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Biomedical \$100M Overview, Part 1

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A light gray silhouette of the state of Ohio is centered on the slide. Overlaid on this map are approximately 15 small, white, semi-transparent circles of varying sizes, scattered across the state's territory to represent various locations or data points.

Ohio's Technology-Based Economic Development Programs



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Mission Statement

Ohio Technology-Based Economic Development Programs

In targeted areas of technology, implement programs to establish regional and statewide clusters of innovation that sustain Ohio's global competitive advantages for products development, company growth and attraction, job creation and wealth creation.



Technology-Based Economic Development Goals

- Increase the quantity of high quality research with commercial relevance in Ohio.
- Expand the access and availability of investment capital to create, grow and attract new companies.
- Grow and nurture an increasingly experienced pool of Technology-based entrepreneurs.
- Support the technical and financial needs of companies as they introduce new products and production processes.
- Contribute to the expansion of a technically competent workforce.

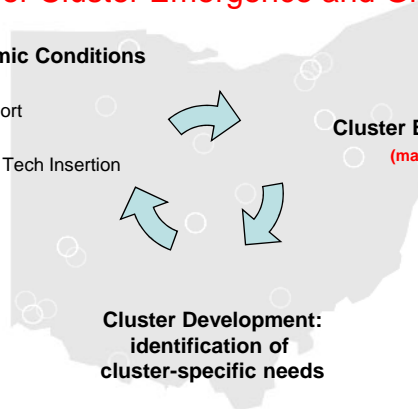


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TBED Programs Create A Virtuous Cycle For Cluster Emergence and Growth

Promotion of Economic Conditions

- Knowledge Creation
- Entrepreneurial Support
- Capital Formation
- Product Innovation & Tech Insertion
- Company Attraction
- Workforce



Cluster Emergence/Growth
(market determined)

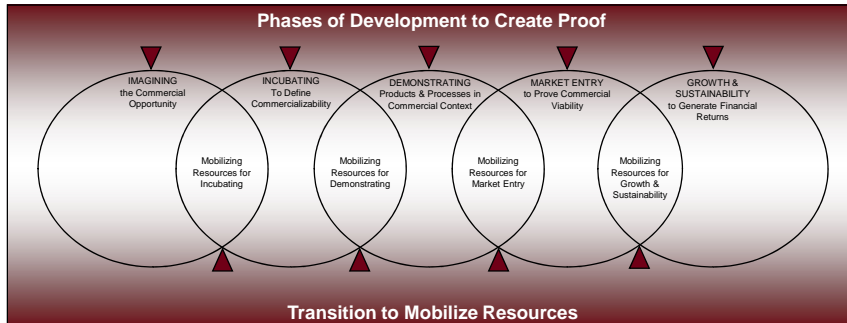
Cluster Development:
identification of
cluster-specific needs



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Guiding Principle of Ohio's TBED Program

Develop, implement and manage programs designed to catalyze economic development through the technology commercialization pipeline.

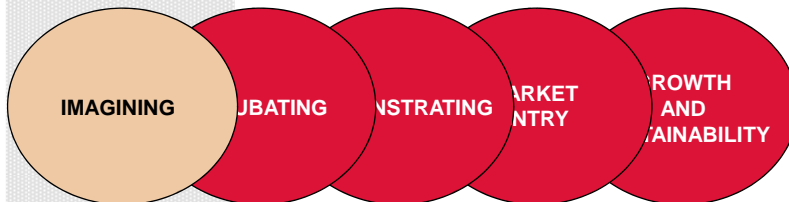




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Ohio Supports Early Imagining of Opportunities

- Ideas
- Basic Knowledge
- Fundamental Principles
- Potential Markets
- Platform Technology



- Ohio Research Scholars
- Wright Mega Centers
- Wright Centers of Innovation

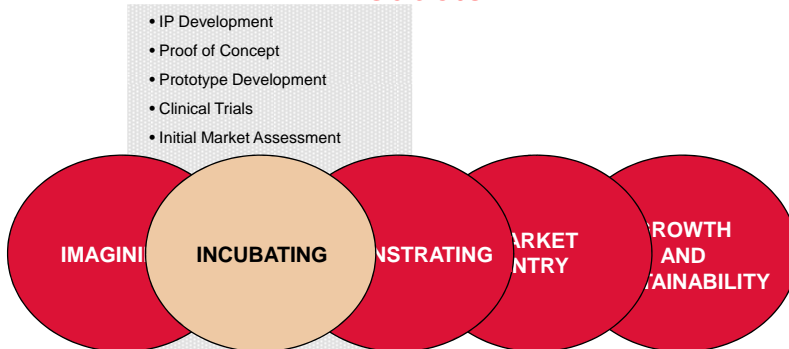
Examples:

- Computational Medicine Center
- Atrial Fibrillation Innovation Center
- Global Cardio-vascular Innovation Center
- Ohio Research Scholars in Medical Imaging



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Ohio Incubates Companies, Technologies and Products



- IP Development
- Proof of Concept
- Prototype Development
- Clinical Trials
- Initial Market Assessment

- Biomedical and Engineering Research Comm. Program
- Wright Projects
- Edison Incubators
- Technology Investment Tax Credit
- Entrepreneurial Signature Program
- Pre-Seed Funds

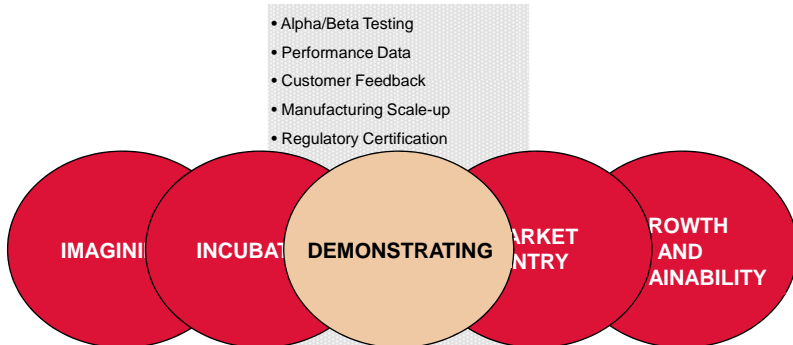
Examples:

- Regional Entrepreneurial Signature Programs
- BioStart and BioEnterprise
- Deep Brain Neurostimulation
- Clinical Tissue Engineering Center
- HTP, Inc.



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Ohio Helps Demonstrate the Potential



- Alpha/Beta Testing
- Performance Data
- Customer Feedback
- Manufacturing Scale-up
- Regulatory Certification

- Fuel Cell Program
- Advanced Energy Program
- Ohio Venture Capital Authority
- Ohio Research Commercialization Grant Program
- **Biomedical JS**

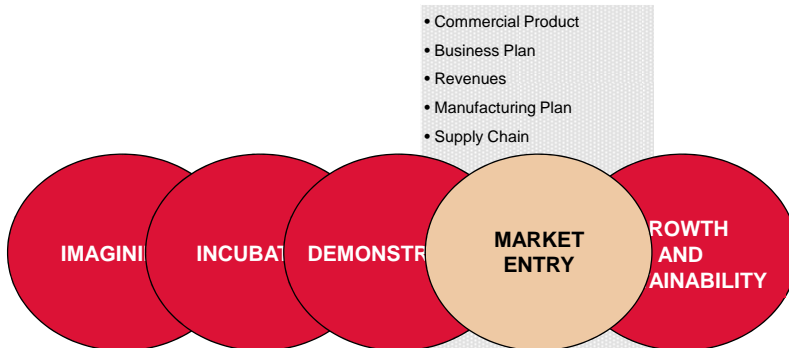
Examples:

- Atricure Linear Ablation
- Biomedical Materials for Pumps
- Ohio Capital Fund



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Ohio Supports Market Entry



- Commercial Product
- Business Plan
- Revenues
- Manufacturing Plan
- Supply Chain

Examples:

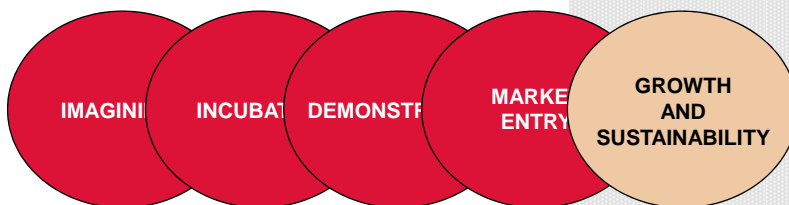
- Ion Channel Panel Screening
- Third Frontier Internship Program
- BioOhio
- JumpStart and Pre-seed Funds

- Edison Centers
- Worker Training
- Internships
- Targeted Industry Attraction
- **Biomedical JS**



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Ohio Finances Growth and Sustainability



- Research & Development
- New Product
- Efficiency

Examples:

- Phototherapy Product Development
- R&D Loans for software development
- Federal Procurement Centers
- Networking Events such as Medical Innovation Summit

- Manufacturing Extension Partnership
- Innovation Ohio Loan Program
- **Biomedical JS**



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Focus Areas

- **Biomedical (\$326 million/ 37% OTF awards)**
 - Advanced/Alternative Energy
 - Instruments-Controls-Electronics
 - Advanced Materials
 - Advanced Propulsion
- Cross-cutting
- Advanced Manufacturing
 - Information Technology
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- A light gray map of the state of Ohio is positioned in the background. Several white circles of varying sizes are overlaid on the map, primarily concentrated in the western and central regions, indicating specific focus areas or locations of interest.



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Bipartisan Jobs Stimulus





Background

- 2007 State of the State: Governor proposed a \$1.7 billion “Building Ohio Jobs” jobs stimulus package
- Established in House Bill 554, the “Bipartisan Jobs Stimulus Program” passed May, 2008
- \$1.57 billion investment program
- Projected to create 57,000 jobs
- Largest infrastructure/jobs program in 30 years
- Funded through primarily existing/anticipated revenue sources, less on new bonds.



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Investments, Timing and Source of Funds

	Total Available	2009	2010	2011
Advanced Energy	\$150 Million	Bond capacity spread over 3 years		
<i>Funded through Coal Development Funds & Facilities Establishment Loan Fund</i>				
Biomedical	\$100 Million	\$40 million	\$40 Million	\$20 Million
Funded through Tobacco Settlement Funds				
Bioproducts	\$50 Million	\$20 Million	\$20 Million	\$10 Million
Funded through Tobacco Settlement Funds				
Logistics/Distribution	\$100 Million	\$50 Million	\$25 Million	\$25 Million
Funded through Facilities Establishment Loan Fund				



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Clean Ohio

- Clean Ohio Fund:
 - Total: \$400 Million
 - Clean Ohio Revitalization Fund for brownfield remediation
 - \$200 Million
 - Green Spaces (Ag Farmland, Natural Resources Trails and Public works, Greenspace)
 - \$200 Million
- Issue 2 on ballot in November, 2008.





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Historic Preservation Tax Credit

- Extends program for two years.
- \$120 Million total
 - \$60 Million per year in FY 2010 and 211.
- \$45 Million reserved in each year for projects “in the queue.”
 - Per project awards capped at \$5 Million.
 - First \$3 Million credit refundable.
- Director to consider economic impact and geographic balance in making awards.



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Workplace Coop / Internship Programs at Colleges and Universities

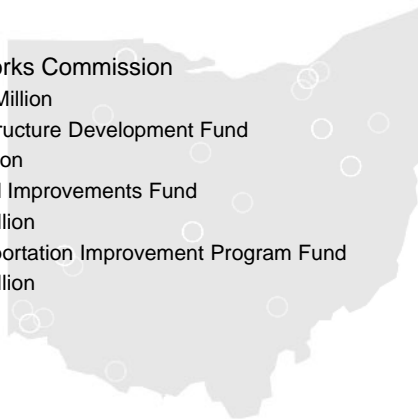
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- A light gray map of the state of Ohio is centered in the background. It features several small white circles with gray outlines scattered across the state, representing various locations or data points.
- To encourage internships and coops at Ohio businesses for Ohio university students
 - Through the University System of Ohio
 - \$250 million over five years
 - FY 2010 through FY 2014
 - \$50 million per year



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Local Infrastructure Improvement

- Ohio Public Works Commission
 - Total: \$400 Million
 - Local Infrastructure Development Fund
 - \$80 Million
 - State Capital Improvements Fund
 - \$120 Million
 - Local Transportation Improvement Program Fund
 - \$200 Million





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Strategic Investments

- Leverage existing strengths and build on existing infrastructure
- Position the state as a leader in key industries
- Make investments that grow industries, and that have value beyond the impact of individual projects that contributes to long-term job creation and the growth and sustainability of the industry cluster
- Develop public/private partnerships
- Support regional economic strengths



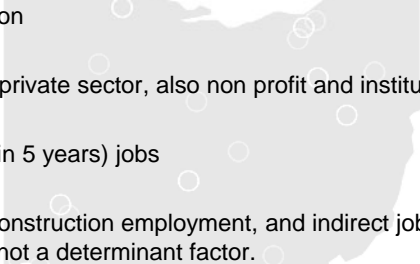
Emerging and Growing Industries

- **Biomedical:** In 2006, the total economic impact of Ohio's Bioscience and Healthcare industry was \$146 Billion, 17.6% of the state's economic output.
- **Bioproducts:** Ohio is a leader in the agricultural, polymer, chemical, and advanced materials industries. By aligning these sectors, the state is poised to be the world leader in a new market – products made from biobased materials.
- **Advanced Energy:** Ohio's Renewable Portfolio Standard provides a unique opportunity to grow the advanced energy industry. Ohio is also a leading state for wind components, fuel cells, solar cells and instrumentation, and biofuels.
- **Logistics and Distribution:** Ohio has a central location reducing transportation costs, with 80 public airports, eight interstate highways, 36 freight railroads & 25 waterfront ports and 10 Foreign Trade Zones



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Create Near Term Jobs for Ohio Citizens

- New jobs creation
 - Primarily in the private sector, also non profit and institutional
 - Near term (within 5 years) jobs
 - Job retention, construction employment, and indirect jobs will be a factor in evaluation, but not a determinant factor.
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- A light gray map of the state of Ohio is centered on the slide. Overlaid on the map are several small, white, semi-transparent circles of varying sizes, representing job creation locations or markers across the state.



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Invest Taxpayers Dollars Wisely

- Support investment throughout the state
- Assure minority inclusion in contracting
- Make informed investment decisions and disburse funding quickly
- Support projects that can be quickly initiated and completed and have a near-term impact
- Measure performance and outcomes
- Operate with efficiency, transparency, and accountability



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Key Questions

- How to measure performance and success?
- What are key strategic needs in each industry area and in each region?
- How to develop effective partnerships that leverage limited resources?
- What projects are underway that could be supported?
- How the program can operate efficiently, quickly and with accountability to the taxpayers?



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A light gray silhouette of the state of Ohio is centered on the slide. Overlaid on this map are approximately 12 small, white, semi-transparent circles of varying sizes, representing various research or institutional locations across the state. The text "Biomedical JS Program" is superimposed in red over the center of the map.

Biomedical JS Program



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Biomedical JS

Funding:

- Source - Tobacco Settlement Fund
- \$100M
 - \$40M in FY 09; \$40M in FY 10; and \$20M in FY 11
- Funding tied up in Tobacco Settlement litigation; time to resolution uncertain



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Biomedical JS Governance

- **7 member Third Frontier Biomedical Advisory Board created by statute**
 - Appointments to Advisory Board by Governor, Speaker, Senate President, Director of Development
 - Role in defining strategy, programs, budget, and metrics
- **9 member Third Frontier Commission created by Third Frontier statute**
 - Approval authority for Biomedical JS strategy, programs, budget and award of funds
- Shared roll of Advisory Board and Commission in monitoring progress and performance
- Development staff presents recommendations to Third Frontier Commission for approval
- Project funding disbursed and monitored by Development



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Biomedical JS Advisory Board Appointees

- Mark Barbash, Chief Economic Development Officer, Ohio Department of Development
- Tony Dennis, PhD, President, BioOhio (Chairman)
- William Hicks, MD. Professor of Clinical Medicine, OSUMC
- David Kay, MD, Crystal Clinic
- Kenneth Preston, JD, Assoc. VP for Research and Director Technology Center, UA
- Baiju Shah, President and CEO, BioEnterprise
- David Scholl, PhD, President and CEO, Diagnostic HYBRIDS, Inc.*

* In process



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Biomedical Program Development

- Staff develops program structure and criteria with input from stakeholders
- Staff recommends program structure/criteria to the Third Frontier Biomedical Advisory Board
- Third Frontier Biomedical Advisory Board recommends program structure/criteria to Third Frontier Commission
- Third Frontier Commission consideration of program structure/criteria



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Biomedical Questions

1. How can we accelerate the success of the targeted industry cluster and promote job growth?
2. What are the key obstacles and competitive threats to success?
3. How can we identify investment opportunities that are complementary to strategies in your region that are directed at advancing one or more of the targeted industries?
4. What do you think are some of our key leverage points, statewide or regionally in each of the targeted industries?
5. In addition to job creation are there other important measures of success?



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Biomedical Questions

6. What are your suggestions for making the program timely, efficient and responsive in its operation?
7. How should the program prioritize investment decisions among the wide range of different areas of products, processes and services
8. How can the state most effectively leverage its investment through project selection?
9. Should the state require a set match for funding, or should this amount vary by project based on public benefits and leverage potential
10. What level of risk should we take? What's the balance between "established corporate" and "innovative entrepreneur?"
11. Are there specific investments that should be made that will benefit the biomedical industry as a whole, beyond a specific field of activity?



Growth Trends in Biomedical Industry

- Device Manufacturers (Large)
 - Device companies continue to pursue the more traditional, vertically integrated business model with growth primarily through internal new product R&D and the occasional acquisition and continue to look for cost reduction and rapid-entry technology strategies (better, cheaper suppliers, etc.).
- Drug Companies (Large)
 - Evolving very rapidly with the large, traditional pharma companies (like Pfizer) pursuing primarily L&A (licensing and acquisition) and partnering strategies resulting in outsourcing a significant number of their processes, with the exception of marketing, distribution and sales - becoming much less vertically integrated.



Assumptions

- Consumption of new biomedical products and services will continue to grow rapidly for the foreseeable future
- For emerging companies, the greatest number of jobs are created most rapidly near the market entry point and beyond
- Companies will be most attracted to Ohio because of business fit with existing clusters and/or existing relationships – leveraging relationships at all levels is critical



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Growth Trends in Biomedical Industry

- The up-and-coming biotech companies (like Amylin) are either developing the more integrated, traditional structure of old pharma (Genentech), or are engaging in strategic partnerships (Amylin – Lilly). The big biotechs (Amgen, Genentech) also are outsourcing some of their primary functions especially pre-clinical and clinical studies and some manufacturing.



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Growth Trends in Biomedical Industry

- Small companies in both subsectors used to target an IPO (initial public offering) as their ultimate growth strategy but with the IPO market window closed, most aspire to partner with and then be acquired by a big company.
- Specialty industry areas like diagnostics, CRO's & CMO's (contract research organizations and contract manufacturing organizations, respectively) are growing organically and through merger at a staggering pace as big pharma outsources to them and as personalized medicine becomes a reality, demanding growth in medical diagnostics and imaging.



High Level Ohio Growth Strategies: Guidance for Biomedical JS Investments

- Attract Big Pharma by showcasing compatible technologies, start-ups and CRO's/CMO's that are in Ohio
- Attract Big Device Manufacturers by showcasing supplier networks, compatible start-ups, and clinical services
- Attract emerging companies that match with our existing Big Co base (P&G, Cardinal, Ethicon, etc.)
- Attract emerging companies that accelerate the growth of relevant clusters
- Accelerate the growth of in-state CRO's and CMO's (Ben Venue, Ricerca, Charles River, Kendle, etc.) to better serve the global industry and think about adding new expertise to the mix (for example, single-use biologics manufacturing)



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High Level Ohio Growth Strategies: Guidance for Biomedical JS Investments

- Attract CRO's and CMO's
- Encourage Big Co's to relocate divisions to Ohio based on compatible emerging clusters (example – Philips and medical imaging)
- Accelerate emerging and Big Co growth through improving speed to market for products late in the pipeline through added CRO/CMO services
- Attract foreign emerging and Big Co players who want to enter the US market



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