

Innovation Capacity: A Framework for Identifying Priorities

April 3, 2018
Presentation to the New Jersey Taskforce

The Language of Innovation: Terminology

- ***Innovation***: the set of activities required to translate an idea or invention into a product or service that creates value for which customers will pay
 - Good ideas translated out of the research space and into the hands of caregivers and the bodies of patients
 - The pace and volume of job creation, capital investment and economic development accelerates as we move *from* research (ideation and invention) *to* application and commercialization (innovation)

The Language of Innovation: Terminology

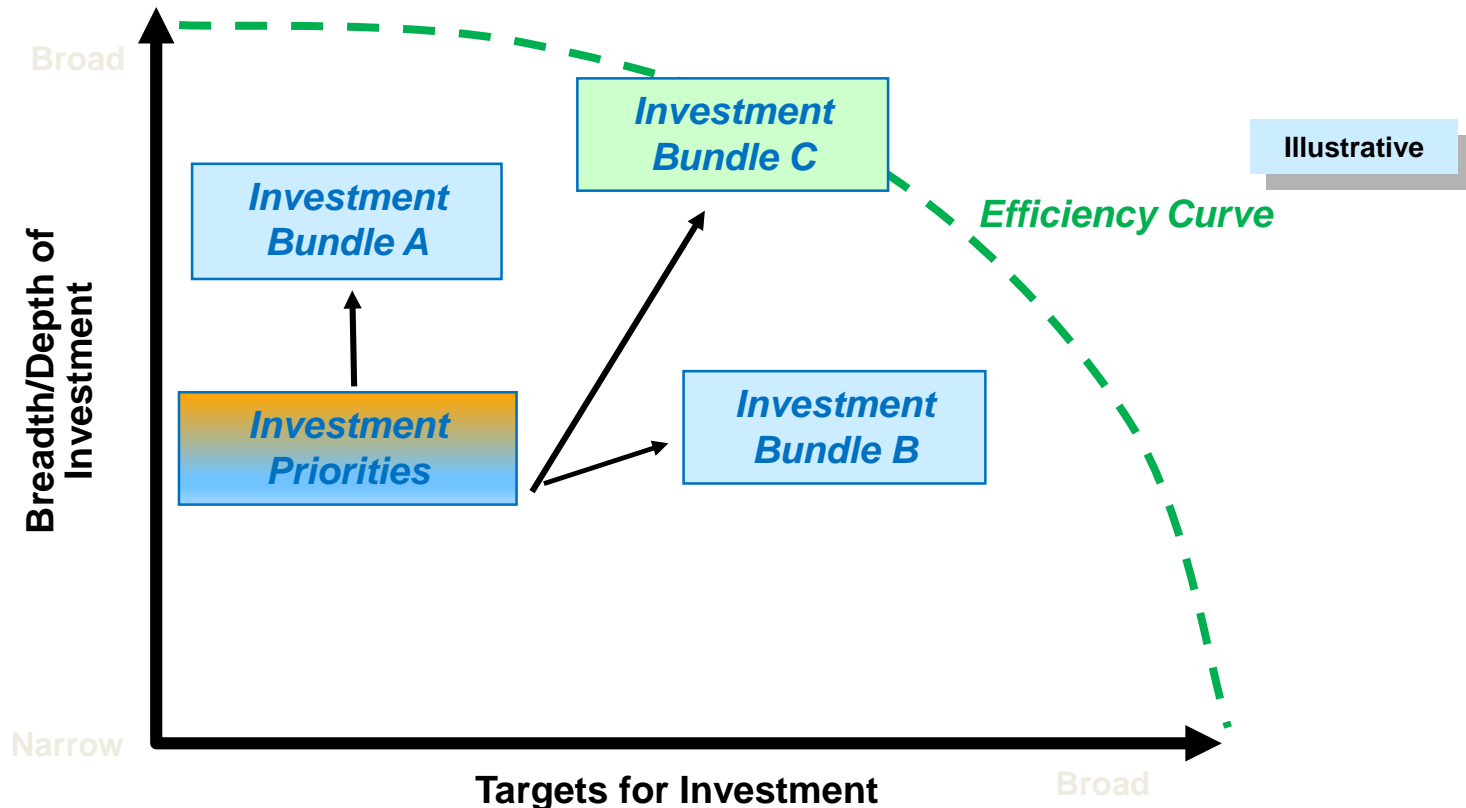
- ***Entrepreneurship***: the process of starting a business that offers (an innovative) product, process or service
 - The willingness to take risks (and fail) to bring new ideas into application.
 - Culture, human capital, investment, connections, support systems and places to grow new business

The Language of Innovation: Terminology

- ***Innovation ecosystem***: a highly coalesced group of organizations, programs, activities and relationships working together to enable innovation
 - All of the necessary ingredients working together to support the production and diffusion of new knowledge, products and services

Why Set Strategic Priorities for Investments?

- Identifies the *optimal “bundle”* of investments that will *enable* the goals of the Initiative **and** deliver economic value
- Determines the *required level of investment in each component* of this “bundle” and the overall budget



Innovation Capacity

What is Innovation Capacity?

“The ability to produce and commercialize a flow of innovative technology, products and services *over the long term.*”

Furman, Porter and Stern (2002)



Create



Develop



Grow



Sustain

Strategic priorities are targeted to close gaps and build strengths across the innovation lifecycle

Why Invest in Building Innovation Capacity?

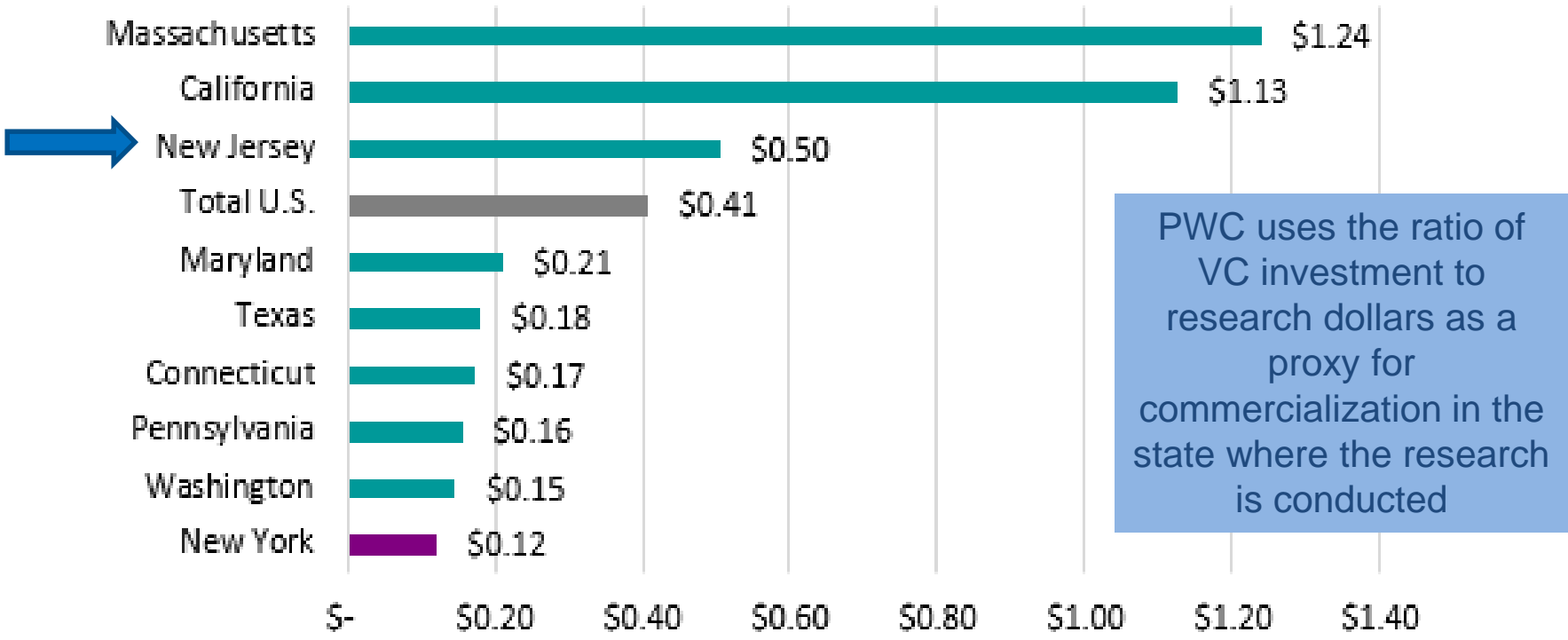
- Promotes the goals of innovation initiatives
- Strengthens the “platform” that supports innovation
 - All stakeholders benefit

“Geographies with high *innovative capacity* usually develop faster economically, attract highly skilled populations, and experience rising incomes and trade.”

(Harvard Business School 2011)

Leveraging NIH Research Investments FY 2016

Ratio of Private (VC) Investments to Public (NIH) Funding, Federal FY 2016



Sources: PwCMoneyTree™; National Institutes of Health (NIH)

What is the Economic Impact?

Example:

In 2014, New York State received over \$2B in NIH research funding (#3), but only \$100M in VC dollars – **\$0.05 of venture money per NIH dollar.**



The Opportunity Cost:

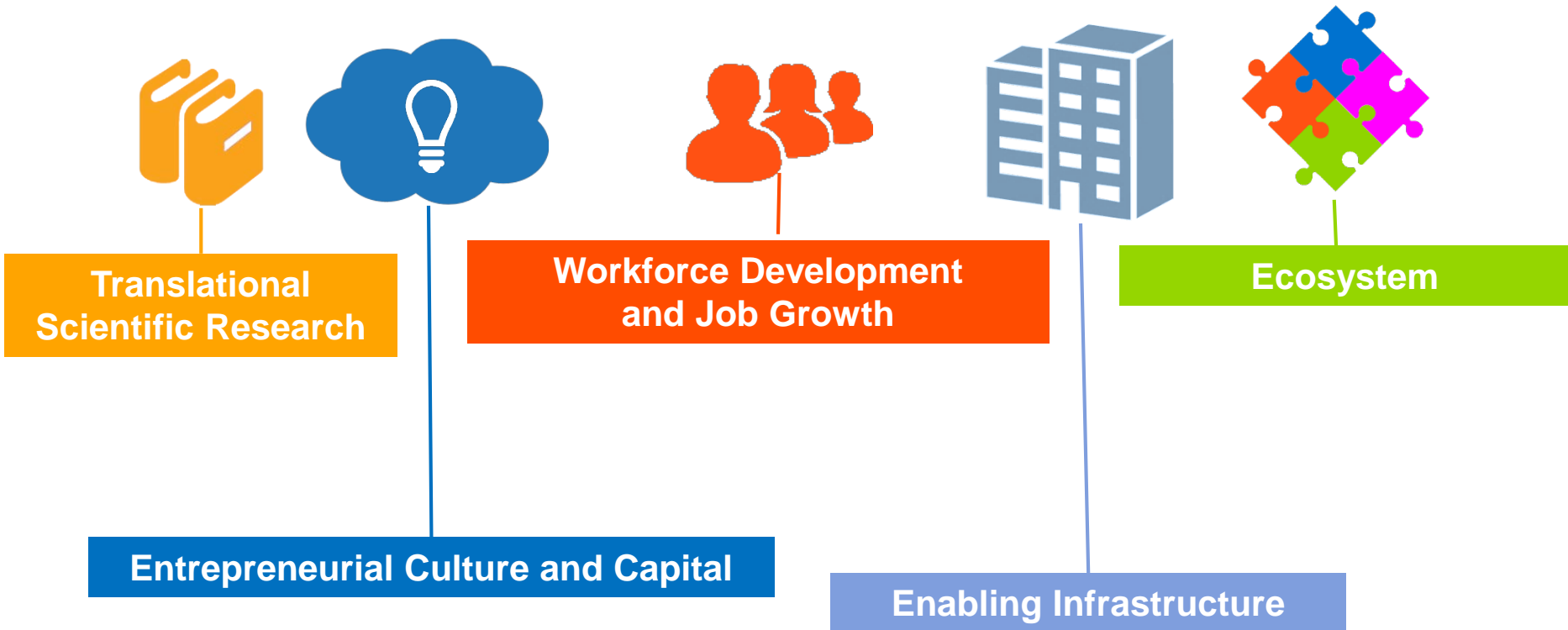
KPMG estimates that if commercial activity in (Downstate) New York was on par with its NIH funding, the region could see an additional

18,000–25,000 jobs and \$2.2–3.1 billion of additional economic growth!

(Commercial Life Sciences Can Be New York's Next Big Industry, 2016)

Investing to Build Innovation Capacity: A Framework for Identifying Strategic Priorities and Investment Targets

Target the **Five Key Enablers** of Innovation Capacity



What is the Rationale for Each Component of the Framework?

- **Translational Research and Academic Investments**
 - Enables Discovery – the starting point for innovation
 - Attracts industry partners and capital for infrastructure
 - Trains the next generation of life sciences workers (entrepreneurs, scientists, care providers)
- **Entrepreneurship – Culture, Capital, Ability to Thrive**
 - Next generation of companies that commercialize academic discoveries
 - Mature companies are heavily reliant on “external innovation” -
- *A rich pipeline of new companies is a magnet for mature companies*
 - Attracts investment capital
 - Attracts talent
 - Creates a “buzz”

What is the Rationale for Each Component of the Framework? (cont'd)

- **Supply, distribution and inclusiveness of workforce**
 - Workforce is a draw for mature companies and entrepreneurs
 - Ensures that there is alignment between company needs and workers' skills – *not just research skills!*
 - Enables (mature) companies to locate “wherever” it makes the best business sense for them (state-wide)
 - Promotes ability of New Jersey workers to compete for life sciences jobs
 - Can create pathways into the life sciences for mid-skilled workers

What is the Rationale for Each Component of the Framework? (cont'd)

- **Infrastructure**

- Cutting edge facilities for research institutions supports discovery and may provide unique resources that can be found only in New Jersey
- Basic infrastructure helps New Jersey compete to attract companies
- Can promote expanded economic regional development
- Business incubators provide places for young companies to grow
- Convening spaces support collaboration and ecosystem
- Web-enabled tools promote collaboration and ecosystem

What is the Rationale for Each Component of the Framework? (cont'd)

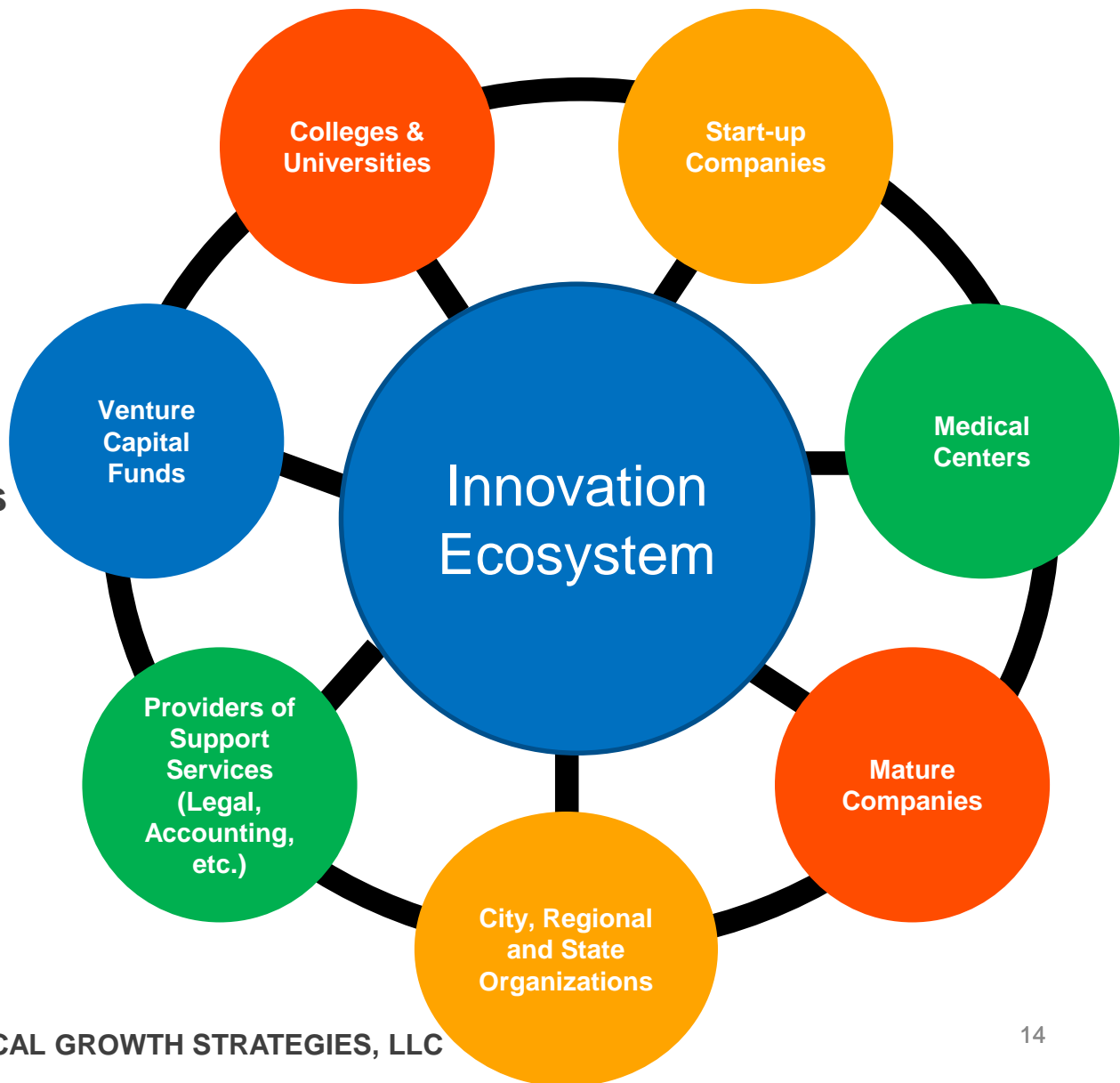
- **Ecosystem**

- Collaboration, new models of partnership and “connecting the dots” accelerates the pace of innovation ($1+1=11$)
- Increases the leverage on investment dollars
- Coalesces the cluster into a *community* – a sense of community is attractive to companies, investors and researchers
- Enables easy entry to the community for newcomers -- access to people, organizations, skills, people
- Attracts mature companies who want “expedited” access; Encourages young companies to remain and grow jobs
- Includes professional service companies and other supporting players
- Active partnerships with state agencies enables the development and implementation of successful economic development strategies

Coalesce the “Cluster” into an “Ecosystem”

A “cluster” is a collection of assets – universities, medical centers, companies, investors, service providers, etc.

In an innovation “ecosystem” all members of the cluster work well individually and together!



Creating an Ecosystem

Target the **Five “A’s”** of Ecosystem Creation and Effectiveness

