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The Keystone Research Center (KRC) was founded in 1996 to broaden public discussion on strategies to  
a leading source of independent analysis of Pennsylvania's economy and public policy. Most of KRC's  
original research is available from the KRC website at [www.keystonereseearch.org](http://www.keystonereseearch.org).

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**The authors express great appreciation to the many experienced and committed economic  
development practitioners and policymakers who participated in interviews that informed this report.**

**Thank you to Mark Rice, Ellen Lyon and Stephanie Rank for their assistance with this report.**

# All Pennsylvanians Prospering Together (APP): A Pennsylvania Economic Development Strategy for the Long Term

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## 1. Executive Summary

State efforts to boost the economy — economic development — first came to Pennsylvania in the 1950s with the establishment of the Pennsylvania Industrial Development Authority (PIDA) low-interest loan program used to recruit manufacturers to Pennsylvania, including devastated coal regions.<sup>1</sup>

Since that time, economic development in Pennsylvania and other states has evolved through several waves. The 1980s saw the emergence of “grow your own” strategies, which sought to nurture and grow local businesses – mature and new – rather than recruit businesses from elsewhere. In Pennsylvania, the Ben Franklin Technology Partners (BFTP) and Industrial Resource Centers (IRCs), established in the early and latter part of the 1980s respectively, were at the heart of efforts to grow new businesses and help existing small and medium-sized ones become more productive.

The 1990s and 2000s saw the emergence of multi-pronged strategies based on investing in “regional assets.” One prong of this “building on strength” approach emphasized mapping and supporting strong, high-wage, regional “industry clusters.” Other prongs highlighted assets such as higher education research institutions, unique culture and history, or natural beauty.

In recent years, there has been increasing emphasis on “innovation.” In part, this takes discussion back to the late 1970s frustrations with the interaction between research universities and industry that led to the creation of the BFTP as a vehicle for “tech transfer” – getting the brilliant ideas out of the academy and into commercial products that would fuel job growth. But the discussion now is broader – focused on innovation eco-systems – mindful of the over-simple conception of the phrase “tech transfer” (in many industries most innovation comes from within the industry, even if consulting academics sometimes help a bit).

In the past, new “waves” of economic development – and new approaches to state collaboration with the private sector – have tended to come at moments of economic distress, such as the mammoth job loss in the Pennsylvania steel industry and the broader erosion of manufacturing in the 1980s. Economic distress created both the demand for new approaches and the political will within state government, business, and the broader community to step back, to diagnose the roots of economic malaise, and to make a fresh start on the state’s support for the private sector.

We are at such a moment of distress and opportunity now. The U.S. and Pennsylvania economies are finally recovering from the Great Recession but virtually none of the benefits of that growth have gone to typical families. There is also an urgency about discussions of innovation and global competitiveness. The U.S. has lost ground in technology sector after technology sector and a

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<sup>1</sup>For more detail on the history of economic development in Pennsylvania and “waves” of state economic development policy and practice, see Maria Cristina Herrera, Stephen Herzenberg, and Michael Wood, *Good Jobs, Strong Industries, a Better Pennsylvania: Towards a 21<sup>st</sup> Century State Economic Development Strategy*, Keystone Research Center, March 16, 2010; online at [http://keystoneresearch.org/sites/keystoneresearch.org/files/KRC2010report\\_0.pdf](http://keystoneresearch.org/sites/keystoneresearch.org/files/KRC2010report_0.pdf)

gnawing concern exists that, at some point, if the production of new products is mostly offshore the U.S. will lose its research advantage. The last part of the opportunity is the beginning of a new gubernatorial term, which in the past has always been when new waves of economic development practice emerge.

In this context, the present document outlines a new state economic strategy, All Pennsylvanians Prospering Together or APP Together. The focus here is on the medium to long term. In addition, the report focuses on economic development relatively narrowly defined – the programs largely within the purview of the Pennsylvania Department of Economic and Community Development (DCED), although there is a brief discussion of skills development in the manufacturing sector. This narrow focus means that transportation infrastructure is not discussed. Nor is how the state can maximize the economic payoff of any given level of responsible shale drilling (e.g., by spurring value-added processing or using cheap energy to boost manufacturing).

The report recommends that economic development in Pennsylvania going forward embrace four core principle one of which stands out as the most fundamental: invest in “public goods” that deliver public benefits. Too often in the past, traditional economic development based on giving subsidies to individual companies has been – or appeared to be – politically driven, with state funds subsidizing private profit with little evidence of public benefits. Under a governor who routinely uses the phrase “public good” the state has its best opportunity ever to reorient economic development policy towards investments that do deliver a public payoff. Of course, the challenge here is practical as well as philosophical. While it’s easy to see that education and infrastructure are public goods, it is not always as easy to discern which economic development investments meet the public good test.

Other core principles of the strategy outlined include that the state should invest in growing its own businesses, building on assets, such as dynamic technology industries and higher education institutions. A third core principle is that Pennsylvania should pursue a “good jobs strategy” – or, to borrow a phrase from Gov. Wolf’s inaugural address, seek to increase the share of companies in each industry that provide “jobs that pay.” This recommendation emerges from research which shows that, in every industry, job quality varies widely, with some companies pursuing good jobs strategies (think Costco), while others in the same industry do not. Intervening smartly to support more companies in capitalizing on the payoff that comes from maintaining a well-paid, well-trained, and experienced workforce is a so-far unutilized economic development approach.

Most of this document is nitty-gritty. It has detailed suggestions in four broad areas.

**A. Economic development strategy, resources, and accountability.**

- Pennsylvania should have a strategy.
- That strategy should be fleshed out at the state and regional level through engagement with stakeholders, which will improve both the final plans and the ownership of those plans.
- Pennsylvania should invest adequately in economic development. Business and economic development organizations need to champion raising the revenue for that investment.
- Pennsylvania should develop and recruit world-class economic development practitioners and policymakers.
- Pennsylvania should promote transparency, accountability, and high returns (high performance) from its economic development investments.

**B. Invest in innovation**

- Pennsylvania should implement “Manufacturing Innovation 2.0”, supporting
  - low-cost networking among university and industry researchers,
  - industry economic development partnerships that solve coordination problems and network failures that hold back multiple firms,
  - supply chain initiatives aimed at more collaborative supplier-customer relations and reshoring more production to PA suppliers
  - 21<sup>st</sup> century manufacturing workforce initiatives
- Make Pennsylvania a “magnet for entrepreneurs” by creating a world-class state and regional innovation system for startups including
  - low-cost networking among university researchers/students and startups
  - replicating Pittsburgh’s AlphaLab Gear startup accelerator
  - expanding funding for startups
  - helping startups attract and retain great employees
- Expand capital for innovation

**C. Invest in Pennsylvania’s cities, towns, and landscapes, including**

- Restoring community and regional development funding to \$74 million via a multi-purpose Keystone Communities Fund
- Providing block grants to incentivize bottom up regional revitalization
- Partnering with regional smart-growth coalitions to advocate legislative changes that enable individual counties or multi-county groups to regionalize
- Reinvesting in Community Landscape Initiatives (CLIs) in rural regions

**D. Promote a Pennsylvania good jobs strategy**

- Create a Pennsylvania industrial performance center to deepen knowledge about good jobs strategies and how to diffuse them
- Seed-fund industry councils to develop consensus strategies to increase jobs that pay
- Set aside five percent of technical assistance funds to assist companies in low-wage industries improve jobs

The APP Together strategy echoes in a number of respects the governor's campaign policy on economic development: e.g., the emphasis on capitalizing on Pennsylvania's unique assets, on innovation and manufacturing, and on investing in Pennsylvania's core communities. This overlap reflects both our policy agreement with the thrust of the Wolf platforms and our pragmatic intention to offer a menu of specific options that help the new administration flesh out its approach.

(For ease of cross-referencing, we have uploaded two Wolf campaign economic development platforms on the Keystone Research Center web page alongside this report.)

## 2. More Detailed Summary of Policy Options

Implement the All Pennsylvanians Prospering (APP) Together State Economic Strategy where all Pennsylvanians invest together, through government and public-private partnerships, in 21<sup>st</sup> century public goods and networking to provide a foundation for an economy that works for all.

Capitalize on Pennsylvania’s strategic location; shale deposits; world-class universities; cheap land, housing, and energy; cities, towns, and landscapes unmatched for national significance, tradition, and beauty; dynamic industries; and history of economic and social innovation.

Embrace four core principles:

- Invest in public goods that deliver public benefits
- Practice market-based, not market-distorting, economic development
- Invest in innovation and growing Pennsylvania’s own companies
- Pursue a Pennsylvania good jobs strategy

### A. Economic Development Strategy, Resources, and Accountability

- i. **Develop a State APP Together Action Plan**
- ii. **Assist Regions to Develop Regional APP Together Action Plans**
- iii. **Raise Adequate Resources for Economic Development through various means that could include:**
  - innovation bonds,
  - investing a portion of a severance tax in an economic development trust fund for drilling regions,
  - county and regional matching funds,
  - state pension funds,
  - leveraging federal funds,
  - partnering with neighboring states,
  - catalyzing creation of multi-firm investment in “network-specific public goods (e.g., through multi-employer tax credits),
  - dedicating to economic development a portion of taxation on the upper income and wealthiest groups in the state (who would themselves benefit substantially from adequate Pennsylvania investment in public goods that fuel long-term growth).
- iv. **Develop and Recruit World-Class State and Local Economic Development Policymakers and Practitioners**
- v. **Promote Transparency, Accountability, and High Returns on State Economic Development Investments including:**
  - online subsidy disclosure,
  - transparency in capital budgeting, wage and benefit standards for subsidized jobs,
  - clawbacks if subsidized companies fail to deliver promised jobs,
  - a unified development budget,
  - best-practice compacts to end intra-regional subsidy wars and invest in regional prosperity,
  - compacts with neighboring states to avoid inter-state subsidy wars and invest in shared multi-state regional prosperity,

- the “Measure Our Impact” partnership with university researchers to better evaluate the return on state economic development investments and provide “feedback loop” data that supports continuous improvement of Pennsylvania economic development.

## **B. Invest in Innovation**

### **i. Implement Manufacturing Innovation 2.0**

- **Provide \$5 million to support investment in low-cost networking among university and industry researchers**
  - Develop university-specific plans to increase networking
  - Launch the Solving Industry Manufacturing Problems and LEarning Solutions (SIMPLE Solutions) program through which university students help solve real problems of Pennsylvania manufacturers
  - Establish State-supported two-year fellowships for industry researchers to work in universities or university researchers to work in industry
  - Establish regional and statewide “Innovator of the Year” awards for university researchers whose innovations fuel growth of good jobs in Pennsylvania
  - Organize annual “University and Industry Innovators Together” conferences
  - Reprogram the Research and Development and Keystone Innovation Zone Tax Credits towards Industry-University Innovation Partnerships
- **Allocate \$5 million for industry economic development partnerships** that explicitly address “network failures” in industry clusters, and promote diffusion of best practices, technology adoption, marketing, supply chain development, etc.
- **Allocate \$2 million for supply chain initiatives** that (a) promote collaborative supplier-customer relations in pursuit of joint gains and (b) match OEMs with domestic Pennsylvania suppliers that enable them to reshore specific parts.
- **Allocate \$5 million for building a 21<sup>st</sup> century manufacturing workforce**, including through internships, apprenticeships, co-ops, and summer jobs. Reconstitute the Center for Advanced Manufacturing Careers.

### **ii. Make Pennsylvania a “Magnet For Entrepreneurs” by Creating A World-Class State and Regional Innovation Eco-System for Startups.**

- **Allocate \$5 million to support low-cost networking opportunities that allow university researchers and students to participate in startups**
  - Assemble teams of students to help startups solve technical problems.
  - Give academic credit for students working with startups.
  - Identify alumni donors who are experienced entrepreneurs willing to serve as mentors to spin-offs or as “entrepreneurs-in-residence.”
  - Create teams of venture capitalists, marketers, researchers, and students to help the university reach smart, fast decisions on what to commercialize.
  - Guarantee faculty who join/launch a startup their job back for five years.
- **Provide \$2 million to replicate and sustain a Pittsburgh model for providing startups with design engineering and production assistance.**
- **Use existing BFTP funds to replicate the Pittsburgh AlphaLab Gear hardware and robotics seed fund stage startup accelerator.**



- **Expand funding available for startups**
    - Form a “Pennsylvania Startup Capital Advisory Council”
    - Deliver “Capital Assistance Education and Counseling for Entrepreneurs”
    - Systematically assess technology-based funding options and how state policy can capitalize on these; adopt a best-practice state law that capitalizes on the Section 147 exemption from restrictions on crowd sourcing
    - Explore the potential to access a small portion of Pennsylvania pension fund assets for investment in startups
    - Explore a Pennsylvania stock market via replication of the Michigan model
    - Explore Pennsylvania “App Together” bonds to fund startups
    - Explore with PA banks the creation of a “startup” checking account
  - **Help startups attract and retain great employees**
    - Provide mortgage reinsurance so startup employees can get mortgages
    - Stop the student loan repayment clock and explore partial loan forgiveness for high-tech, high-skill grads who stay in Pennsylvania to work for a startup
    - Explore options for extending foreign PhDs visas to work with startups
- iii. **Expand Capital for Innovation and Social Benefits**
- **Invest \$2.55 billion in pension funds in double bottom-line investments.**
    - \$1.7 billion in real estate partnerships in underserved areas within the state
    - \$150 million in brownfield redevelopment
    - \$50 million in gap financing for small businesses and startups
    - \$115 million in loans for small businesses
    - \$35 million in market research to spur private investment
    - \$500 million in green companies
- C. **Invest in Pennsylvania’s Cities, Towns, and Landscapes**
- i. **Restore Community and Regional Development Funding to \$74 Million via a Multi-Purpose Keystone Communities Fund** that supports brownfield development including demolition, Main Street and Elm Street, and other community revitalization. Re-establish “Community Action Teams” to align multiple agencies, and the state, counties, regions, and municipalities behind an overall community redevelopment strategy.
  - ii. **Provide Block Grants to Incentivize Bottom-Up Regional Revitalization Strategies** by pooling resources from Keystone Communities, Pennsylvania First, and reprogrammed tax credits (Neighborhood Assistance Program, Neighborhood Improvement Zones, and KOZs). Provide more support to regional plans that address the structural obstacles to community revitalization by improving schools, services, and tax equity throughout the region.
  - iii. **Partner with Regional Smart-Growth Coalitions to Advocate Legislative Changes That Enable Individual Counties or Multi-County Groups to Regionalize** where the civic leadership and political will exist
  - iv. **Revitalize Community Landscape Initiatives (CLIs) in Rural Regions**

**D. Promote a Pennsylvania Good Jobs Strategy**

- i. **Partner with Industry, Philanthropy, Academia, and the Federal Government to Create a Pennsylvania Industrial Performance Center** that deepens knowledge of good jobs strategies in each sector and how to diffuse them
- ii. **Seed-Fund Industry Councils to Develop Consensus Strategies on how the Policies of Each State Agency Can Align with Good Jobs Strategies in Each Sector**
- iii. **Set Aside 5% of State Technical Assistance Funds (E.G., For Ircs And Industry Partnerships) to Assist Companies in Predominantly Low-Wage Industries Increase Productivity and Innovate** so that they can afford to pay a living wage

### 3. Introduction

On a bipartisan basis, Pennsylvania has a longstanding reputation as a leader in economic development. Pennsylvania pioneered one of the first attempts to better connect university researchers to industry via the Ben Franklin Technology Partnership program under Gov. Thornburgh. Pennsylvania, via the Industrial Resource Centers established under Gov. Casey, invented what became the national model for assisting small and medium-sized businesses through “manufacturing extensions services.” At the same time, economic development has been criticized for a proliferation of tactical programs that, even if individually admired, layer on top of one another like geologic or sedimentary layers, spread resources too thin, and do not add up to an overall state strategy.

In the difficult budget climate of the past four years, the Corbett Administration and the legislature consolidated several groups of separate programs. They reduced the DCED budget by 30% and the community development side of the agency by 74%. Going back to 2007-08, the Department budget has been cut by two thirds and the community side of the shop by 93%. (Adding to the DCED budget the cost of economic and community development tax credits, which have grown in recent years, reduces the drop in resources dedicated to economic and community development.)

In this context, a transition to a new gubernatorial term provides an opportunity that comes along with a challenge. The deep cuts to DCED programs allows a fresh look at the commonwealth’s approach to economic and community development. The challenge results from the state’s dire budget realities and a lack of clarity about the state’s role in economic development, a result in part of the proliferation of programs. Given the state’s pressing need for resources in many areas, what justifies a substantial restoration of economic development funding? Supporters of such restoration will have to make a powerful case for more investment in order to restore the earlier bipartisan support for investing in community and economic development.

This document outlines a new direction in state economic development policy: the All Pennsylvanians Prospering (APP) Together State Economic Strategy. The name deliberately contrasts with the idea of the “You’re On Your Own” or “yoyo” philosophy about which economist Jared Bernstein has written.<sup>2</sup> In reality, Pennsylvanians – businesses and individuals – are not on their own. Economic success going forward, as in the past, depends on doing some things together, some of which require large amounts of money and some of which are cheap but still require communication, coordination, and action in service of a common purpose. If we do not do these things, or do them poorly, all Pennsylvanians will suffer, albeit some more than others. Figuring out what we need to invest in together, through the instrument of government or through public-private shared investment, how to collaborate in the 21<sup>st</sup> century, and how to pay for essential investments and coordination, are the meat and potatoes of developing a new Pennsylvania economic and community development strategy.<sup>3</sup>

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<sup>2</sup> Jared Bernstein, *All Together Now: Common Sense for a Fair Economy* (New York: Barrett-Koehler, 2009).

<sup>3</sup> The name All Pennsylvanians Prospering Together also underlines the aspiration to achieve broader sharing of the benefits of economic growth than in Pennsylvania (and the United States) since 2000 and for most of the period since 1979. On the stagnation of wages and incomes for most Pennsylvanians since 2000 and since 1979, see *The State of Working Pennsylvania 2014* and *The State of Working Pennsylvania 2013*, online at [www.keystoneresearchcenter.org](http://www.keystoneresearchcenter.org)

As Pennsylvania crafts and implements a fresh economic development strategy, the state is blessed with powerful assets.

- (a) A strategic location between East Coast population centers and ports and the Midwestern manufacturing heartland, a location that much more strategic because of the widening of the Panama Canal that will bring more goods to Newark and other east coast ports.
- (b) Some of the world's largest deposits of shale gas which, if extracted and distributed responsibly, could provide cheap energy and a boost to manufacturing.
- (c) The third most colleges and universities, including world-class research universities with untapped potential to connect faculty and students to fast-growing Pennsylvania-based startups.<sup>4</sup> Pennsylvania also attracts the most students to attend college in the state of any of the 50 states.
- (d) Cheap land, moderate wage levels (although this is an “advantage” we want to grow beyond), affordable housing, and a low cost-of-living.
- (e) A history of bipartisan cooperation on economic and workforce development and pragmatic labor-management cooperation within companies and key industries. While these political/cultural assets have been frayed in recent years, they need to be recognized, celebrated, and cultivated as we embark on a new vision.

Pennsylvania also has some weaknesses, on which we will not dwell but which we do need to recognize. (See Table 1 for Pennsylvania rankings related to economic development and innovation assets.)

In addition to these assets, Pennsylvania can and should capitalize on two important trends. The movement of people, including immigrants and young people, to increasingly vibrant city centers, not only in Philadelphia and Pittsburgh but also in several of our third-class cities (Table 2). By investing further in the place-based assets of older cities and towns, Pennsylvania has a golden opportunity to turn around communities with concentrated poverty, leading to higher economic growth and a better quality of life for whole regions. The second trend is the return of offshore manufacturing production – reshoring – to the United States and other structural factors (“digital manufacturing,” rising inter-continental transportation costs, and climate change) that could provide a long-term boost to U.S.- and Pennsylvania-based manufacturing.

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<sup>4</sup> The online U.S. College and Universities directory says Pennsylvania has 544 colleges and universities, third behind California at 1246 and New York at 633; online at <http://www.univsearch.com/state.php>

	State Ranking (1-50)
<b><i>The Innovation Economy</i></b>	
Entrepreneurial Activity	T-49
Fast-growing firms	14
Inventor Patents	25
Venture Capital	13
High-tech jobs	22
<b>Transportation</b>	
Freight Rail per 1,000 miles	35
Shipping Tonnage	8
<b>Costs of Business</b>	
Housing Affordability	17
Total Energy Production	4
Average Industrial Price of Natural Gas	44
Gas Tax (high tax = low ranking)	46
Averages Wages (low wage = high ranking traditionally; this has to change)	19
<b>Workforce and Skills</b>	
Share of Adults (25-64) with More than a HS Degree	41
Share of Adults with a College Degree	29
Share of Adults with a Graduate Degree	16
<i>Sources.</i> Robert D. Atkinson and Adams Nager, <i>The 2014 State New Economy Index</i> , Information Technology and Innovation Foundation, June 11, 2014; online at <a href="http://www.itif.org/publications/2014-state-new-economy-index">http://www.itif.org/publications/2014-state-new-economy-index</a> . Keystone Research Center based on the American Community Survey.	

	Population 2013	% Change in Population 2000-13	% Change in Population Aged 20-34 2000-13	% Change in Employment, 2000-13	% Change in Manufacturing Employment, 2000-13
Allentown	118,577	11%	9%	5%	-15%
Erie	100,676	-3%	8%	-3%	-28%
Philadelphia	1,553,165	2%	20%	6%	-20%
Pittsburgh	305,838	-9%	13%	2%	-12%
Reading	87,894	8%	5%	-3%	-9%
Scranton	75,814	-1%	22%	-1%	-34%
Bethlehem	74,241	4%	12%	5%	-7%
<i>Source.</i> U.S. Census, <a href="http://factfinder2.census.gov">http://factfinder2.census.gov</a>					

This memo is informed by over 40 interviews with Pennsylvanians who work in the field of economic development. The next section provides four guiding principles for Pennsylvania economic development in the future. The subsequent sections provide specific policy options, operationalized as much as possible, to take action on the APP Together plan.

## 4. APP Together State Economic Strategy: Values and Guiding Principles

Good public policy begins with good values. The fundamental values underpinning the economic development strategy outlined here include the importance of widespread economic opportunity – the American Dream – and a strong middle class. Productivity and economic growth are the foundation for honoring these values in Pennsylvania going forward. To generate such growth, and honor these values, requires an economic strategy guided by the following principles.

*Practice market-based, not market-distorting, economic development.* Instead of distorting the market with subsidies and tax credits to individual companies, focus on investing in making Pennsylvania and its places appealing to live and work in so that companies choose to move here.

*Invest in innovation and “growing Pennsylvania’s own” companies.* Innovation and productivity growth underpin improvements in living standards. Yet the U.S. government invests tiny fractions of the amount invested by competitors such as Germany in innovation and economic growth. The U.S. private sector also invests less than it did in the past on open-ended, break-the-mold innovation, instead holding researchers in industry and their corporate managers accountable to bottom-line criteria that stifle creativity.<sup>5</sup> Thus the case for greater U.S. public investment in innovation is strong. At the state level, budget constraints mean that mobilizing substantial resources will be difficult. Thus Pennsylvania should invest in innovation with an eye to ensuring that resulting jobs – from startups or existing companies – remain in Pennsylvania. Pennsylvania should also emphasize growing its own companies rather than attracting new companies and facilities from outside the state.<sup>6</sup>

*Pursue a Pennsylvania good jobs strategy.* In virtually every industry – health care and education, manufacturing and distribution, retail and hotels, agriculture and tourism, airlines and trucking – different companies pursue systematically different business strategies (sometimes labelled “high road” and “low road”) with very different implications for job quality. Companies that pursue “good job strategies” have jobs well above the industry standard and productivity, quality, and/or service also above the norm. A huge leap in economic performance and in the number of middle-class jobs would be possible by changing the proportion of companies that pursue good jobs strategies. Creative policies and public-private partnerships that support companies that pursue good jobs strategies (“pave the high road”) but avoid subsidies to companies that pay below the norm (“block the low road”) could capture some of this “huge leap” while also strengthening the middle class.

*Make investments that deliver public benefits.* As a matter of principle, the public sector should only invest in initiatives that deliver public benefits. The need for public investment, and the resulting public benefits, are very clear for traditional investments in public education, infrastructure (e.g.,

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<sup>5</sup> Richard K. Lester and Michael J. Piore, *Interpretative Innovation: the Missing Dimension* (Cambridge: Harvard University Press, 2006).

<sup>6</sup> A Heinz Endowment-funded study of Pennsylvania and competitor states found in 2010 that net job growth results from “growing your own” and that relocations across states is a wash (i.e., states gain and lose about the same number of jobs from relocations). See Greg LeRoy with Leigh McIlvaine, Peter Fisher, Alan Peters, Doug Hoffer, Stephen Herzenberg, Mark Price, Merrill Goozner, and Philip Mattera, *Growing Pennsylvania’s High-Tech Economy: Choosing Effective Investments*, Good Jobs First, online at: [http://www.goodjobsfirst.org/sites/default/files/docs/pdf/pahightech2010\\_-\\_final.pdf](http://www.goodjobsfirst.org/sites/default/files/docs/pdf/pahightech2010_-_final.pdf)

transportation, water and sewer, electric, telecommunications), and basic research. In state and local economic development, the public benefits, and the line between public and private benefits, can be harder to see. This is especially the case for subsidies to individual businesses: if the business was going to build the same factory anyway, there is no public benefit. In general, when the state subsidizes private firms, this memo argues for focusing on investments that benefit multiple firms – what economist Howard Wial calls “industry-specific public goods.” Examples include industry training partnerships and university-industry innovation partnerships in which large numbers of businesses participate.

We now turn to specific policy options that aim to operationalize these principles and move towards specific options for the 2015 Pennsylvania budget.

## 5. Economic and Community Development Basics: Strategy, Resources, Staff Capacity And Accountability

### A. Develop a State APP Together Action Plan

A new state economic strategy and broad commitment to its successful implementation would be strengthened by engagement and input from stakeholders including industry associations, communities, worker representatives, the environmental and conservation communities, and philanthropy. The Team Pennsylvania Foundation and Keystone Research Center could assist the state and lead economic development agencies in conducting a planning process to develop a detailed action plan.

### B. Assist Regions Develop Regional App Together Action Plans

One element of the state “Action Plan” process should include developing guidelines (including detailed and operational “best practice” economic development principles) that regions should follow in crafting regional APP Together Action Plans by the end of 2015. To evaluate the success of their overall plans, regional plans should identify and track common (mostly) and customized (to reflect diversity of regions, their assets, industry clusters, and action plans) measures. Tracking such measures would support ongoing feedback on what’s working and what’s not, the need to make mid-course corrections, how to enhance the return on public economic development investment and so on. Resources for the planning process should be leveraged from planning dollars allocated in conjunction with federal planning mandates (e.g., of Metropolitan Planning Organizations (MPO)). This regional planning should also be informed by lessons from efforts to promote greater coordination across land use, transportation, and economic development agencies under the “LUTED” (Land Use Transportation and Economic Development) planning process in the second half of the 2000s.<sup>7</sup>

### C. Raise Resources for Economic Development

Without raising new resources dedicated to economic development it is unrealistic to expect more than a small restoration of the deep cuts to DCED funding over the past several years. To avoid this outcome, proponents of more economic and community development investment need to unite behind specific plans to raise resources. Options include:

- Aligning a small portion of Pennsylvania’s pension funds to support “double bottom line” economic and community development (that delivers benefits to the state as well as high returns), emulating California (see page 27).
- County and regional efforts to raise economic and community development resources. Precedents for this include the Allegheny County Regional Assets District (<http://www.radworkshere.org/>), which receives half of the proceeds from a countywide sales tax to invest in regional and community assets.<sup>8</sup>

<sup>7</sup> NADO Research Foundation, *Integrating Land Use, Transportation, and Economic Development in Pennsylvania*, July 2010; online at <http://www.nado.org/integrating-land-use-transportation-and-economic-development-in-pennsylvania/>

<sup>8</sup> Prior to the creation of RAD, voters in 1997 rejected an effort to impose a similar tax on 11 counties to form a regional entity that would invest in regional assets <http://dennycivicsolutions.com/successful-failure-the-regional-renaissance-initiative/>



- A state bond issue targeted at economic development investment. Referendums have twice been approved by voters in neighboring Ohio that authorize the issuance of bonds to finance the state’s Third Frontier program ([www.thirdfrontier.com](http://www.thirdfrontier.com)).
- Federal funds: Pennsylvania is already well positioned to access federal innovation and economic development funds because it is a large swing state, and has strong research universities. Adding to these assets a new strategy that overlaps the federal Advanced Manufacturing Partnership (AMP) and a new level of stakeholder cooperation should enable Pennsylvania to access more federal funds.
- Partner with other states: Pennsylvania partnered with Ohio and West Virginia to draw down \$30 million in federal funds for the first AMP “Innovation Institute” – America Makes (originally known as the National Additive Manufacturing Innovation Institute). Pennsylvania could explore additional joint investment in multi-state economic regions and industry clusters, building, in the case of Ohio and West Virginia, on the Power of 32 (counties) effort in SW PA.<sup>9</sup>
- A portion of a severance tax. Several states with natural gas or other resources have established economic diversification trust funds that use a portion of severance taxes to finance economic development investment aimed at preparing for when the resources run out.<sup>10</sup>
- Multi-firm funds or tax credits that expand resources for network coordination and shared investments (including with the state) that benefit all participating firms.
- A portion of a wealth tax or higher tax rates on non-wage income.<sup>11</sup> Wealthy and upper income taxpayers would benefit disproportionately from long-term strategies that increase economic growth in the state. Capturing a small portion of their income or wealth for economic development investment would thus be in their self-interest.

#### **D. Develop and Recruit World Class State and Local Economic Development Policymakers and Practitioners.**

Pennsylvania’s new Governor, Tom Wolf, has made “government that works” one of his top three priorities.<sup>12</sup> Government that works is especially challenging to achieve in program areas that require complex partnerships between government and the private sector – such as economic development.

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<sup>9</sup> Pennsylvania, Ohio, and West Virginia have a combined population of 26 million, three quarters that of Canada. Add in Pennsylvania’s other neighbors (New York with 20 million and New Jersey, Delaware, and Maryland with a combined 15 million) and you have a total population of 61 million, close to that of France.

<sup>10</sup> For example, West Virginia last year created the West Virginia Future Fund, which dedicates 3% of the revenues from the state’s severance taxes (on five different resources, including natural gas, coal, and oil) to an economic development fund. See Shauna Johnson, “Future Fund Signed Into Law,” *Metro News*, March 20, 2014, online at <http://wvmetronews.com/2014/03/20/future-fund-signed-into-law/>. The case for such a fund was made in Ted Boettner, Jill Kriesky, Rory McIlmoil, and Elizabeth Paulhus, *Creating an Economic Diversification Trust Fund*, West Virginia Center on Budget and Policy online at <http://www.wvpolicy.org/wp-content/uploads/2012/06/WVEconomicDiversificationTrustFundRpt021312.pdf>

<sup>11</sup> Both of these types of taxes are constitutional despite the uniformity clause in Pennsylvania’s constitution. Court decisions have determined that income taxes need only be “uniform” (or “flat”) within each of eight classes of income, such as compensation, interest, dividends, profits, and capital gains. Each class therefore could have a different tax rate. A flat (i.e. uniform and constitutional) wealth tax could be very low and still raise significant funds. For example, a wealth tax of one hundredth of one percent (\$100 on each \$1 million of wealth excluding residential property) would raise an estimated \$186 million.

<sup>12</sup> The other two priorities being “jobs that pay” and “schools that teach.” Full text of inaugural address online at [http://www.pennlive.com/politics/index.ssf/2015/01/read\\_the\\_full\\_text\\_of\\_gov\\_tom.html](http://www.pennlive.com/politics/index.ssf/2015/01/read_the_full_text_of_gov_tom.html)

New economic development strategies require top notch staff in state and local government, and in quasi-governmental economic development intermediaries. To help implement the APP Together plan, the state could partner with economic developers to recruit talented young people to service in government and economic development organizations. Such an effort could be part of a broader recruitment to government service that is part of achieving “government that works.” One possible brand for this recruitment effort would be “Govern for Pennsylvania.”<sup>13</sup> Another possible brand, drawing on the new Governor’s experience in the Peace Corps, would be the “Pennsylvania Corps.”

Labor-management cooperation and professional development programs for existing economic development staff should also be part of upgrading the capacity of Pennsylvania to implement a 21<sup>st</sup> century economic development strategy.<sup>14</sup>

### **E. Promote Transparency, Accountability, and High Returns on State Investments**

*Upgrade Subsidy Transparency and Online Disclosure.* Broad bipartisan support exists for transparency in the distribution of public funds. (Indeed, the first house bill passed in the 2011-12 legislation session at the start of Governor Corbett’s first term was a transparency bill, HB 1, which created the state’s “PennWATCH” website.) Transparency is important in economic development to discourage politicized distribution of public funds to favored companies. It is also important to improve coordination across economic development, community development, and land-use planning. Land-use planners often do not know which companies received subsidies even after new facilities are in place, and can be stunned to discover how at odds economic development assistance is with smart growth principles.

Currently, Pennsylvania is ranked in the middle of states for economic development transparency.<sup>15</sup> Pennsylvania could move to the front of the pack with upgrades to two innovations of the Ridge Administration: the “single application” for assistance that helps ensure the collection of uniform information from applicants to all programs; and the online “Investment Tracker” (<http://www.dced.state.pa.us/investmenttracker/>). By collecting a small amount of additional information on the single application and displaying it on the investment tracker, Pennsylvania could cost-effectively make public the address of sites where public funds are applied (essential to shedding light on whether subsidies fuel sprawl), the industry of the company receiving funds, the number of jobs promised, their wage levels, and whether the company provides health benefits. Data on the investment tracker should be possible to download into an excel file that allows researchers to perform their own analysis.

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<sup>13</sup> Govern for Pennsylvania is a variation on the “Teach for America” program which recruits top college students to teach in low-income schools based on the importance of this work. The Govern for Pennsylvania appeal to top Pennsylvania college students would be that there is no higher calling today than working in government or quasi-government to achieve an economy that restores opportunity, community well-being and environmental sustainability. Pennsylvania – and America – need to get the balance between government and market right to safeguard the American Dream and responsive democracy.

<sup>14</sup> Pennsylvania’s Department of Conservation and Natural Resources under Secretary Michael DeBerardinis implemented leadership development programs that provide one existing model for staff development within a Pennsylvania state agency.

<sup>15</sup> Phil Mattera et al, *Show Us the Subsidized Jobs*, January 2014, online at <http://www.goodjobsfirst.org/sites/default/files/docs/pdf/showusthesubsidizedjobs.pdf>; see also the Pennsylvania Appendix at <http://www.goodjobsfirst.org/sites/default/files/docs/pdf/showusthesubsidizedjobs.pdf>

National and Pennsylvania philanthropy have invested substantially in subsidy transparency and in making visible whether subsidies exacerbate sprawl. In light of this, Pennsylvania could explore a partnership with philanthropy to share the cost of upgrades to Pennsylvania subsidy transparency and online disclosure, which would make the state a national model.<sup>16</sup>

*Establish Transparency in Capital Budgeting.* There has been controversy in recent years about the distribution of Regional Assistance Capital Program (RACP) grants.<sup>17</sup> Retaining a role for public investment in regional and community assets makes sense, but the lack of an open and transparent process for applying for funding and evaluating projects has undermined public confidence in the program. Criteria for distributing RACP funds, the scores of competing proposals, and copies of those proposals should be publicly available on the web.

*Require Subsidized Companies to Pay Decent Wages and Benefits.* Since most companies do not receive public subsidies, it makes no sense to subsidize companies that pay below average. Therefore, Pennsylvania should require that companies receiving subsidies pay at least the county average wage and competitive health benefits.<sup>18</sup>

*Claw Backs.* Companies should be required to maintain jobs created with public subsidies for at least five years or to repay the public subsidies in proportion to the shortfall of jobs.<sup>19</sup>

*Create a Unified Development Budget.* Especially in light of the explosion of tax breaks for economic and community development in the last few years, Pennsylvania should also adopt a Unified Development Budget (UDB), which catalogs and analyzes all forms of state spending for economic development, including tax breaks. UDBs enable legislators and the public to see the big picture and to see patterns and trends in the cost of economic development. A methodology for a Unified Development Budget should be developed in 2015 in collaboration with the Independent Fiscal Office (IFO) and then incorporated into the Governor's budget each year beginning in 2016.

*Don't Waste Resources on Subsidy Wars.* It is widely understood that subsidies to get individual companies to locate in one state rather than another, or one municipality within a state rather than another, waste scarce public resources. Many economic development practitioners, however, believe that Pennsylvania has no choice but to compete in the subsidy wars – it cannot unilaterally disarm and lose jobs to New Jersey, Ohio, or other neighbors. Pennsylvania can, however, minimize resources spent on subsidy wars in two specific ways. First, as part of developing regional plans, *Pennsylvania can require regions within the state to emulate best practices for avoiding intra-regional subsidy wars.* A recent report documents such best practices in Metropolitan Denver (a code of ethics, including

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<sup>16</sup> The Wolf campaign *Fresh Start* plan says that, as Governor, Tom Wolf will pursue partnerships with foundations. Partnering on upgrading web-based subsidy disclosure and public access to a data base on subsidies is a natural area in which to partner because of foundations commitment to subsidy transparency. See Tom Wolf for Governor, *A Fresh Start!* pp. 33-34.

<sup>17</sup> For one editorial outlining a need for greater transparency, including explicit criteria and how competing proposals for funds rank on the criteria, see “Not So Fast With Grants,” online at <http://philly.newspaperdirect.com/epaper/viewer.aspx>.

<sup>18</sup> These are the wage and benefit levels on which the *Fresh Start* plan proposes conditioning subsidies for job creation. Tom Wolf for Governor, *A Fresh Start!* p. 31. The plan also notes that jobs created should be full time.

<sup>19</sup> The *Fresh Start* plan proposes such a “claw back” provision and that businesses receiving subsidies return the payment to the state if they do not maintain the new jobs for five years. Tom Wolf for Governor, *A Fresh Start!* p. 31. The plan also notes that jobs created should be full time.

transparency, respect, and cooperation, that is binding upon participating jurisdictions) and in the Dayton, Ohio metropolitan region (which allows member jurisdictions to participate in tax-base sharing while also providing access to a shared economic development fund for regional projects).<sup>20</sup> Second, *Pennsylvania should seek economic development compacts with neighboring states*, shifting resources from wasteful handouts to individual companies and towards shared investments in mutually beneficial initiatives.

*Launch a “Measuring Our Impact Partnership”* between economic development practitioners and university researchers to generate better understanding and evidence on the highest return economic development investments. Evaluating the payoff to government investment in economic and community development is inherently difficult because it is very difficult to disentangle the effects of program investments from other variables (Box 1).<sup>21</sup> To push the envelope on evaluation methods and knowledge of what works requires a partnership between practitioners and academic researchers.

### **Box 1. The Challenges of Evaluating Economic Development Programs**

Possibly the most comprehensive study of the performance of economic development programs is a National Research Council (NRC) study of manufacturing extension programs (MEPs) including Pennsylvania’s Industrial Resource Centers.<sup>22</sup> Yet even this study was only able to draw limited and tentative quantitative conclusions.

- Control-group studies find that MEP clients have been associated with increases in average productivity of up to about 5 percent.
- Studies show a positive return on investment but “wildly diverging outcomes” ranging from 1:1 or 2:1 on federal investments all the way up to 20:1 or more.
- Studies show that client small and medium-sized firms tend to pursue actions recommended by MEPs.
- The report also noted that the role of MEP center staff in getting firms to complete surveys provides strong incentives “to encourage the most positive view possible of firm results” from MEP assistance.
- Recent expansion of services to include strategic guidance to help companies grow, implement green manufacturing, or launch supply-chain integration or export-led growth have been “subject to only limited evaluation and assessment:

The weakness of the evaluation evidence does NOT mean that economic development programs do not have a positive impact. It does mean that the programs – and state government – would be well served by building improved evaluation into programs in the future.

<sup>20</sup> Leigh McIlvane with Greg LeRoy, *Ending Job Piracy, Building Regional Prosperity*, Good Jobs First, Washington D.C., July 2014, online at <http://www.goodjobsfirst.org/sites/default/files/docs/pdf/endingjobpiracy.pdf>

<sup>21</sup> Subsidy programs count up the number of jobs at companies that receive support but cannot answer how many jobs would have existed without the subsidies or whether other uses of the same money would have generated higher returns. The Ben Franklin and IRC programs evaluate job and payroll growth at companies assisted and compare this with job growth at “similar companies” that did not receive assistance. These evaluations, however, are not controlled experiments and suffer from “sample selection biases” – the firms receiving assistance may be systematically different than the firms not receiving assistance, leading to their more rapid growth even without program support.

<sup>22</sup> Charles W. Wessner, Editor; Committee on 21st Century Manufacturing: *The Role of the Manufacturing Extension Partnership Program of the National Institute of Standards and Technology*; Board on Science, Technology, and Economic Policy; National Research Council, 2013.

## 6. Invest in Innovation

Gov. Wolf during his campaign released a policy plan, *Made in Pennsylvania*, focused on manufacturing. His overall campaign *Fresh Start* plan also highlighted “fostering innovation.” This section of this report presents options for state policy on manufacturing and then on innovation related to startups and the relationship between universities and industry. The document thus offer options for operationalizing the basic commitment of the new Governor to investing in manufacturing and in innovation.

One broad policy question related to manufacturing and to innovation is whether Pennsylvania should establish an overarching entity to oversee innovation policy. For example, Atkinson and Wial have proposed, at the national level, the creation of a National Innovation Foundation.<sup>23</sup> Should Pennsylvania establish a Pennsylvania Innovation Foundation? This document does not take a position on that issue. However innovation policies are packaged and branded, however, it is time for the state to step back from the current economy and the innovation debate and develop an updated and integrated approach to innovation and to manufacturing.

On two earlier occasions in Pennsylvania history, a new Governor engaged with business leaders and other economic stakeholders to consider the challenges of U.S. manufacturing and of innovation. In the first occasion, under Gov. Thornburgh, the diagnosis was that, compared to other countries, the relationship between research Universities and industry was broken in America. Too often, the United States led in basic science but other countries bettered us at translating scientific advance into new products and jobs. That diagnosis led to the creation of the Ben Franklin Technology Partnership, a new vehicle for helping to commercialize more ideas developed in research universities. On the second occasion, Governor Casey in 1987 engaged business leaders around how to boost the Pennsylvania economy. Then the diagnosis was that Pennsylvania’s small and medium sized businesses lacked sufficient technical assistance to adopt high-quality and efficient production processes (such as “lean production” and “total quality management”). That led to the creation of Pennsylvania’s Industrial Resource Centers which, along with a similar initiative in Ohio, became a model for national investment in “Manufacturing Extension Partnerships” or MEPS. (The name “manufacturing extension” was (and is) a deliberate echo of agricultural extension, long respected by farmers and the business community generally as an effective government program for keeping small farmers up-to-date on modern seed varieties, technologies, and agricultural practices.)

Today, a common diagnosis is broader – that the United States does not really have an innovation “system” or “eco-system.”<sup>24</sup> A new administration provides an opportunity to reflect on this diagnosis in Pennsylvania and to develop consensus around systemic solution. The ideas that follow aim to contribute to the development of that solution.

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<sup>23</sup> Robert D. Atkinson and Howard Wial, *Boosting Productivity, Innovation, and Growth Through a National Innovation Foundation*, Brookings Institution, Washington DC, April 22, 2008; online at <http://www.brookings.edu/research/reports/2008/04/federal-role-atkinson-wial>

<sup>24</sup> Suzanne Berger, *Making in America: From Innovation to Market*, Cambridge, MA., MIT Press, August 2013.

## A. Manufacturing Innovation 2.0

In 2004, Pennsylvania unveiled *Manufacturing Innovation*, a state strategy aimed at helping more Pennsylvania manufacturers move out of high-volume commodity markets and into more specialized production with less intense global price and wage competition. Since that time, despite the trauma of the Great Recession, four long-term trends have increased the potential for more rapid future growth of Pennsylvania manufacturing output and stabilization of high-wage manufacturing employment.<sup>25</sup>

- A shift in relative costs versus China, as a result of increases in Chinese wages, the value of the Chinese Yuan against the dollar, and the costs of long-distance shipping.<sup>26</sup> Pennsylvania now has an additional potential cost advantage because of plentiful natural gas and byproducts of natural gas drilling used as inputs in processing industries.
- A reconsideration by some U.S. companies of the trade-offs between local production and offshore sourcing, leading to the “reshoring” movement.
- Climate change, which could promote a long-term shift to local production via regulation, carbon taxes (a further cost shift in favor of U.S. production), and a growing consumer preference for locally made products.
- A shift towards lower volume more decentralized batch manufacturing, and away from mass manufacturing, enabled by the digital tool set – lower-cost computer-controlled equipment symbolized now by “3-D printers.”

Yet Pennsylvania manufacturers will not automatically capitalize on these trends. Doing so requires a state manufacturing strategy and public-private investments in “manufacturing-specific public goods” that will generate a high return for participating businesses, regions, and for Pennsylvania workers.

We highlight here four priorities for public investment in manufacturing.

(1) Overcoming the separation between academic and university researchers, both with low-cost investment in networking university and industry researchers, and with investments in University-Industry partnerships around particular technologies and industry clusters.

(2) Industry economic development partnerships that boost shared investment by self-organized groups of companies in initiatives that make all the companies more productive – initiatives such as improving organizational practices and production processes, supply chain initiatives, and joint marketing.

(3) Supply chain initiatives that address one problem and one opportunity. The problem is the sometimes adversarial nature of supplier-original equipment manufacturer (OEM) relationships in

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<sup>25</sup> Susan Christopherson, *Rising the Small Wave in Manufacturing to a More Diverse Economy and More Good Jobs*, Annie E. Casey Foundation, Big Ideas for Jobs, on line at <http://www.irlle.berkeley.edu/research/jobcreation/ideas.html>

<sup>26</sup> On Chinese wages and shipping costs over time, see <http://tacna.net/mexico-vs-china/>. On the yuan-dollar relationship, see <http://www.xe.com/currencycharts/?from=USD&to=CNY&view=10Y>.

the United States, which can be counterproductive for suppliers, OEMS, and the Pennsylvania economy. The opportunity emerges from the “reshoring” movement and the fact that many OEMs are now more open minded about the potential advantages of Pennsylvania sourcing.

(4) Manufacturing talent development involving much higher levels of cooperation between industry and educators/trainers and much deeper levels of integration of classroom and work-based learning.

Section C below, “Capital for Innovation,” addresses a further issue critical to manufacturing and to startups and innovations across the board. Two other critical components of an overall manufacturing strategy are beyond the scope of this paper: transportation infrastructure and state energy policy, including maximizing the economic payoff to Pennsylvania’s shale gas resources.

*Promoting Industry-University Collaboration for Innovation and Growth.* It is old news that there is a cultural separation between Universities and industry that inhibits interaction that could fuel economic innovation (i.e., this was understood at least as far back as the genesis of the Ben Franklin Technology Partnership). Even after three decades of working on this problem in Pennsylvania – and substantial progress – we can do much better.

\$5 million to support investment in low-cost networking among university and industry researchers. One approach should be to work more directly on the problem of cultural separation. This costs little and it matters: cities that rebounded from the loss of major technology companies (e.g., Kodak and Xerox in Rochester, NY) are characterized by strong network connections between Universities and industry while cities that struggle to reinvent themselves tend to have insular networks (i.e. academic and industry research do not interact). In launching this initiative, the state should seek to match the state \$5 million from both university and business partners, growing the pot to \$15 million. These funds could support initiatives such as the following:

- Development by four-year Pennsylvania universities of plans for promoting networking with Pennsylvania industry among their faculty and graduate students.<sup>27</sup> (Universities that do not receive state funds could be provided with small grants to develop plans.) These plans could include encouraging sabbaticals at local companies, modifying criteria for receiving tenure to include recognition by local companies for promoting innovation, guaranteeing faculty their job back for up to five years if they work with a local company or join a startup, modifying intellectual property rules, and increasing goals for the number of spinoffs created or patents issued.<sup>28</sup> Plans should be shared across institutions, with institutions that have extensive experience engaging with industry (e.g., Carnegie-Mellon University (CMU) and Lehigh University) mentoring other universities.
- Launching a Solving Industry Manufacturing Problems and LEarning Solutions (SIMPLE Solutions) program through which Pennsylvania manufacturers bring technical problems to a university to assemble a team of students and faculty project managers to work on the problem. This program could be managed by the existing PA Infrastructure Technology

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<sup>27</sup> This section seeks to elaborate the “Fostering Innovation,” section of Tom Wolf’s “Made in Pennsylvania” Manufacturing Plan. It also overlaps the “Higher Education and the Jobs of the Future” section on p. 23 of *A Fresh Start for Pennsylvania*.

<sup>28</sup> At Sandia National Laboratory in Albuquerque, New Mexico, researchers were guaranteed their federal civil service jobs back for five years if they left to attempt to commercialize one of their innovations. According to Andrew Schrank, this helped fertilize solar industry startups in New Mexico. See Andrew Schrank, “Green Capitalists in a Purple State,” in Fred Block and Matthew R. Keller, *State of Innovation: The U. S. Government’s Role in Technology Development* (Paradigm Publishers: Boulder and London, 2009), pp. 96-108.

Alliance (PITA-PA) program (<http://www.pitapa.org/>), with that program broadening beyond connections to just Carnegie-Mellon University (CMU) and Lehigh University. Companies with technical challenges could also provide internship and co-op opportunities, and summer jobs.

- Allocating state funds for two-year fellowships for industry researchers to work in universities, or university researchers to work in industry, with preference for proposals also funded by the partnering company and university.
- Establishing regional and statewide “Innovator of the Year” awards for university researchers that contribute the most to economic growth and innovation.
- Organizing an annual “University and Industry Innovators” conference statewide, with papers presented having at least one author from industry and one from a university. Funding could be sought from the federal government, the Sloan foundation, Pennsylvania business (via the Team PA foundation), and Pennsylvania philanthropy. The conference could be replicated regionally in future years.

*Reprogram the Pennsylvania Research and Development and Keystone Innovation Zone Tax Credits Towards Industry-University Innovation Partnerships.* Pennsylvania currently invests \$55 million in the state’s Research and Development Tax credit. It invests another \$25 million in the Keystone Innovation Zone (KIZ) tax credit. There is no convincing evidence that the R&D credit is generous enough to lead companies to conduct more research than they would without the credit. Nor is there evidence that the research conducted translates into manufacturing production and jobs in Pennsylvania. This same \$55 million might deliver a larger payoff if it were used to foster university-industry innovation partnerships in specific high-technology areas in which Pennsylvania industry clusters already have competitive strengths. Combining these resources could bring the total available to \$80 million (although most KIZ credits may be committed to existing businesses for much of the next decade). Matching state resources with university and business support could bring the total to \$165 million. One model for this approach is the Obama Administration’s “Innovation Institutes” including the first one launched in 2011 in which Pennsylvania is a partner (“America Makes,” originally the National Additive Manufacturing Innovation Institute). These Innovation Institutes were inspired by Germany’s Fraunhofer Institutes (<http://www.fraunhofer.de/en.html>). The original KIZ program provides another model, one that provided fewer resources, as little as \$100,000 at some points. Thus one key design issue in creating new Industry-University Partnerships in Pennsylvania is whether the state should fund a few partnerships for up to \$10 or \$15 million or a larger number for a smaller amount of money.

\$5 million for industry economic development partnerships: A standard rationale for state economic development investments refers to “market failures” including spillover benefits (“positive externalities”) not captured by companies that invest in innovation and performance improvement, and which thus lead companies, acting alone, to underinvest in these activities. Schrank and Whitford argue that it is also helpful to recognize explicitly the “network failures” that hold back economic progress.<sup>29</sup>

Network failures are endemic in industry. Pennsylvania has been a leader to addressing these network failures in the workforce development area through its nationally recognized Industry

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<sup>29</sup> Andrew Schrank and Josh Whitford, “The Anatomy of Network Failure,” *Sociological Theory*, 29(3), September 2011, pp. 151-177.



Partnership program. Former House Republican representative from Lancaster Scott Boyd, a manufacturing company owner, noted in a state house hearing in the 2009-10 legislative session that “Industry Partnerships” make sense for economic development as well as for workforce development. Such partnerships could address problems such as spreading advanced production methods, supply chain development, joint marketing and trade missions, and joint purchasing of equipment too expensive for individual small businesses. To address these problems, we recommend that Pennsylvania invest directly in solving the coordination and network failures of self-organized groups of employers. As on the workforce side, the state could provide grants or a tax credit of up to 50% of the cost of these partnerships. The state should assist economic development partnerships in developing their capacities to solve network failures and evaluating the impact of this activity.

Similar again to the workforce arena, a range of entities could organize industry economic partnerships, including Industrial Resource Centers and industry associations. One long-term goal should be to increase the number and influence of industry associations who see their primary mission as adding value for their members – improving performance – rather than lobbying for narrowly self-interested priorities (e.g., for tax cuts) that do not benefit other Pennsylvanians. DCED staff that support industry economic development partnerships could be co-located with Department of Labor and Industry staff in a new interagency Industry Partnership center.

\$2 million for supply chain initiatives. It is well-established that supply chains are a key source of competitive advantage for firms; productive relationships between customer and supplier firms have spillover benefits for workers and communities as well. In contrast, firms acting in isolation from the broader supply chain aren’t able to optimize their supply decisions, leading to efforts to compete based on squeezing supplier margins alone. The result is misallocation of resources and poor communication that hinders innovation, good design, and quality. Thus, Pennsylvania could launch an initiative aimed at building productive and collaborative supply chains, with funds available for OEM-supplier partnerships aimed at pursuing credible joint innovation and performance improvement efforts that would lead to joint gains.

A second supply chain initiative could scale up efforts to identify foreign sourcing by Pennsylvania-based OEMs and find Pennsylvania suppliers that could provide the part locally. Already, the Department of Community and Economic Development has been a partner with the Reshoring Initiative (<http://www.reshorenw.org/>) to begin such matchmaking. A larger scale effort could help more Pennsylvania suppliers ride the reshoring wave and also has the potential to have a high return on investment for the state. A complementary initiative could build on a unique partnership in Pittsburgh, the New App for Making It in America project that includes CMU, the Pennsylvania AFL-CIO, Three Rivers WIB, and Keystone Research Center. This project is seeking to strengthen the “innovation eco-system” that helps spin offs from CMU and other startups in the region to manufacture in Pennsylvania when they reach the production stage. While the core of the project is providing a pipeline of broadly skilled workers (or “makers”) to startups, the project has also sought to help identify contract manufacturers or other companies able to meet startups early stage design and production needs.

\$5 million for manufacturing talent pipeline and sustainable skills training initiatives. Manufacturers across the country express widespread frustration about skill shortages, now and even more for the

future.<sup>30</sup> Pennsylvania is at the forefront of building a manufacturing skills infrastructure for the 21<sup>st</sup> century, with so many different exciting initiatives that it is impossible to summarize them in a short space. The state at one point had 17 manufacturing industry (training) partnerships helping to solve coordination problems in the market for skills and to overcome the historic divide between industry and educators and trainers. The state has thriving apprenticeship programs operated in SW PA and SC PA by the National Tooling and Machining Association (NTMA) and by the Manufacturers Association of South Central PA. A collaboration of workforce boards, community colleges and manufacturers associations partnered to develop a new nationally recognized (and competency based) apprenticeship in a blend of electrical and mechanical maintenance skills called “mechatronics.”<sup>31</sup> The Pittsburgh New App project has developed a second new competency based and nationally recognized apprenticeship program (called a Maker Professional) designed to meet the needs of startups and to train the next generation of “makers.” A new Lehigh Valley “rotational internship,” inspired in part by a trip to Germany, provides high-school students with four six-week placements at area manufacturers (<http://www.themanufacturinginstitute.org/~media/545C03C82A014D5C9CAE44E620499BFD.ashx>). Another German manufacturer, Schott Glass, which has three Pennsylvania locations, launched a new labor-management apprenticeship program in Duryea near Scranton, modelled explicitly on German apprenticeship.

What is needed now is to build on these initiatives. The state should reconstitute the Center for Advanced Manufacturing Careers, which served from 2008-10 as an effective vehicle for manufacturers and the state to collaborate on research and policy development related to manufacturing skills.<sup>32</sup> This body should now provide input on how modest additional funding from DCED, PDL&I, and PDE for manufacturing skills development can generate the highest return. Second, priority should be placed on manufacturing pipeline programs that integrate work and learning, such as internships, summer jobs, pre-apprenticeship (for high-school and out-of-school youth), apprenticeship, and co-op programs. These programs should foster skill development and also be articulated with college credit – so that a successful apprentice can go on to a college engineering or business degree if she chooses. Third, priority should be placed on initiatives with potential to become self-sustaining, through significant industry sharing of costs and also with effective alignment of education resources with the needs of industry.

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<sup>30</sup> Although one recent study of this issue raises questions about how real these shortages are: Paul Osterman and Andrew Weaver, *Why Skills Shortages in Manufacturing Are Overblown*, Economic Policy Institute; online at <http://www.epi.org/publication/claims-skills-shortages-manufacturing-overblown/>

<sup>31</sup> <http://teampa.com/2012/10/pennsylvania-leading-the-way-in-skills-certification/>

<sup>32</sup> See, for example, Stephen Herzenberg and Mark Price, in collaboration with the Center for Workforce Information and Analysis, *Critical Shortages of Precision Machining and Industrial Maintenance Occupations in Pennsylvania's Manufacturing Sector*, CWIA, Pennsylvania Development of Department of Labor and Industry, online at [http://www.paworkforce.state.pa.us/portal/server.pt/community/li\\_advisory\\_council\\_on\\_advanced\\_manufacturing/18909](http://www.paworkforce.state.pa.us/portal/server.pt/community/li_advisory_council_on_advanced_manufacturing/18909).

### Box 2. The York College Industry Responsive Engineering Programs<sup>33</sup>

One example of an industry responsive manufacturing education program is at York College, which serves students from surrounding parts of Pennsylvania, Delaware, Maryland, and southern New Jersey. York has a diverse manufacturing sector with 31,133 manufacturing jobs in 2013, still about 15% of the county workforce. As now Gov. Tom Wolf once said “the great thing about York is that if you want to make something, somebody here can do it.”

In 1994, York College established a new mechanical engineering department to help the regional manufacturing base develop and retain high-quality design and engineering talent. Regional manufacturers found that when they hired from the engineering “meat markets” – such as Georgia Tech and MIT– young engineers would leave after a few years. “Growing our own” engineers at a local college would mean that new hires had local roots and were less likely to leave.

A supportive letter from York International helped generate support from a critical mass of manufacturers and raised \$400,000 to establish two labs. Now 25-30 students enter the program each year. A former Kodak engineer ran the program for more than a decade after its inception and insisted that the curriculum have a strong “hands-on” dimension. Students take two phases of an Engineering Practicum and Design Studio in which they tackle real problems faced by local companies. The program is also one of a handful of 150 in the country that requires three mandatory coops in the students’ second through fourth years. Co-op students are paid, encouraging employers to treat them as real entry-level engineers, and many students end up working at the company at which they co-op. Because placing co-op students is so labor-intensive, the College added an additional person at career services. Local companies’ chief engineers or top production person sit on an active Industry Advisory Committee (IAC) maintaining tight links with regional industry.

The success of York’s ME program spawned a chemistry training program with another IAC and then an electrical engineering program using the same operating principles. The College also holds a course at night taken by production managers who are not mechanical engineers, facilitating better communication and conflict resolution between these two functions in regional companies.

The success of this program spawned local discussion about how the College could use its relations with local companies to foster innovation networks that help the region’s diversified manufacturing base remain ahead of the curve long-term. One way to do this may be through convening more regular seminars for employed engineers and managers, many of them York College graduates. The vision here is of “continuing cross fertilization” between a college and regional industry as opposed to simply transferring technology developed by “smart people” in the university. The need for new collaborative spaces that bring together engineers in industry and higher education is the greater because of the atrophy of well-endowed big company research operations, such as Bell Labs. (Bell Labs was a New Jersey research operation within AT&T before telephone deregulation.) To replace the creativity fostered once in-house, colleges and universities must expand their capacity to fertilize and support innovation in partnership with industry.<sup>34</sup>

<sup>33</sup> This box is based on an interview by the first author with then-York College President George Wald and then-York College Board Chair Tom Wolf.

<sup>34</sup> For a sustained argument that the innovative capacity of the U.S. economy is threatened by the loss of spaces within companies within which engineers insulated from immediate market pressures have the time and resources to develop break-the-mold “interpretive” innovations, see Lester and Piore, *Innovation: the Missing Dimension*.

## B. Make Pennsylvania a “magnet for entrepreneurs”

“This is part of an overall strategy to make Pennsylvania a magnet for entrepreneurs, people who are going to create good jobs here in Pennsylvania.”

-- Tom Wolf, 3<sup>rd</sup> Governors Debate 10/8/2014

The recent MIT book, *Making in America: From Innovation to Market*, lays out a comprehensive case about the limits of America’s “innovation eco-system” for birthing startups and getting more of them to manufacture locally.<sup>35</sup> Pennsylvania is a case in point. The state is uniquely positioned to capture the wave of entrepreneurship flowing across our new innovation economy – but we are not doing it so far. On one measure of entrepreneurial activity (not related to tech startups, per se), the percentage of new business owners to the general population, Pennsylvania is tied for last place (49<sup>th</sup>) with West Virginia. (See Table 1 near the beginning of this report; Pennsylvania ranks in the middle or in the top half on the other four innovation measures shown in that table.)

But there is great promise within the state – clearly in Pittsburgh (Box 3), but also in the Lehigh Valley, Philadelphia, and, with good policies, in other places too. The question is: What can the state do? The general answer is that the state should strengthen the innovation eco-system that helps startups spin out of universities, develop commercial products, access the design and manufacturing know-how to make them in Pennsylvania, access capital, and access and retain great workers. The United States and Pennsylvania do not currently have a holistic innovation eco-system. They lose manufacturing jobs and innovation leadership to China and other competitors as a result. The rest of this section outlines how Pennsylvania can develop a more powerful innovation eco-system.

### **Box 3. Pittsburgh: A Hotbed for New Startup Talent**

*Entrepreneur Magazine* recently ranked Pittsburgh #3 among cities for young Entrepreneurs. *Forbes* called it a “hotbed for young startup talent.” It comes in at #6 in tech job openings. Carnegie Mellon University retains the highest number of startups per federal dollar spent in the nation. At Innovation Works, the Pittsburgh Ben Franklin program and a primary source of support for startups in the region, demand has risen 300% over the last five years. The city had the 11<sup>th</sup> most venture deals completed in 2013, and has almost doubled its in-flow of venture capital in the last year alone. Combined with low rents, great schools, and a consistent ranking as the Most Livable City in the Country, Pittsburgh is poised for a renaissance of high-tech opportunities.

\$5 million to support low-cost networking opportunities that allow university researchers and students to participate in startups. The four-year university plans (the development of which was recommended above) for promoting networking of faculty and graduate students with Pennsylvania industry and should include elements specific to startups. These elements could include proposals to relax university intellectual property rules that hamper efforts to spin-off new companies; and goals for the number of companies formed. Based on these plans, and leveraging matching funds from universities themselves, universities should compete for funds to implement their plans, much of which would likely increase the number of ideas that progress through the Proof of Concept stage. These grants for networking activities could support activities such as:

<sup>35</sup> Berger, *Making in America*.

- Assembling teams of students, guided by faculty, that help startups solve specific technical problems.
- Giving academic credit for students working with startups, subject to appropriate quality controls that ensure students learn through the experience.
- Screening networks of alumni donors to identify experienced entrepreneurs willing to serve as mentors to spin-offs from their alma mater, or willing to serve a pro-bono term as an “entrepreneur in residence.”
- Again drawing on alumni, universities could organize teams of venture capitalists, marketers, researchers, and students to help the university reach better and faster decisions on what to attempt to commercialize. This could help fulfill universities’ technology commercialization mandate, a requirement of recipients of some federal research funds.
- Universities could guarantee tenured faculty their job back for five years during which they work for a small company

#### **Box 4. Startup Basics**

Seventy percent of patents come from Universities, but only one startup results for every 20 university patents. This points again to the cultural and communications gap between universities and business, a gap which hampers university researchers who do want to commercialize products and get them to market. In addition, technology transfer programs tend to be seen as cost centers by universities, who staff them with junior staff and underfund operations.

There are four stages of a start’s early life: Proof of Concept (5-25k) → Seed Funding (25-100K) → Follow-on funding (100k-1 mil) → Series A (1 mil+)

- In Proof of Concept, a researcher or entrepreneur with an idea refines the concept and decides if there is market for it.
- In Seed Funding, the entrepreneur seeks help from family and friends or an incubator (AlphaLab, for example) to develop a business plan, test their model, and make connections.
- In Follow-on Funding, the company begins to have customers and may need to expand, advertise, or pivot to gain market share. They seek angel investment in this stage.
- In Series A funding, the company presents to venture capital firms, and is well on its way to success. By this time, they may have 10-20 employees and have been in operation for two-four years.

## The Four Stages of a Startup



Use existing Ben Franklin funds to replicate the Pittsburgh AlphaLab Gear hardware and robotics seed fund stage startup accelerator (<http://alphalabgear.org/>) in other regions where enough stage 1 startups exist. AlphaLab Gear is an incubator for startups that operates out of Innovation Works, the Pittsburgh Ben Franklin Partner. Participating startups enjoy investment on the range of \$25,000 to \$50,000, mentors, a collaborative workspace, a membership in a local “makerspace” (TechShop) which has tools and its own network of makers and “dream consultants” that can accelerate prototype development and design improvements; and educational assistance. The model could be enhanced with startups receiving consulting “credits” that allow them to access guidance from previously vetted consultants (such as experienced managers, economic developers able to help find space for graduation out of the incubator, marketing and sales professionals, etc.), and with the credits redeemable for tax write-offs by the consultants.

Expand funding available for startups that commit to producing in Pennsylvania. One central issue for entrepreneurs and startups is access to capital, including debt and equity investment (see Box 4). The following options could address the startup financing gap:

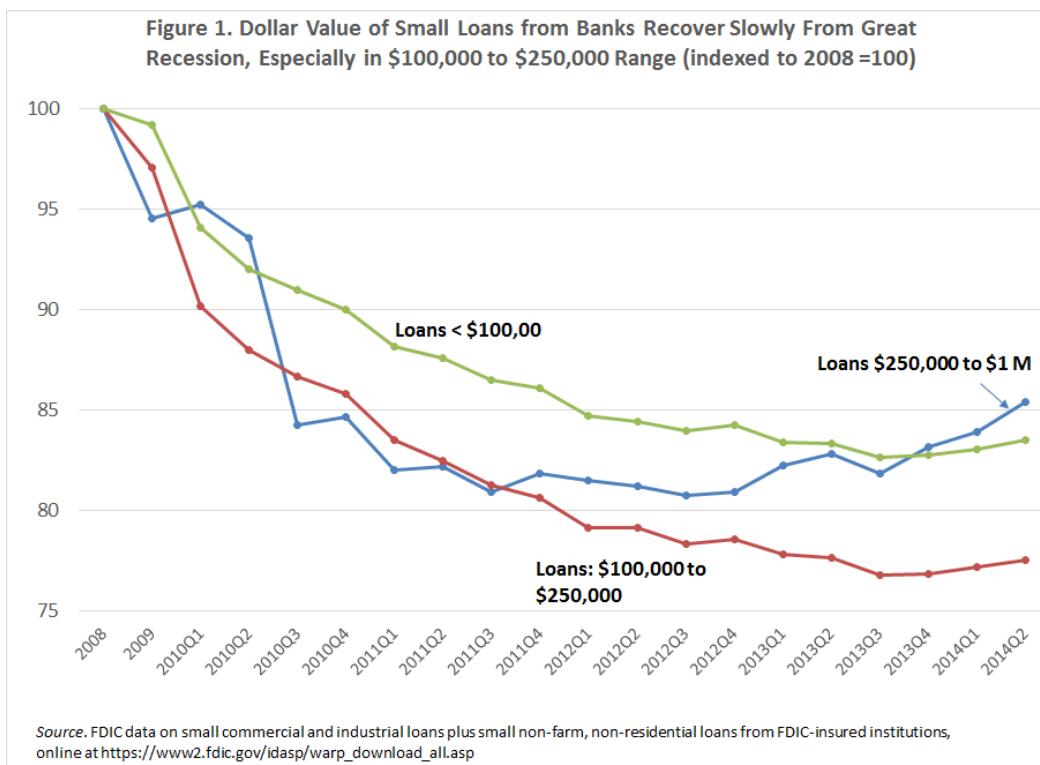
- DCED could form a “Pennsylvania Startup Capital Advisory Council” that includes representation from the full range of potential funders (banks, community development financial institutions (CDFIs), municipalities, state agencies, pension funds, philanthropy, etc.) and from startups themselves. This Council should help develop, implement, and evaluate a Pennsylvania plan to expand capital available to Pennsylvania startups.

#### **Box 5. The Financing Gap for Pennsylvania Startups**

The financial crisis and recession made the financing challenges faced by startups even more difficult. The collapse of the real-estate market sharply curtailed home equity as a source of capital. Family and friendship networks also became less able to lend or invest. Bank lending – never a substantial source of credit for companies in their first two years – also dropped off. A proxy for small-business lending—outstanding small loans (less than \$1 million) to businesses — remained 17% below its 2008 peak in the second quarter of 2014, with banks holding \$590 billion in such loans compared to \$711 billion in 2008 (see Figure 1 below) This is a 25% cut in inflation-adjusted dollars, with a slightly larger cut in the \$100,000 to \$250,000 range. Finance companies also dried up as a source of debt.<sup>36</sup>

As the economy recovers and banks want to lend, entrepreneurs and startups still face a credit gap. Home equity hasn’t recovered and neither in many cases have the savings of individuals, their families and friends. Banks retain their traditional unwillingness to lend to brand-new businesses because they are “too risky.” Pension funds (private as well as public ones) are also “risk averse,” for regulatory reasons and because of their institutional cultures, and reluctant to be “the first ones in.”

<sup>36</sup> Finance companies include companies that finance the purchase of their own equipment, such as Caterpillar Finance, and stand-alone finance companies such as CIT, <http://www.cit.com/index.htm>.



- Building on existing efforts of the federal Small Business Administration (SBA) which fund Pennsylvania’s Small Business Development Centers, deliver “Capital Assistance Education and Counseling for Entrepreneurs” – a program of education, mentoring, and technical assistance to help startups navigate financial institutions. SBA and CDFI experts report that many small businesses and entrepreneurs do not know what lenders look for in a loan application or keep good financial records that enable them to report satisfactorily on the use of funds. Educating and mentoring could help business owners navigate different funding options so that entrepreneurs with great business ideas are not denied funds for the wrong reasons.
- Consider shifting more existing Ben Franklin venture capital dollars to Stage 1 and Stage 2 startups. Some observers felt that Ben Franklin currently behaves too much like a standard venture capitalist (VC). Out of an understandable desire to secure a good return in a period when the partnership’s own revolving fund is an increasingly critical source of support, the BFIPs have reportedly shifted to investing larger amounts in fewer companies (i.e., to later states of startup development). This shift may increase the funding gap at the seed and the low end of follow-on funding stages.
- Systematically assess the new world of technology-based funding options and how state policy can capitalize on the potential of these options and protect against potential financial abuses (of borrowers or of investors) (see Box 6). As part of this, adopt a best-practice state law that capitalizes on the Section 147 exemption from restrictions on crowd sourcing.
- Explore the potential to access a small portion of Pennsylvania public and private pension fund assets for investment in startups. Most of these pension plans’ members benefit from economic development in Pennsylvania. (See below for more discussion of public pension funds).



- Explore a Pennsylvania stock market via replication of the Michigan model ([http://www.nytimes.com/2014/10/25/opinion/a-way-for-local-businesses-to-grow.html?\\_r=0](http://www.nytimes.com/2014/10/25/opinion/a-way-for-local-businesses-to-grow.html?_r=0))
- Explore the potential of Pennsylvania “App Together” bonds that would provide support qualifying Pennsylvania startups. ([http://en.wikipedia.org/wiki/Convertible\\_bond](http://en.wikipedia.org/wiki/Convertible_bond)). Similar to “Liberty Bonds” in World War II, this could provide an opportunity for Pennsylvanians to express their commitment to the commonwealth and should involve at most a small voluntary economic sacrifice. As a way of increasing the aggregate return, the commonwealth could explore making them similar to “convertible bonds.” These are typically issued by companies with a low credit rating and high growth potential. In this case, the commonwealth (or its vendor) would issue the bonds, but the opportunity to convert them to equity in certain circumstances might allow big returns in some cases, offsetting a higher default rate than with typical loans. These bonds might be structured to provide patient follow-on funding that helps fill the \$100,000 to \$250,000 gap, with interest rates slightly above the prime interest rate (1% to 3%) but still below market rate), and with payment required only after three-to-five years.
- Explore with Pennsylvania banks the creation of a startup checking account that accommodates the cash flow unpredictability of startups, e.g., with more flexible overdraft protection, balance requirements, and free cash flow and account management tools, and with access to short-term, low-interest loans to close payroll gaps. These checking accounts might be offered by a bank as part of a package deal through which the same institution also issues PA “App Together” bonds.

#### **Box 6. Technology Based Approaches to Raising Capital for Startups**

New technology-based financing options have emerged in recent years. Instead of lending based on normal bank criteria, companies such as OnDeck (<https://www.ondeck.com>) rely on computer algorithms that use all available online information about the business and the entrepreneur to predict loan repayment odds. Lending Club (<https://www.lendingclub.com>), a “peer-to-peer lender,” matches people who want to borrow (subject to meeting a minimum credit standard) with those who want to lend and receive higher returns than available at a bank. While this matching of lenders and borrowers started with individuals obtaining personal loans, it is now attracting interest from institutional investors and small business, with enormous potential for growth (and some potential also for predatory lending equivalent to payday lending for businesses).

Crowd funding is another option. Kickstarter ([www.kickstarter.com](http://www.kickstarter.com)) allows entrepreneurs or individuals to pitch a company or project online, facilitating pooling of funds from family and friendship networks and enabling entrepreneurs to get donations from strangers that simply think a product or business idea is cool. The federal government stepped in to facilitate crowd funding by passing the Jumpstart Our Business Startups (or JOBS) Act. This act is designed to relax restrictions on direct solicitation of loans by small businesses, including over the internet. The SEC rule-making process required to implement the act is proceeding slowly, however, which has led a growing number of states to enact their own legislation aimed at allowing “local people to invest in local businesses.”

<http://www.crowdfundinsider.com/2014/05/38730-states-sidestepping-jobs-acts-burdensome-crowdfunding-rules/>. The state exemptions from prohibitions on

crowdfunding cannot supersede the actions of the SEC, but capitalize on longstanding federal exemption from registration for intrastate offerings, SEC Rule 147. The intrastate exemption requires businesses to be organized within the state, conduct most of their business in the state, and use most of the funds raised in the state – reasonable criteria if the goal is to promote job creation within a state although potentially a constraint in some cases and once companies grow.

*Crowdfund Insider* reports that: “Kansas and Georgia were the first states to take advantage of the Rule 147 option with their “Invest Kansas Exemption” and “Invest Georgia Exemption,” respectively. Other states with intrastate exemptions from registration, as the result of legislative or regulatory action, include [Alabama](#), [Indiana](#), [Michigan](#), Washington and Wisconsin. In addition, legislative or administrative action for a crowdfunding exemption is pending in [Florida](#), New Jersey, North Carolina and Texas.”

To qualify for the federal exemption, state laws must limit the potential losses by an individual investor: investment limits are as low as \$1,000 and are capped by federal rules at \$100,000 (for non-accredited investors). Most of these state laws limit the total raised to \$1 million or (in Indiana, Michigan, North Carolina and Wisconsin) or to \$2 million if the issuer has audited financial statements.

#### Provide financial supports that help startups attract and retain great employees.

- *Help Startup Owners and Employees Get Mortgages.* According to startups, banks won’t provide mortgages to startup founders or employees without at least two years of tax receipts. As a result, some startup personnel have to choose between starting a family and taking the risk of working at a new business. The state should explore the establishment of a mortgage reinsurance program that would make the Pennsylvania Credit Union or Pennsylvania banks willing to provide mortgages.
- *Stop the Student Loan Repayment Clock and Explore Partial Loan Forgiveness* for high-tech, high-skill grads who choose to stay in Pennsylvania and work for a local startup. Skilled graduates can be paid higher on the west coast, but when low cost of living is combined with loan incentives, staying in Pennsylvania becomes more attractive.
- *Explore options for enabling foreign PhD students extended stay visas after graduation to work with startups.*

### **C. Capital for Innovation**

Invest \$2.55 Billion in double bottom-line investments. Simply put: Pennsylvania can invest better in itself. Pension funds, sent out across the country and the world without regard to the impact on Pennsylvania’s economy, have been used to create single-value transactions: there’s been a focus only on achieving the highest rate of return, so that the state and public education retiree systems can meet their obligations to retirees.

Under long-time Treasurer Philip Angelides, California demonstrated beginning in 2002 the feasibility of “Double Bottom Line” strategies through which pension money is used, in part, for in-state investments in local businesses, brownfield development, struggling communities, green tech, and market research to spur private investment.

California's experience suggest that this double bottom line strategy can be pursued with equal or less risk than the traditional strategies. To achieve a diversified portfolio, pension funds invest in a wide range of asset classes, which vary in their risk and expected return. In every asset class, California found that it could find "double bottom line" investments likely to match the returns of other investment options with no increase in risk. For example, California achieved a 22.2% on real estate partnerships, three times the pension fund assumed rate of return of 7.5%. California also found that the availability of pension fund investments sometimes stimulated public-private interest in community-enhancing projects – i.e., an expansion in the supply of double bottom line projects to match the increased demand.

California, through its Green Wave Initiative, also made direct investments in environmentally friendly companies to help catalyze interest by other investors. These investment yielded impressive returns: an 80% better return on green companies when compared to regular ones, and a 34% better return on green real-estate companies.

Pennsylvania could emulate California by investing 3% of its \$84 billion portfolio in double bottom— line investments -- \$2.55 billion. Following California's example, these funds could be allocated roughly as follows.

- \$1.7 billion in real estate partnerships in underserved areas within the state.
- \$150 million in brownfield redevelopment.
- \$50 million in gap financing for small business and startups.
- \$115 million in loans for small businesses.
- \$35 million in market research to spur private investment.
- \$500 million in green companies.

## 7. Invest In Pennsylvania's Cities And Towns

If Pennsylvania were its own country, it would be the 20<sup>th</sup> biggest economy in the world. In an economy where people, companies and product can move almost anywhere, Pennsylvania must find its place in the global market to attract its share of business & talent from abroad and around the country. The demands of that global market require that we capitalize on the assets Pennsylvania already has. These assets include great places – vibrant older cities, bucolic small towns, and beautiful landscapes.

The decimation of the community development side of DCED gives Pennsylvania an opportunity to take a fresh approach to investing in communities. In designing an approach, we assumed that one root of the decline of Pennsylvania's older communities cannot be addressed statewide in the short term for the simple reason that the political will does not exist: the fragmentation of school districts and municipalities. Such fragmentation contributes to community decline because many older cities, towns, and inner suburbs have lower incomes and less property wealth (and more tax-exempt government and non-profit property) than more affluent outlying areas. As a result, older core communities often end up with higher tax rates but less well-funded schools and services, making it hard to attract or retain businesses and middle- and upper-income families. Short of advocating state-mandated regionalism, we recommend a three-level strategy that would promote positive incremental progress and help generate evidence and will for more far-reaching change.

*Restore Community and Regional Development Funding to \$79 million via a Multi-Purpose Keystone Communities Fund.* Community and regional development programs plunged from \$269 million in funding in 2007-08 to \$74 million in 2010-11 to \$19 million in 2014-15. We recommend restoring funding to \$74 million. We also recommend allowing these funds to be used for demolition, site redevelopment (previously covered by "Business in Our Sites), Main St. and Elm St. programs. Funding requests should be required to meet Keystone Investment Principles and be coordinated via a revival of multi-agency "Community Action Teams" that align resources from multiple agencies behind an overall community redevelopment strategy. The brownfield redevelopment supported by Business in Our Sites was seen as effective (and cost-effective) by practitioners: for-profit companies will not locate on these sites without public assistance and will instead "find a farm" inaccessible to many people who most need jobs.

*Provide Block Grants to Incentivize Bottom-Up Regional Revitalization Strategies.* A more comprehensive approach would move beyond project-specific funding because, by its nature an individual project is not a holistic regional approach. According to one practitioner "subsidizing the company or the building is a loser. Doing it in poor communities is only somewhat better." Under an alternative approach the state could provide incentives for regions to come up with their own systemic approaches. In parts of the state, this approach would capitalize on the fact that people are beginning to move back into cities. Regions that choose this approach and submit a "Regional Comprehensive Development Plan" approved by the state could access formula funded (based on population, income, and unemployment) regional shares of the \$79 million Keystone Communities Fund, Pennsylvania First business subsidies, and tax credit programs to support their regional strategies. State criteria for approving funds and regional strategies should start with the Keystone Investment Principles. They should also provide more generous support to regions that include more far-reaching approaches to community revitalization in their regional plans, including ensuring that no school building has a concentration of poor children far above the regional average,

municipal or school district consolidation, shared service delivery, or regional taxation that compensates core communities which have a disproportionate share of non-profit regional assets (e.g., higher education, hospitals, or museums and culture) valued throughout the region.

*Partner with Philanthropy to Enable Counties or Multi-County Regions with Strong Support to Regionalize.* While many counties are not ready to consolidate school districts or municipalities, or move towards regional taxation, schools, and service delivery, if some counties or regions are they should have that option. Thus, the legislature could develop legislation that permits regional approaches to taxation and service delivery (including of water and waste water services) when it has strong enough support from citizens within municipalities and school districts in the region. Given the commitment of Pennsylvania philanthropy to regional approaches, it should be invited to partner with regional smart growth groups, business leaders, and other stakeholders in efforts to generate the required level of support.

## 8. Promote A Pennsylvania Good Jobs Strategy

One source of enormous but unrecognized potential for Pennsylvania’s economy is the idea of systematically promoting “Good Jobs Strategies.” A large body of research shows that, in virtually every industry, companies vary dramatically in their performance – productivity, quality, service, and rate of innovation. For example, MIT operations management Professor Zeynep Ton recently documented that, even in retail trade, an industry in which many assume that most jobs are inevitably low-wage and low-benefit, four major companies pay far above industry wages and benefits and achieve higher productivity, lower costs, and better service than their competitors – and robust profits.<sup>37</sup> Examples of “good jobs” (or “high road”) companies abound.<sup>38</sup>

- Southwest airlines.
- The nursing homes that founded the national “Pioneer Network” (including the Providence Mt. St. Vincent home in Washington State (<http://washington.providence.org/senior-care/mount-st-vincent/facility-profile/>); “high road” manufacturing companies.
- Magnet hospitals that have the wisdom to empower nurses and make them the lynchpin of cooperation and communication in the hospital.
- High-road manufacturing companies (<http://issues.org/25-2/helper/>);
- Quality child care centers such as the worker-owned Childspace facilities in Philadelphia.

Some observers simply assume that public policy and states cannot increase the share of companies that pursue a good jobs strategy. That is wrong. There are two generic approaches states can deploy: helping companies pursue good jobs strategies and making it harder to compete at the expense of employees and the environment. In other words, as noted earlier, “pave the high road and block the low road.” States can pave the high road by providing companies with a skilled workforce, a world-class infrastructure, and cost-sharing partnerships and networks that help more companies learn from their peers and innovate more rapidly. They can pave the low road by establishing a fair minimum wage, increasing it predictably and with advance notice so that companies have time to reorganize and increase productivity. Many elements of a sensible good jobs strategy are the purview of agencies other than the Department of Community and Economic Development. For DCED itself, we recommend the following.

- A. Partner with industry, philanthropy, academia, and the federal government to create a Pennsylvania Industrial Performance Center.** A first step towards promoting a good jobs strategy is developing a deeper knowledge of industry practices – good, standard, and below standard – in every industry.<sup>39</sup> To achieve this understanding, DCED should establish a Pennsylvania Industrial Performance Center through collaboration with multiple academic institutions in the state, leveraging foundation and federal dollars. Demonstrating how a state

<sup>37</sup> Zeynep Ton, *The Good Jobs Strategy: How the Smartest Companies Invest in Employees to Lower Costs and Boost Profits* (Cambridge, MA: MIT Press, 2013); online at <http://mitsloan.mit.edu/newsroom/2013-zeynep-ton.php>

<sup>38</sup> Other examples can be found in Stephen Herzenberg, John Alic, and Howard Wial, *New Rules for a New Economy: Employment and Opportunity in Post-industrial America* (Ithaca, NY: Cornell ILR Press, 1998).

<sup>39</sup> Pennsylvania’s industry partnership workforce development strategy, which aims to help industries with good jobs to meet their skill and broader workforce needs, took a first stab at developing industry-specific knowledge sufficient to guide state policies and training investments that would promote good jobs strategies. This state strategy engaged the Keystone Research Center and a team of academics in the production of industry specific “Workforce Choices” reports which recognized (albeit not explicitly) the options of taking the high road or the low road. These reports are accessible at <http://www.portal.state.pa.us/portal/server.pt?open=514&objID=575508&mode=2>.

can increase the share of companies pursuing good jobs strategies has enormous potential benefit for other states and the nation and so Pennsylvania should be able to get most of this industry research capacity developed using outside funds. The first research report of the Pennsylvania Industrial Performance Center could be an accessible summary for non-academics of the evidence documenting the variation in business strategy within industries and estimating the payoff to a state from shifting more companies to high road/good jobs strategies.

- B. Seed-fund Sectoral Industry Councils to develop consensus strategies on how the polices of each state agency can be aligned with an overall good jobs strategy.** This should be done initially in manufacturing in partnership with the Pennsylvania Department of Labor and Industry (PDL&I) and in health care in collaboration with and with PDL&I and the Health Care Cost Containment Council. It could be done in other sectors as the required level of industry leadership and co-investment is identified.
- C. Set aside 5% of state technical assistance funds to industry (e.g., for IRCs and Industry Partnerships) to assist companies in predominantly low-wage industries to increase productivity and innovate.**<sup>40</sup> To lift more jobs to a self-sufficiency wage it is critical that more companies in low-wage industries, such as retail and the caring fields, adopt “good jobs strategies” that enable them to pay more. Rather than simply mandating a much higher minimum wage or living wage standard, the state could provide technical assistance, including training and consulting on operations management and production processes, to help businesses achieve performance high enough to be profitable while paying decently. At the outset, the initiative could be launched in a single region in partnership with philanthropy, such as the Pittsburgh region. It could also focus in part (not exclusively) on contractors to state and local government. The project could be coupled with an effort to enact scheduled minimum wage increases over a period of several years, providing an impetus for low-wage businesses to seriously engage with the technical assistance available to them.

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<sup>40</sup> We owe this suggestion to Michael Piore, Emeritus Professor of Economics and of Political Science at MIT.

## 9. All Pennsylvanians Prospering Together

At the outset of a new administration, Pennsylvania needs to renew its historic bipartisan commitment to economic development. The state also has an opportunity to create a national model economic development strategy in which people generally contribute to the joint effort to expand the economic pie. And in which people generally benefit from the growth of that pie.

In a sense, the strategy called for in this document would be part of an effort to scale up an approach in place for several decades at a mid-sized York building materials distribution company. (The company in York is also sometimes referred to as a kitchen cabinet maker.)

That York company invests heavily in technology and its workforce, has wages and benefits far above the industry norm, and also shares 20% to 30% of the profits with its employees.<sup>41</sup> This combination of investment and gain sharing creates a virtuous circle, with all employees of the company having both the tools and the incentives to continually improve service and quality. That company is, of course, the Wolf Company, of which new Pennsylvania Governor Tom Wolf was, until recently, Chief Executive Officer (CEO).

If Pennsylvania can find the will to investment statewide in innovation and technology and its workforce, and to spread new norms in which employees enjoy more of the fruits of their employers' success, it could become the strongest economy in the country.

Let's get started.

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<sup>41</sup> The profit sharing figure come from Tom Wolf for Governor, *Made in Pennsylvania: Tom Wolf's Plan to Create Manufacturing Jobs in Pennsylvania*, p. 2. The information in this paragraph is based on personal communication with the first author.



*Appendix I: Practitioners interviewed in the creation of this report*

- Rob Atkinson, Information Technology and Innovation Foundation
- Carolina Beyers, C-leveled
- Steve Brawley, Ben Franklin Technology Partners
- Susan Christopherson, Cornell University
- Don Cunningham, Lehigh Valley Economic Development Corporation
- Ilana Diamond, AlphaLab Gear
- Harold Epps, PRWT Services, Inc.
- Tracey Evans, Wilkinsburg Community Development Corporation
- Timothy Franklin, New Jersey Innovation Institute
- Christina Gabriel, University Energy Partnership
- Jim Glassman, Chase Bank
- Terri Glueck, InnovationWorks
- John Grady, Philadelphia Industrial Development Corporation
- Mark Heckmann, ImagineCareers
- Bobby Henon, Philadelphia City Council
- Afshan Khan, AlphaLab Gear
- Greg LeRoy, Good Jobs First
- Josh Lucas, The Hardward Store
- Jack Macheck, 10,000 Friends of Pennsylvania
- David Madland, Center for American Progress
- Bryce Maretzki, Pennsylvania Housing Finance Administration
- Tim McNulty, Carnegie-Mellon University
- Eric Menzer, York Revolution
- Jason Miller, National Economic Council - The White House
- Steve Mueller, Lily & Strum
- Ed Paisley, Washington Center for Equitable Growth
- Tom Palisin, Manufacturers Association of South Central Pennsylvania
- Jackie Parker, Harrisburg Department of Community and Economic Development
- James Parrott, Fiscal Policy Institute, NY
- Angelo Perryman, Perryman Building and Construction
- Mike Piore, MIT
- Andrew Schrank, Brown University
- Joshua Shapiro, Montgomery County Commissioner
- Don Smith, Regional Industrial Development Corporation, Pittsburgh
- Rick Stafford, CMU
- Eric Sundquist, State Smart Transportation Initiative
- Lowell Thomas, Philadelphia Housing Development Corporation
- Josh Whitford, Columbia University