professional expertise to design, finance, and deliver sophisticated and transformative projects, particularly those involving new forms of tax-advantaged capital. On the private and civic side, most communities collaborate through loosely organized informal networks that lack sufficient capital or capacity. In addition, many nonprofit organizations are either too small to affect systemic change or too circumscribed in focus to drive sustainable impact.

Implementation of the recent federal Opportunity Zones tax incentive has brought this capacity issue to the fore. Cities and states—and their public, private, and civic stakeholders—are exploring new ways of filling the capacity gap, some of which are directly applicable to Rhode Island’s organizational structure and reality.

A growing number of corporations and philanthropic organizations have stepped up and provided resources to fund additional staff within government or institutions focused on the Opportunity Zone mission. In Alabama, for example, a nonprofit entity called Opportunity Alabama has been formed to help connect investors to investable projects in the 158 Opportunity Zones distributed across all 67 of the state’s counties. Support for this effort comes from Alabama Power, an indication of the emphasis that the utility company places on economic development.

In Baltimore, the Abell Foundation issued a grant last year to the Baltimore Development Corporation to hire an Opportunity Zones Coordinator. According to the Corporation’s website,<sup>72</sup> the Coordinator is “focused on the following activities:

- Collecting and sharing information about Baltimore’s Opportunity Zones and projects;
- Developing an information exchange of investors, developers, businesses, community partners and others interested in Opportunity Zones;

- Monitoring and tracking Opportunity Fund investments; and
- Conducting community outreach about Opportunity Zones.”

An increasing number of cities are growing capacity by enlisting the services of national nonprofits like FUSE, perhaps the most relevant model for Rhode Island. FUSE partners with local governments on a range of issues, including economic and workforce development, healthcare, public safety, climate change, and education.

FUSE uses an executive fellowship model. It works closely with government partners to design year-long strategic projects and establish clear deliverables that are achievable within 12 months. It recruits experienced leaders to take on these challenges and provides the ongoing support to help fellows achieve their full potential for community impact. Since 2012, FUSE has placed more than 140 fellows in over 80 local government agencies throughout the country. Over 50% of alumni have continued working in civic leadership roles after their fellowships, and 90% of FUSE’s partner government agencies have returned each year with requests to host additional fellows.

FUSE fellowships are aligned with local priorities. FUSE is now working, for example, with Accelerator for America and various California-based foundations to deploy executive-level fellows in Fresno as well as Riverside and San Bernardino. On a different front, they also have recruited an executive fellow to work with the Los Angeles Department of Convention & Tourism Development on a Master Plan in advance of the 2028 Olympics.

Rhode Island should create a new **Local Development Fellows Program** to enhance the capacity of local governments to design, finance, and deliver transformative revitalization.

The Program could:

1. Work with a proven intermediary like FUSE to recruit and place executive fellows with 3-5 cities around common or distinct economic development challenges and opportunities.
2. Work with a proven intermediary to create a circuit rider team of “deal professionals” that can assist multiple communities around particular asset classes (e.g., downtown redevelopment, adaptive reuse) or investment sectors (e.g., innovation hubs). This variation of the model could work with organizations like the Rhode Island League of Cities and Towns.
3. Companies could pay FUSE fellows or second a staff person to enhance capacity around targeted efforts that provide public and private benefits.

**Budget Estimate:** We estimate that the budget for implementing this recommendation would be in the \$1 million-\$1.5 million range.

**In Rhode Island and elsewhere, many local governments simply do not have the capacity to design, finance, and deliver sophisticated and transformative projects.**

## **06 Identify public land and large private holdings through a Public Asset Inventory and Private Industrial Tracts Mapping Exercise. Use publicly owned land to expand affordable housing and ease the lack of available space for commercial and industrial firms**

The inadequate supply of affordable housing and lack of available space for commercial and industrial firms are routinely identified as among the most pressing limits on business expansion in Rhode Island. Companies generally point to several reasons for this problem. First, many communities have enacted restrictive zoning provisions, which prohibit the kind of workforce housing that is desperately needed. Second, the cost of building or preserving housing or industrial spaces is often prohibitive at current market prices. This is particularly true with the rehabilitation of older mill properties, bearing in mind the high costs associated with adaptive reuse and environmental remediation. Finally, many preferred sites for expansion, such as Quonset Industrial Park, are reaching capacity and are under pressure for other uses.

Rhode Island Commerce has recognized these challenges in the past and is currently administering a pilot Site Readiness Initiative. While this initiative is in its early phases, early indicators are promising. In an initial round of solicitations for funding, the state received 14 applications for sites seeking to develop more than 431 acres.

**Many preferred sites for expansion, such as Quonset Industrial Park, are reaching capacity and are under pressure for other uses.**

This laudable effort could be informed and enhanced by a Public Asset Inventory, which would make transparent all land and buildings owned by state and local government; public authorities; school districts; and public universities, colleges, and other entities. Such inventories are common in Northern Europe but virtually nonexistent in the U.S.

It is not unusual for the largest landlord in a state to be the public sector. Indeed, publicly owned land often constitutes the greatest share of property in a given community—even though much of it might not be in the form of recognizable public buildings like schools or courthouses but is instead comprised of scattered lots and neighborhood buildings. Most states have webs of different entities that may own distressed properties: the state itself; municipalities; school districts; and a bewildering network of housing authorities, convention center authorities, port and airport authorities, land banks, redevelopment authorities, and so forth.

The Danish Geodata Agency, under the Danish Ministry of the Environment, is responsible for surveying, mapping, and registering all land and water areas within Denmark and its associated territories. Part of this work is carried out by the Danish Geodata Agency's Cadastre Office, which produces a nationwide cadastral map, (i.e., a map identifying all property boundaries and all property owners). The cadastral map is a digital legal document that is updated on a daily basis in order to reflect changes

in ownership, boundaries, and field survey results. The Danish Geodata Agency is also responsible for registering, regulating, and exercising oversight over Denmark's chartered surveyors.

When Danish real estate and other property changes ownership, the new owner is responsible for registering this with the national Land Registration Court. The owner must pay the court a fee amounting to 1660 Danish kroner (around \$250), plus a percentage of the value of the property. All real estate property deeds are recorded in the national Land Registry, which is publicly available and searchable online.

In this manner, information on Danish real estate ownership is centrally collected and organized in both digital map and searchable database form. These comprehensive, transparent, and constantly updated information sources are essential to the functioning of Denmark's tax and legal system and are also important for planning and decision-making by businesses and public authorities around the country. Although Denmark's property registration systems are managed by the central government, Rhode Island is capable of taking the initiative to gain an overview of real estate ownership in the state,

### **While the Site Readiness initiative is in its early phases, early indicators are promising.**

thereby allowing the state government and city authorities to identify property that is currently underutilized or could be deployed more effectively by its current or potential new owners. Getting to grips with land ownership is a first step in efforts to guide urban development.

As in Denmark, Rhode Island should understand what the public sector owns, who owns it, and who has an interest in it across each level and type of government.<sup>73</sup> In addition to occupied buildings, cities, counties, states, and the federal government often own significant amounts of a city's vacant land as well as vacant properties that have been foreclosed on or are otherwise abandoned. Creating transparency among public entities is necessary to determine the actual value of all public assets for the public—not just for whichever government entity happens to own them. While many public properties are in poor condition and in distressed areas, a significant number are in central business districts or other major commercial areas. The state should create a master property database in order to set forth the broader universe of potential investments and better bundle properties.

After a master property ownership list is created, it should serve as a jumping off point for a state/local conversation about the actual highest and best use for each property in that community. Often, a significant amount of public property in a given community is owned by public entities that have an interest in multiple communities and are trying to meet their own organizational missions as opposed to what makes sense for that particular community. Starting locally, cities should seek to understand who needs what and to consider adaptive reuse strategies for public properties. A vacant lot being held by a school development authority might be better suited to meeting a neighborhood need for housing, workforce development space, and—perhaps—a school too. A parking garage need not be just a parking garage but could add apartments above it and commercial space at street level, using revenue from parking fees to support construction. An old neighborhood school might be a great neighborhood incubator. And so on.

The New Jersey Schools Development Authority (NJSDA) was created by the State of New Jersey to lead the construction and rehabilitation of school facilities for some of New Jersey’s—and the nation’s—most distressed school districts. In Newark, the NJSDA owned several parcels of property on the City’s West Side, directly across from the historic West Side High School and along one of the region’s premier commercial corridors and thoroughfares, South Orange Avenue. Even though the NJSDA’s land was in Newark, as a statewide entity, its priorities had traditionally been driven by policy goals that extended far beyond Newark. A comprehensive project plan was presented to the City of Newark by a coalition of Newark stakeholders and, in early 2017, the NJSDA bundled and conveyed for \$1 over three dozen properties, totaling more than 400,000 square feet, to the City of Newark. The redevelopment of the sites is meant to occur in stages and around several “villages” targeted for different uses, such as medical professionals, young families, and commuters—all in accordance with a green development and mixed-use paradigm. A supermarket and an early childhood center (operated in partnership with the school district) will also be part of the site’s development.<sup>74</sup>

A Public Asset Inventory and Private Industrial Tracts Map could thus catalyze the following:

1. Reveal where publicly owned land and buildings stand in the path of existing growth and are suitable for housing, commercial, or industrial purposes.
2. Open up possibilities for smart public and private land disposition strategies that reduce the costs of rehabilitation and make projects more financially viable.
3. Open up possibilities for land swaps or exchanges that enable the assembly of larger public and private holdings for industrial expansion.
4. Enable state zoning to supersede local zoning when certain criteria are met and when localities opt-in.
5. Continue and expand investments in site readiness.

**Budget Estimate:** We estimate that the budget for implementing this recommendation would be in the \$2 million-\$3 million range.

## **07 Create a Taxpayer Advocate and offer consultation, education, and relief for newly formed small businesses**

Rhode Island has made enormous progress in reducing onerous taxes and streamlining regulations. As compiled by the Rhode Island Public Expenditures Council, however, the state continues to face challenges associated with the costs of doing business, a mix of market dynamics, legacy regulation, and sometimes hyper-localism.

The state should continue its efforts to identify and prune unnecessary and outmoded laws and regulations. We are encouraged by recent efforts by Rhode Island Commerce to reach out to businesses to receive their input and guidance.

But the state should and must go further. In recent years, the Rhode Island Division of Taxation has taken important steps to make the filing of taxes user friendly and is praised for its professionalism and hard-working staff. Recent accomplishments include, (1) streamlining the process for requesting letters of good standing, (2) rolling out a new Taxpayer Portal, and (3) implementing an integrated call center. Despite these and other accomplishments, it is commonly accepted that individuals, families, and small businesses in Rhode Island and across the country are challenged by a complex mesh of local, state, and federal laws. Many taxpayers are unaware of tax provisions and occasionally face fines and penalties for making errors in calculating tax payments unintentionally. And, beyond the Division of Taxation, access to tax data is limited, and it may be difficult to identify patterns and to consider changes to tax policy.

This phenomenon can be particularly challenging for newly formed small businesses, and to businesses in emerging industries, attempting to comply with complex tax laws. Many new small businesses owners report that they have attempted to comply with all tax requirements, only to be audited a few years into the operation of the business and be informed by the Division of Taxation that they had been calculating a tax payment incorrectly. This often results in the assessment of penalties and back taxes with interest as high as 18% annualized. Large unexpected expenses of this nature can be crippling, particularly to new small businesses still at a vulnerable stage in their growth trajectories.

Discussions with the Rhode Island Society of CPAs and various state officials, including General Treasurer Seth Magaziner, yielded some practical recommendations for reform. The federal government, 29 states, and major cities like New York City have responded to this systemic issue by creating taxpayer advocates. The general purpose of this position is to help guide individual and business taxpayers through the often-confusing process of resolving tax problems. Significantly, Connecticut, Massachusetts, Maine, and Vermont have taxpayer advocates.

At the federal level, the Taxpayer Advocate Service is an independent organization within the Internal Revenue Service, with employees who assist taxpayers who are experiencing economic harm, who are seeking help in resolving tax problems that have not been resolved through normal channels, or who believe that an IRS system or procedure is not working as it should.<sup>75</sup> Significantly, this service has the authority to advocate for taxpayers in individual cases as well as advocate for systemic change on behalf of all taxpayers or particular groups of taxpayers.

States and cities have adapted this federal service to their own jurisdictions in varying ways. New York City, for example, established an independent Office of Taxpayer Advocacy in 2015, which “has helped thousands of taxpayers and has recommended dozens of sensible, customer-friendly improvements to Department of Finance policies and procedures.”<sup>76</sup>

A related model worthy of consideration is the provision of free consultations from the Division of Taxation, particularly for new small businesses. This service, offered by the State of Washington Department of Revenue, can help prevent new businesses from inadvertently running afoul of tax compliance, and reduce the likelihood that businesses will be faced with unexpected penalties.

In Washington, businesses can request that a representative from the Department of Revenue visit the business and explain how to properly calculate and report applicable taxes. If during the course of a visit, a misreporting is discovered, there is no penalty assessed and businesses are provided an opportunity to amend past returns. Following the meeting, the representative can provide a written summary of the topics discussed, including written instructions on how to fill out future returns.<sup>77</sup>

The creation of a Taxpayer Advocate position within Rhode Island should be undertaken after careful study and deliberation, which is beyond the scope of this report. We therefore suggest the following:

1. Establish a Taxpayer Advocate Implementation Team to assess how to adapt disparate state models to Rhode Island.
2. The Team should, in particular, assess the powers and responsibilities of Taxpayer Advocates in comparable and neighboring states as well as the budgets, staffing, and locations of these offices.
3. The Team should, to the greatest extent possible, assess the impact Taxpayer Advocates have on resolving individual taxpayer disputes, the transparency of tax information, and the streamlining or reform of tax provisions.
4. The Team should evaluate potential programs to provide taxpayers, particularly newly formed businesses, proactive education and coaching on compliance with tax laws, possibly directly from the agency tasked with enforcing those laws.
5. The Team should explore the cost and feasibility of providing relief on penalties and interest for newly formed businesses that are experiencing their first random audits.
6. The Team should make specific recommendations for creating an Office of the Taxpayer Advocate for Rhode Island within six months.

**Budget Estimate:** We believe the Implementation Team referenced above should be responsible for determining the budget estimate for implementing this recommendation.



# Rhode Island's private and civic sector leaders should step up, engaging and investing more strategically and significantly; the state should build upon existing investments and initiatives

The growth of city, metropolitan, and state economies is ultimately a collective act, which requires continuous coordination and interaction across public, private, and civic networks. Cities and states with highly networked ecosystems that blend public, private, and civic resources are the “gift that keeps on giving,” catalyzing innovation in ways that spur business growth and job creation. Economies are never restructured or diversified through the actions of the government alone.

The good news is that Rhode Island's revival over the past few years has been co-led and co-produced by the state government and a highly engaged group of universities, companies, small businesses, military research facilities, philanthropic organizations, cluster intermediaries, skills providers, and more. These efforts provide a strong platform for action going forward. Future progress should be led even more by the private, civic, and philanthropic sectors. Groups such as the Partnership for Rhode Island and the Rhode Island Foundation are best positioned to promote dialogue and catalyze needed investment.

Four initiatives are of paramount importance.

## 01 Create a GlobalRI Initiative

It has long been understood that growing exports and attracting foreign direct investment (FDI) is a key component of economic prosperity. Although a small state, Rhode Island has deep connections within the U.S. and with such leading trading and investment partners as the UK, Denmark, India, Israel, and the Netherlands. The financing of Offshore Wind by Denmark's leading pension fund is only the latest example of the far reach of global interest.

Rhode Island's growing prowess in advanced industries opens up new trading opportunities within the U.S. and beyond. On exports, the state's network of small- and medium-sized enterprises requires strategic intelligence around key markets as well as technical assistance to plan and execute deals. On FDI, there are ample but disparate possibilities for attracting foreign research outposts, company expansions (e.g., Infosys), and capital investment. To date, however, responsibility for these critical areas of economic activity has been largely delegated to a small unit at Bryant University, the Chafee Center for International Business.

**Rhode Island's revival over the past few years has been co-led and co-produced by the state government and a highly engaged group of universities, companies, small businesses, military research facilities, philanthropic organizations, cluster intermediaries, skills providers, and more.**

In many states and metropolitan areas, in contrast, export promotion and FDI attraction is serious business, driven by routinely updated data and evidence and a mix of private, public, and civic capital. Greater Portland, for example, has diligently pursued evidence-driven export and FDI strategies since the aftermath of the Great Recession.<sup>78</sup> In March 2015, the region launched Greater Portland Global, a global trade and investment plan that integrates exports and FDI into one strategic plan.<sup>79</sup> Significantly, Greater Portland Global builds upon Portland's global edge in sustainability, continuing a major campaign called "We Build Green Cities" to promote the region's clean tech companies and products as solutions for global climate and sustainability challenges.<sup>80</sup>

The Greater Portland effort and similar initiatives in other U.S. metropolitan areas have several implications for Rhode Island. First, they are natural extensions of efforts like Rhode Island Innovates (and the present report) that distill the state's prominent advanced industries and clusters. Second, they often include targeted assistance for small businesses that are either looking to export for the first time or to expand their geography for exports. Finally, they are supported and governed by networks of public, private, civic, and university partners.

A GlobalRI Initiative would have several components:

1. Establish an Implementation Team to prepare and publish a Rhode Island Export Plan and a Rhode Island Foreign Direct Investment Plan, modeled on the Greater Portland Global effort identified above. The Implementation Team should include representatives from key companies, business chambers, cluster intermediaries, and universities.
2. Beyond distilling Rhode Island's key trading partners and investors, the resultant plans should identify the adaptable best practices in states and metropolitan areas that have long pursued export promotion and FDI, inventory company and university examples of transactions and partnerships that provide a platform for growth, and provide a series of concrete action steps for the state government and its private, civic, and university partners to pursue.
3. Concrete action steps might include support for small businesses looking to export, supportive strategies (e.g., foreign language, immigration) within Rhode Island's educational institutions (stretching from K-20), and targeted marketing campaigns around Rhode Island's particular strengths (e.g., Blue Economy, design).
4. The Implementation Team should particularly recommend a strategy for growing capacity for trade-oriented efforts within the state government, university partners, and key business organizations as well as for building augmented, sustainable capacity for these efforts within government and beyond.
5. These plans should also identify a series of critical and uniformly available metrics to regularly gauge the progress of export promotion and FDI.

**Budget Estimate:** We believe that the private and civic sectors should be primarily responsible for implementing this recommendation.

## 02 Expand the SupplyRI Initiative into a broader AnchorRI Initiative

Like many cities and states, Rhode Island is strongly influenced by its universities, colleges, and hospitals. The “Eds and Meds” are quintessential anchor institutions, rooted in and associated with their communities. They often have assets—investment capital, spending power, available land, employment opportunities, talented faculty, students, and alumni, and relevant research—that can help catalyze inclusive growth and development and build skills and wealth for low-income residents.

Key universities in Rhode Island are already playing exceptional roles. Brown University and the University of Rhode Island have embraced the actions of Rhode Island state support for advanced industry clusters. Brown University has built a competitive presence in Neuro Tech and seen its annual National Institutes of Health grants increase from \$150 million in 2016 to \$219 million in 2019. In 2018, Brown University created the Carney Institute for Neuroscience, which is providing seed funding for startups, and the University revised its IP policy to improve commercialization of research-intensive innovations. The University of Rhode Island created the Ryan Center for Neuroscience in 2013. The universities together have key assets in the 195 District, with South Street Landing hosting the nursing schools of Rhode Island College and the University of Rhode Island as well as Brown University’s Medical School.

These universities, along with major hospitals and companies, are already involved in the nascent SupplyRI effort. The early progress of that effort provides the foundation for a broader AnchorRI Initiative that would enhance the ability of universities and hospitals to buy locally and hire locally. Such an initiative could build upon two proven efforts in Cleveland and Philadelphia.

Cleveland’s anchor-supplier network is the leading example in the U.S. Cleveland anchor institutions are seeking to channel resources toward local hiring, local purchasing, and local living. University Hospitals was a key initiator and leader alongside the City of Cleveland and the Cleveland Foundation in this civic-led partnership.<sup>81</sup> The Evergreen Cooperative Initiative is a crucial partner in the endeavor to extend the reach of this program into low-income neighborhoods. By taking a jobs-first approach and then finding and training workers, Evergreen helps create employee-owned businesses with a pipeline to local anchors.<sup>82</sup> This is part of a larger trend in U.S. cities of creating new systems of community wealth—bottom-up and locally based development strategies that look beyond prior limited goals of affordable housing to raising skills, supporting small businesses and the entrepreneurs who run them, increasing incomes, and gathering community assets for reinvestment.<sup>83</sup>

The key shift in Cleveland came with the adoption and full incorporation of the Anchor Mission into the business practices of firms across all levels of leadership: “The Anchor Mission: A commitment to consciously apply the long-term, place-based economic

**The early progress of SupplyRI provides the foundation for a broader AnchorRI Initiative that would enhance the ability of universities and hospitals to buy locally and hire locally. Such an initiative could build upon two proven efforts in Cleveland and Philadelphia.**

power of the institution, in combination with its human and intellectual resources, to better the long-term welfare of the communities in which the institution is anchored.”<sup>84</sup> This shift in outlook brought anchor firms to the shared understanding that building healthy and strong communities is a net good for their businesses.

In a growing number of cities, these procurement efforts are increasingly focused on improving the link between anchor employers and disadvantaged workers. In 2011, Philadelphia’s University City District, for example, established the West Philadelphia Skills Initiative (WPSI) to help resolve a complex challenge: “too many unfilled or high turnover jobs at some of Philadelphia’s largest employers and too many unemployed West Philadelphians.”<sup>85</sup> Employers in West Philadelphia partner with WPSI when they need to resolve recruitment, high turnover, or performance quality issues. WPSI then creates training cohorts of eligible residents and designs a customized curriculum that responds to specific hiring needs: “As an employer-driven program, [WPSI] exemplifies the benefits of a ‘train and place’ model rather than the ‘train and pray’ approach common to many workforce programs.” Since 2011, the initiative has connected 93% of its graduates to employment and generated \$15.4 million in wages for previously unemployed West Philadelphians.

An AnchorRI Initiative could replicate these proven models in several ways:

1. Create a data benchmarking process to better understand anchor spending and to gauge priorities.
2. Work with Real Jobs RI and an initial set of anchor institutions to identify workforce challenges and opportunities within the existing and future workforce.
3. Consider establishing a special intermediary to service the workforce needs of anchor institutions and create opportunities for residents living in nearby disadvantaged communities.
4. Incorporate other best practices from Cleveland, Philadelphia, and other cities that create vendor opportunities for minority-owned and worker-owned small businesses.
5. Offer regulatory and licensing support for small businesses to make them more competitive.
6. Expand the effort, as appropriate, to anchor institutions located throughout the state.

Moving from the current SupplyRI Initiative to an expanded AnchorRI Initiative would require dedicated and repurposed resources, such as:

1. Appropriating more dedicated staff.
2. Tapping into synergies by strengthening the networking and collaboration of the disparate entities SupplyRI, RI PTAC, and SBAP.
3. Bridging dialogue and collaboration between SupplyRI, the Chambers of Commerce, and the Partnership for Rhode Island to help fund and improve these business services.

4. Continue the incubation of SupplyRI before handing ownership and operations over to a civic-private partnership led by the anchor institutions.

**Budget Estimate:** We estimate that the budget for implementing this recommendation would be in the \$250,000-\$500,000 range.

## 03 Create an InvestRI Initiative

Rhode Island is often portrayed as a small state with limited resources. Like many U.S. cities and states, however, the issue is more about the organizing rather than the supply of capital. For the past 40 years, the U.S. has mostly moved the local capital of high net-worth families, prosperous corporations, well-endowed universities, philanthropic organizations, and pension funds out of the communities in which the wealth was generated and the work was situated. This export of wealth has not been an inexorable and unchangeable market act; rather, it has been led and facilitated by a sophisticated network of wealth management companies, private equity firms, family offices, and financial institutions that have narrow definitions of where and what to invest in.

The market for local investment is gradually changing.

On one level, the unanticipated effect of the recent Opportunity Zones legislation has been to render transparent the export of wealth and to reintroduce the holders of capital to the assets of their own communities: globally significant research institutions, advanced industry companies, grand historic downtowns, quality mixed-use developments (often around transit hubs), and distinctive ecosystems of entrepreneurs. In Erie, Pennsylvania, for example, Erie Insurance—a publicly held insurance company—has made a series of distinct investments to advance one overarching goal: the rejuvenation and transformation of the historic core of Erie. It has expanded its campus bordering downtown with a \$135 million investment, invested patient capital in the Erie Downtown Development Corporation, and created an Opportunity Fund to help renovate properties acquired by the Development Corporation. It has done all this while continuing traditional corporate social responsibility by making philanthropic investments and encouraging its workforce to volunteer in a myriad of socially supportive activities. The leveraging effect of these disparate activities has been enormous, creating opportunities for other investors, lenders, and businesses to participate in the regeneration of the core of the city and metropolis.

The Erie example is being replicated across the U.S. Local investors are fueling the formation of Opportunity Funds in cities as disparate as Austin, Baltimore, and Birmingham to invest in transformative projects. These activities could have impacts beyond Opportunity Zones, leading local investors to place pressure on asset managers to consider investable projects in their own localities and enticing managers to find hitherto-hidden investment possibilities in overlooked communities as a competitive proposition.

On another level, large holders of capital—ranging from large cities like Copenhagen, London, New York, and Stockholm<sup>86</sup> to private asset managers like BlackRock—are considering the long-term impacts of climate change and making sustainable investing a core part of their strategy. Rhode Island has already benefitted from this shift in focus,

given the role of Danish pensions in financing Offshore Wind. Governor Raimondo's recent commitment to transition the state to renewable energy by 2030 is certain to attract the attention of other investors.

Rhode Island could create an **InvestRI Initiative** to take advantage of these nascent shifts in investment strategies. This Initiative, led by private and philanthropic sectors and the universities, could have several components, ranging from the creation of private, Rhode Island-focused Opportunity Funds capitalized with in-state private wealth to efforts to match the investments of large holders of capital (e.g., pension funds, university and philanthropic endowments, and family offices) with projects that are investor ready, meet return expectations, and in some cases advance broader sustainable goals.

An InvestRI Initiative could thus mean the following:

1. A concerted effort to expose Rhode Island corporate and institutional investors to first-mover efforts in other cities and states around fund creation and investment attraction.
2. Work with in-state corporate and institutional investors to understand their current investment strategies and expectations around market returns and timelines.
3. Expose projects that might meet these expectations as well as deliver significant social and other benefits.
4. Incorporate best practices from the growing number of cities that are driving transformative projects by combining locally generated market-oriented equity with concessionary capital, conventional debt, and various forms of public incentives.
5. Encourage Rhode Island-based institutional investors to partner, individually and collectively, with Rhode Island Commerce in educating external asset managers on the merits of locating portfolio companies and investing in job-creating projects in Rhode Island. This practical idea emerged in discussions with General Treasurer Seth Magaziner.

**Budget Estimate:** We believe that the private and civic sectors should be primarily responsible for implementing this recommendation.

## 04 Incorporate a new community development entity

As Rhode Island thinks through the design and implementation of an InvestRI Initiative, special attention needs to be given to the potential for local capital to flow through a community development entity (CDE). CDEs are domestic corporations or partnerships that act as intermediary vehicles for the provision of loans, investments, or financial counseling in low-income communities. Certification as a CDE by the U.S. Treasury allows organizations to participate either directly or indirectly in the New Markets Tax Credit Program.<sup>87</sup>

Community Development Finance Institutions (CDFIs) are the most high-impact organizational form of CDEs. Since the early 1980s, the U.S. has grown a sophisticated

network of CDFIs, which leverage federal tax incentives and promote municipal and neighborhood development.<sup>88</sup> During this period, the number of CDFIs has grown from a few dozen to about 1,000, with total assets of around \$110 billion.

Investors and depositors into CDFIs include individuals and institutions motivated by social investment, including philanthropic and religious institutions. The major institutional investors are banks, which invest in CDFIs in large part to meet their Community Reinvestment Act obligations. As banks become larger and less place-based, some CDFIs have become a retail outlet for bank requirements to invest in their communities. As CDFIs become more sophisticated, they have been able to reach new investors, including insurance companies and pension funds. Some CDFIs are now rated by Standard & Poor's as having access to the bond market and are members of the Federal Home Loan Bank System.

The big breakthrough for CDFIs occurred in the 1990s when the CDFI Fund was created at the U.S. Treasury Department to provide grants and loans to CDFIs. This built their balance sheets and allowed them to raise debt at significantly higher levels than before. A decade later, additional incentives and visibility emerged as federal tax policy created new market tax credits and placed the credit allocation authority at the CDFI Fund. As with low-income housing tax credits, established in 1986, the new markets tax credit uses the tax code to incentivize private investors. National CDFI intermediaries have become major syndicators of private equity into low-income rental housing and other revitalization efforts. CDFIs can be both national in scope and locally based.

The Reinvestment Fund is among the most accomplished CDFIs in the U.S. Based in Philadelphia and founded by Jeremy Nowak, the Reinvestment Fund has grown into a national CDFI with loans and other investments in dozens of states. In 2018, the Reinvestment Fund originated \$217.9 million in financing alone in a diverse set of projects, including health care, housing, child care, and clean energy.

The Reinvestment Fund's participation in Pennsylvania's Fresh Food Financing Initiative shows the power and impact of having a sophisticated CDFI. Since 2004, the Reinvestment Fund has been part of a remarkable partnership to finance high-quality grocers to locate or expand their stores within communities that lack access to fresh food. To accomplish the goal of creating high-quality stores with suburban prices and products, the Commonwealth of Pennsylvania put up \$30 million over three years. The Reinvestment Fund complemented these grants with more than \$100 million in private debt and other financing, including new market tax credit allocations. The Reinvestment Fund managed both the grant and debt financing, while the state monitored the program, the nonprofit Food Trust ensured that the stores met the standards of high quality and comparable pricing, and the Urban Affairs Coalition worked to ensure minority contractor participation. The grant money was used to subsidize costs that were a barrier to entry, including workforce training, environmental remediation, and high infrastructure costs. The debt financing was used as with any grocery store development for commercial real estate and business operations.

AltCap is an example of a locally based CDFI that was formed in Kansas City to leverage new market tax credits (NMTC) and has since branched out to provide microloans and small business loans to local entrepreneurs and businesses which have had difficulty accessing capital from traditional financial institutions.<sup>89</sup> AltCap was recently awarded

\$55 million in NMTC allocation by the CDFI Fund as part of the 14th allocation round. This was AltCap's fifth award, bringing the total amount of allocation it has received to \$213 million since 2008. AltCap has used NMTC capital to finance a broad array of investments, ranging from family-owned small businesses to social service nonprofits to real estate development entities, all in severely distressed, low-income communities throughout Kansas City, Missouri. Its NMTC portfolio includes a LEED Platinum manufacturing facility (the seventh in the nation) as well as a repurposed church and school.

The absence of CDEs/CDFIs in Rhode Island has limited the ability of low-income communities to access private capital and leverage federal tax incentives for both large- and small-scale community revitalization. Remedying this deficiency would involve the following:

1. Establish a Community Development Finance Implementation Team. The Implementation Team should include representatives from key cities and communities, banks, insurance companies, and pension funds.
2. The Implementation Team should engage with respected CDEs/CDFIs like the Reinvestment Fund and AltCap to determine the best strategy for importing into or adapting this model to Rhode Island.

**Budget Estimate:** We believe that the private and civic sectors should be primarily responsible for implementing this recommendation.







## Conclusion

The revival of Rhode Island's economy, while promising, remains a work in progress. This state has experienced several decades of hard challenges including economic restructuring, deindustrialization, and global competition. And there are more disruptive dynamics underway, particularly given the rapid pace of technological advances.

Yet the progress of the state over the past several years bodes well for meeting future challenges. The legislative enactment and administrative implementation of a suite of programs and policies focused on supporting businesses, workers, communities, networks, and innovation have been purposeful and strategic and, as this report demonstrates, have driven real results that the state should be proud of. This record of accomplishment gives us hope that the recommendations in this report can galvanize not only public sector investment and reform but also increased commitment from the private and civic sectors. We firmly believe that these recommendations, in particular, would increase job creation and placement, grow existing businesses and attract other companies, extend entrepreneurial dynamism, and strengthen the ecosystems for long-term innovative, sustainable, and inclusive growth.

In addition to the targeted moves recommended herein, it is critical that several broader efforts at structural reform take hold.

The quality of public schools and workforce development—whether for advanced industries like Biomedical Innovation or foundational industries like construction—demands relentless focus by the state government and other private and civic stakeholders. It is impossible to understate the importance of equipping the next generation of Rhode Island's workers—and incumbent workers and business owners as well—with the knowledge, skills, and capacities necessary to navigate our ever-changing economy. The transformation of the Providence school system (and continued progress in other public school districts) and the continued

evolution of Real Jobs RI are as much acts of economic development as the state's investment in businesses, universities, and innovation.

The quality of the state's infrastructure, likewise, demands constant attention and adequate resources. In some cases, that will mean fixing aging systems, particularly around transportation, that warrant reinvestment. In other cases, it means building infrastructure for the next century, around renewable energy, public transit, and coastal resilience in general and specific cluster-enhancing projects (e.g., Smart Bay and wet labs) in particular. These investments will provide the platform and foundation necessary for the growth of traditional sectors and new industries.

Finally, the state's business climate needs constant vigilance and reform. The state's efforts to align tax burdens with neighboring states, partner with municipalities to lower local tax levels, streamline regulations, and reduce the friction of dealing with state agencies must continue apace. These efforts have already borne fruit and the state is improving its reputation for "business friendliness." But more substantial efforts are necessary if the state is going to improve the business environment for existing, small enterprises and realize the full potential of its distinctive position in key advanced industries and non-advanced industries alike. Small businesses, in particular, need special attention and focused responses given the impact that undue regulatory, administrative, and tax burdens can have on their ability to survive and thrive.

## **Appendix A – Overview of the Strategic Planning Process**

In 2019, the Rhode Island Commerce Corporation engaged New Localism Associates, City Facilitators, and Quartz to assess the performance of the state’s economy, evaluate the impact of the policies and programs enacted following the release of the Brookings report in 2016, and recommend an economic strategy going forward in accordance with the statutory requirement that the state adopt such a plan every four years.

The strategic planning process that supported this work (including the development of this report) was a months-long effort that engaged a broad range of stakeholders throughout the state from the public-, private-, and civic- sectors. Specifically, this process involved engagement with: (1) the state Economic Development Planning Council, (2) the Rhode Island Commerce team, (3) more than 100 participants at scheduled public comment forums; and (4) dozens of government officials, business leaders, nonprofit directors, and other stakeholders throughout the state.

### **Rhode Island’s Economic Development Planning Council**

Rhode Island’s Economic Development Planning Council is a statutorily-required body comprised of appointed leaders from the public-, private-, and civic- sectors (see Appendix B for a complete list of Councilmembers). Between October 2019 and January 2020, there were four working Council meetings.

- Council Meeting on October 24, 2019;
- Council Meeting on November 12, 2019;
- Council Meeting on December 17, 2019; and
- Council Meeting on January 29, 2020.

At these meetings, representatives from New Localism Associates, City Facilitators, and Quartz presented on their findings and facilitated discussions among Councilmembers. Additionally, there were multiple opportunities for public questions and comments at these meetings.

### **Rhode Island Commerce Team**

Rhode Island Commerce staff played an important supporting role in the development of this report, the provision of feedback on it, and the facilitation of input from dozens of stakeholders to it.

### **Public Comment Forums**

In addition to the opportunities for public questions and comments at Economic Development Planning Council meetings, there were multiple public comment forums held in the fall of 2019. These included:

- An Opening Roundtable Discussion at District Hall Providence on October 15, 2019;
- A Public Comment Forum at the Greater Providence Chamber of Commerce on November 12, 2019; and
- A Public Comment Forum at the William M. Davies, Jr. Career & Technical High School in Lincoln on November 13, 2019.

These sessions were well attended. As an example, the forum in Providence had more than 70 attendees.

### **Additional Stakeholders Consulted**

Beyond the input received through the Economic Development Planning Council and the public comment forums, New Localism Advisors, City Facilitators, and Quartz consulted more than 100 additional stakeholders from the public-, private-, and civic-sectors.

### **Funding**

Funding for the development of this report came from the Rhode Island Commerce Corporation, the Rhode Island Department of Labor and Training, the Heron Foundation, and the Rhode Island Division of Statewide Planning.

## **Appendix B – Economic Development Planning Council**

Amy Grzybowski (Westerly Education Center)

Angélica Infante-Green (Rhode Island Department of Education)

Bill Hatfield (Bank of America / U.S. Trust)

Brett Smiley (Rhode Island Department of Administration)

David Chenevert (Rhode Island Manufacturers Association)

Edinaldo Tebaldi (Bryant University)

Elizabeth Catucci (Northern Rhode Island Chamber of Commerce)

Elizabeth Tanner (Rhode Island Department of Business Regulation)

Hope Hopkins (MassChallenge)

Mayor James Diossa (Central Falls / Rhode Island League of Cities & Towns)

Jeanine Sinanan-Singh (Vitae)

John Simmons (Rhode Island Public Expenditure Council)

Josh Brumberger (Utilidata)

Karen Bulock (Brown Biomedical Innovations)

Laurie White (Greater Providence Chamber of Commerce)

Lisa Carnevale (DESIGNxRI)

Macky McCleary (Innogy Consulting)

Mark Furcolo (Rhode Island Department of Revenue)

Melissa Travis (Rhode Island Society of CPAs)

Michael DiBiase (Rhode Island Department of Administration)

Michael Sabitoni (LIUNA Local 271)

Molly Magee (Southeastern New England Defense Industry Alliance)

Oscar Mejias (Rhode Island Hispanic Chamber of Commerce)

Patrice Milos (Medley Genomics)

Peter Alviti, Jr. (Rhode Island Department of Transportation)

Roby Luna (Aretec, Inc.)

Scott Jensen (Rhode Island Department of Labor and Training)

Scott Wolf (Grow Smart Rhode Island)

Stefan Pryor, Chair (Rhode Island Executive Office of Commerce)

Susan Daly (Rhode Island Marine Trades Association)

Thomas Giordano (Partnership for Rhode Island)

Thomas Lawson (FM Global)

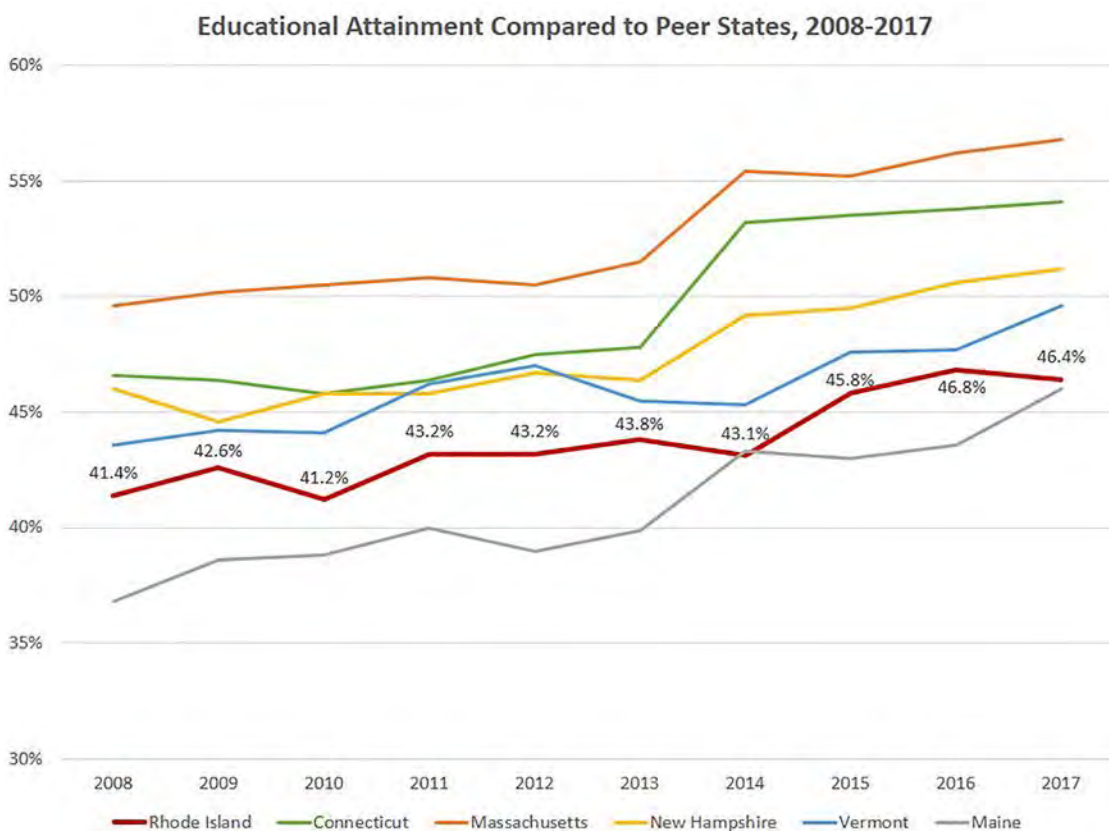
## Appendix C – Educational Attainment

Investing in education and workforce development is critical for advancing economic growth in the 21st century. According to a report by the Center on Education and the Workforce at Georgetown University, 71 percent of Rhode Island’s jobs in the future will require some form of postsecondary education (i.e., a credential, some college, an associate degree, a bachelor’s degree, or a master’s degree or higher).<sup>90</sup>

Since 2008, Rhode Island has made significant progress in increasing the educational attainment of its residents. Between 2008 and 2017, the percent of Rhode Islanders (ages 25–64) with either a workforce certificate, associate degree, bachelor’s degree, or a graduate or professional degree increased from 41.4% to 46.4%.<sup>91</sup>

Despite this progress, Rhode Island continues to lag other states in New England. While Rhode Island’s 2017 educational attainment rate exceeds that of Maine (46.0%), it falls short of the educational attainment rates in Vermont (49.6%), New Hampshire (51.2%), Connecticut (54.1%), and Massachusetts 56.8%).<sup>92</sup>

Rhode Island’s recent investments in programs like Rhode Island Promise, PrepareRI, CS4RI, and P-TECH will contribute positively to educational attainment and upskilling in the state.

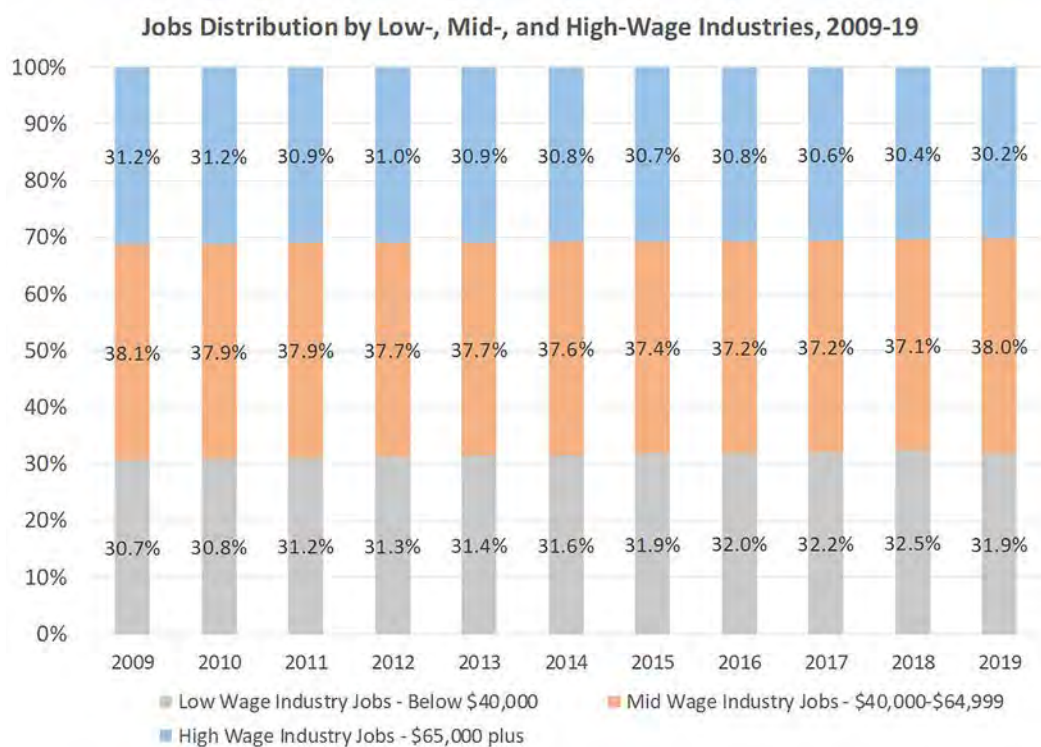
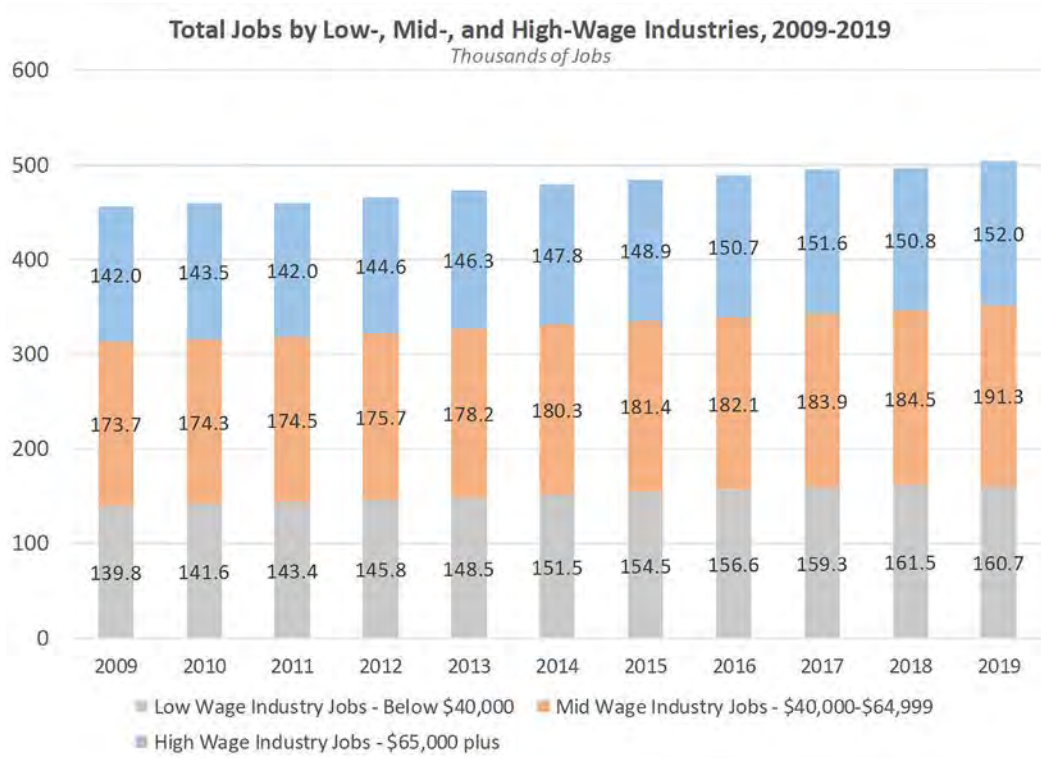


Source: Lumina Foundation



## Appendix D – Job Growth among Low-, Mid-, and High- Wage Industries

Since the end of the Great Recession, Rhode Island has experienced a substantial increase in the number of Rhode Island-based jobs. This job growth has occurred across low-, mid-, and high- wage industries. Overall, the state’s jobs distribution by low-, mid-, and high-wage industries has been relatively stable.



Source: Rhode Island Department of Labor and Training

## Appendix E - Geographic Disparities

Census data demonstrate that there are geographic disparities throughout the state in terms of population trends, household income, and educational attainment. Differences across geographies should inform the state's economic development strategies and long-term planning—particularly around programs and policies related to transit and housing.

Municipality	Population (2010)	Population (2018)	Population Projection (2040)	Population Change (2010-18)	Population Change (2018-40)	Median Household Income (2017)	% of Population with a Bachelor's Degree or Higher (2017)
Barrington	16,275	16,089	15,569	-186	-520	\$117,408	67.7%
Bristol	22,908	22,131	23,771	-777	1,640	\$65,890	38.4%
Burrillville	16,010	16,740	15,676	730	-1,064	\$71,055	26.5%
Central Falls	19,434	19,398	20,613	-36	1,215	\$30,794	8.0%
Charlestown	7,829	7,820	9,329	-9	1,509	\$72,648	37.6%
Coventry	34,689	34,698	39,172	9	4,474	\$68,633	26.4%
Cranston	80,689	81,274	82,271	585	997	\$64,282	31.4%
Cumberland	33,600	34,977	38,074	1,377	3,097	\$81,713	37.7%
E. Greenwich	13,133	13,103	14,342	-30	1,239	\$108,828	62.7%
E. Providence	47,142	47,476	40,196	334	-7,280	\$54,707	26.7%
Exeter	6,446	6,561	7,624	115	1,063	\$79,044	42.4%
Foster	4,611	4,710	5,101	99	391	\$81,036	32.2%
Glocester	9,773	10,210	10,080	437	-130	\$91,503	33.0%
Hopkinton	8,193	8,119	9,537	-74	1,418	\$85,863	31.1%
Jamestown	5,408	5,490	5,674	82	184	\$105,201	66.1%
Johnston	28,860	29,322	30,328	462	1,006	\$60,574	22.4%
Lincoln	21,091	21,771	23,750	680	1,979	\$69,404	36.8%
Little Compton	3,494	3,484	3,475	-10	-9	\$69,620	53.1%
Middletown	16,128	15,934	12,121	-194	-3,813	\$65,799	41.4%
Narragansett	15,896	15,464	16,411	-432	947	\$69,332	58.2%
New Shoreham	1,050	1,034	1,319	-16	285	\$76,174	44.9%
Newport	24,949	24,590	18,758	-359	-5,832	\$65,365	53.5%
N. Kingstown	26,593	26,320	28,530	-273	2,210	\$87,311	51.5%
N. Providence	32,187	32,559	30,896	372	-1,663	\$53,792	30.3%
N. Smithfield	11,989	12,485	13,331	496	846	\$79,167	32.3%
Pawtucket	71,253	71,847	65,737	594	-6,110	\$44,909	19.4%
Portsmouth	17,388	17,313	17,793	-75	480	\$91,626	47.5%
Providence	178,100	179,335	190,604	1,235	11,269	\$40,366	30.1%
Richmond	7,707	7,702	10,855	-5	3,153	\$98,234	38.8%
Scituate	10,399	10,658	10,685	259	27	\$83,728	36.2%
Smithfield	21,418	21,719	23,766	301	2,047	\$81,010	35.5%
S. Kingstown	30,601	30,650	38,573	49	7,923	\$80,407	52.3%
Tiverton	15,808	15,731	17,002	-77	1,271	\$75,716	32.3%
Warren	10,634	10,429	9,084	-205	-1,345	\$55,689	33.5%
Warwick	82,627	80,847	74,702	-1,780	-6,145	\$71,191	32.6%
W. Greenwich	6,140	6,339	9,234	199	2,895	\$103,110	43.3%
W. Warwick	29,442	28,874	27,902	-568	-972	\$51,563	22.0%
Westerly	22,786	22,509	23,466	-277	957	\$63,507	32.4%
Woonsocket	41,258	41,603	34,752	345	-6,851	\$38,340	15.3%

Source: U.S. Census Bureau; Rhode Island Division of Statewide Planning

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