Attachment #1

Activating the University System of Ohio to Improve Underrepresented Ohioans' Performance in the Innovation Economy

Inclusive Competitiveness Subcommittee Meeting
Miami University

March 12, 2014
9:00 AM to 3:00 PM
Marcum Hotel and Conference Center
Room 110, Oxford, Ohio 45056

Johnathan M. Holifield, Esq.
Vice President Inclusive Competitiveness, NorTech
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NorTech

The Innovation Economy is the period in the late 20th and early 21st centuries marked by radical socioeconomic changes brought about by the simultaneous convergence of:

NorTech

Further Globalized

COMMERCE

Democratized

INFORMATION

Exponential

ENTREPRENERSHIP GROWTH

Accelerated Creation of

NEW KNOWLEGE

Inclusive Competitiveness

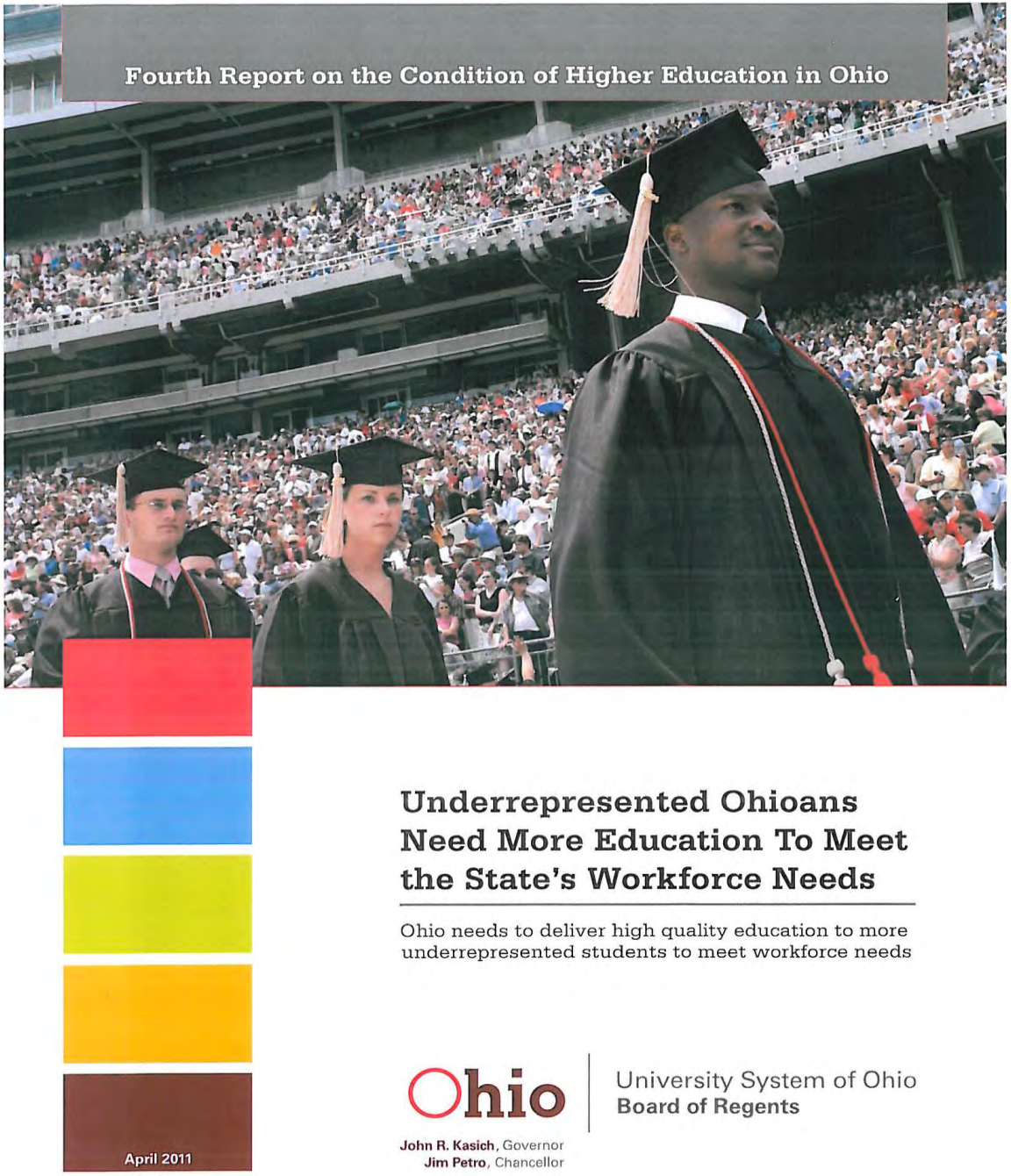
Policies, strategies, practices and metrics to improve the ***characteristic*** performance of underrepresented communities within innovation ecosystems and clusters, emerging industry sectors and other areas critical to overall economic competitiveness.

Innovation Economy Squeeze: New and Unrelenting Pressures

Increasingly Flat World

Increasing Tech Adoption

OBOR Great First Step



However, threshold question . . .

From where will new jobs come, if more Ohioans are not creating them?

"TAPIM" Algorithm

- New **THOUGHT**
- New **Advocacy**

→ Produce new economic narratives

- New **Policy** → Enables
- New **Investment** → Ignites
- New **Market** → Impact

New Market Responses = **IMPACT**

Policy role in the "TAPIM" Algorithm

- Policy and the "policymaking class" refer to a much larger set of organizations and interests than purely governmental actors:
  - ✓ Intermediary organizations and the academic/education, research, corporate and philanthropic communities and, importantly, families who inform the perspectives held by communities themselves.
- The narrower definition of Policy – which is limited to public sector activity – remains important, as federal, state and local policy can create leadership and investment mechanisms that influence practices.
- Yet there are enough instances in which the practices of influential actors elude traditional public policy channels that it is important to consider a broader view.
- The force of Policy – influential actors' expression of important public objectives – is required to enable the repurposing of existing and formation of new **I**nvestment.
- **Upshot**: Demonstrable **I**nvestment and sustained **M**arket action and impact ***never*** precede the expression of Policy.

OBOR leadership can catalyze new Policy and action to improve underrepresented Ohioans' performance in the Innovation Economy

"TAPIM" Algorithm Creates & Sustains Regional & State Innovation Ecosystems

Northeast Ohio Example

Policy Breakthrough!

Fund for Our Economic Future

Ohio Third Frontier
Innovation Creating Opportunity

Produced Innovation Ecosystem

MAGNET
Manufacturing Advocacy & Growth Network

BioEnterprise

jumpstart

NorTech

Ohio Third Frontier Program

Ohio | Third Frontier
Innovation Creating Opportunity

- **Extraordinary example of Ohio Innovation Economy leadership**.
- Ohio Third Frontier, an internationally recognized technology-based economic development initiative that is successfully changing the trajectory of Ohio's economy.
- The $2.3 billion initiative supports existing industries that are transforming themselves with new, globally competitive products and fostering the formation and attraction of new companies in emerging industry sectors.
- Ohio Third Frontier provides funding to Ohio technology-based companies, universities, nonprofit research institutions, and other organizations to create new technology-based products, companies, industries, and jobs.

Ohio Third Frontier Program
Minority & Rural Outreach Policy

Ohio | Third Frontier
Innovation Creating Opportunity

184.171 Minorities to be included in outreach activities and projects.

The third frontier commission shall conduct outreach activities described in section 184.172 of the Revised Code that seek to include minorities in the various projects and initiatives sponsored, funded, encouraged, or otherwise promoted by the commission.

184.18 Outreach activities to rural areas.

(B) The third frontier commission shall conduct outreach activities that seek to include rural areas in the various projects and initiatives sponsored, funded, encouraged, or otherwise promoted by the commission.

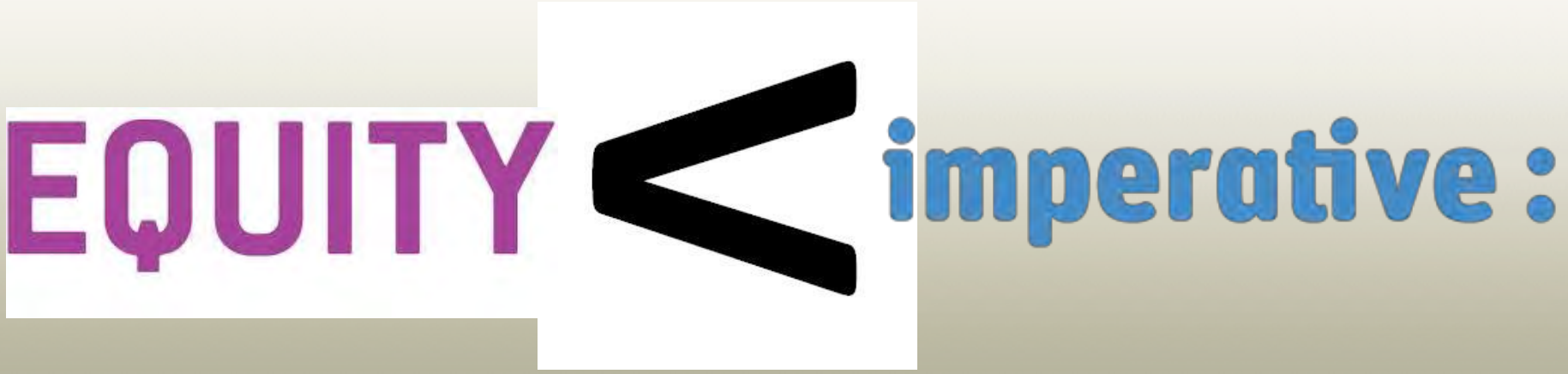
We will affirm . . .

More than a matter of equity,

Inclusive Competitiveness

is an Ohio economic

policy and action imperative.



We will learn . . .

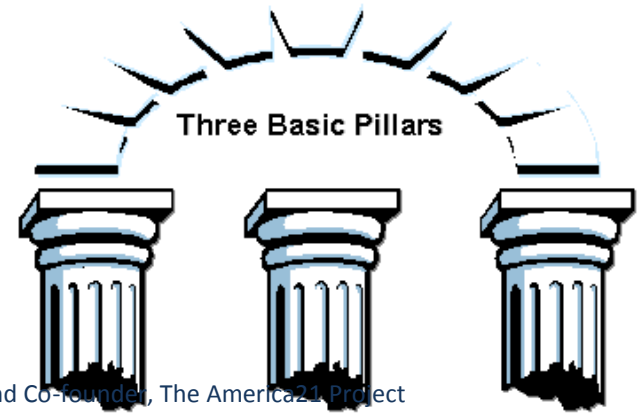
Following the "TAPIM" Algorithm, we will learn how Ohio Third Frontier rural and minority outreach policy has led to:

- **New Investment in myriad dimensions of underrepresented Ohio talent and companies**
- **New Market responses from underrepresented Ohioans to connect to OTF**

Upshot: How to improve the *performance* of women, minorities and rural Ohioans in our Innovation Economy

Three Pillars of Ohio's Innovation Economy

1. STEM (and STEAM/including arts) education
2. Higher-growth entrepreneurship (*fueled by new products/services from research, commercialization, tech transfer and all manner of innovation*)
3. Capital formation and investment



U.S Innovation Economy

Metro Areas Rural Areas

Metro Areas		Rural Areas
75% of GDP	↑	25%
78% of patents	↑	22%
81% of R&D employment	↑	19%
85% of new firm starts	↑	15%
96% of venture capital	↑	4%
69% of high growth firms	↑	31%
68% of jobs	↑	32%
65% of population	↑	35%

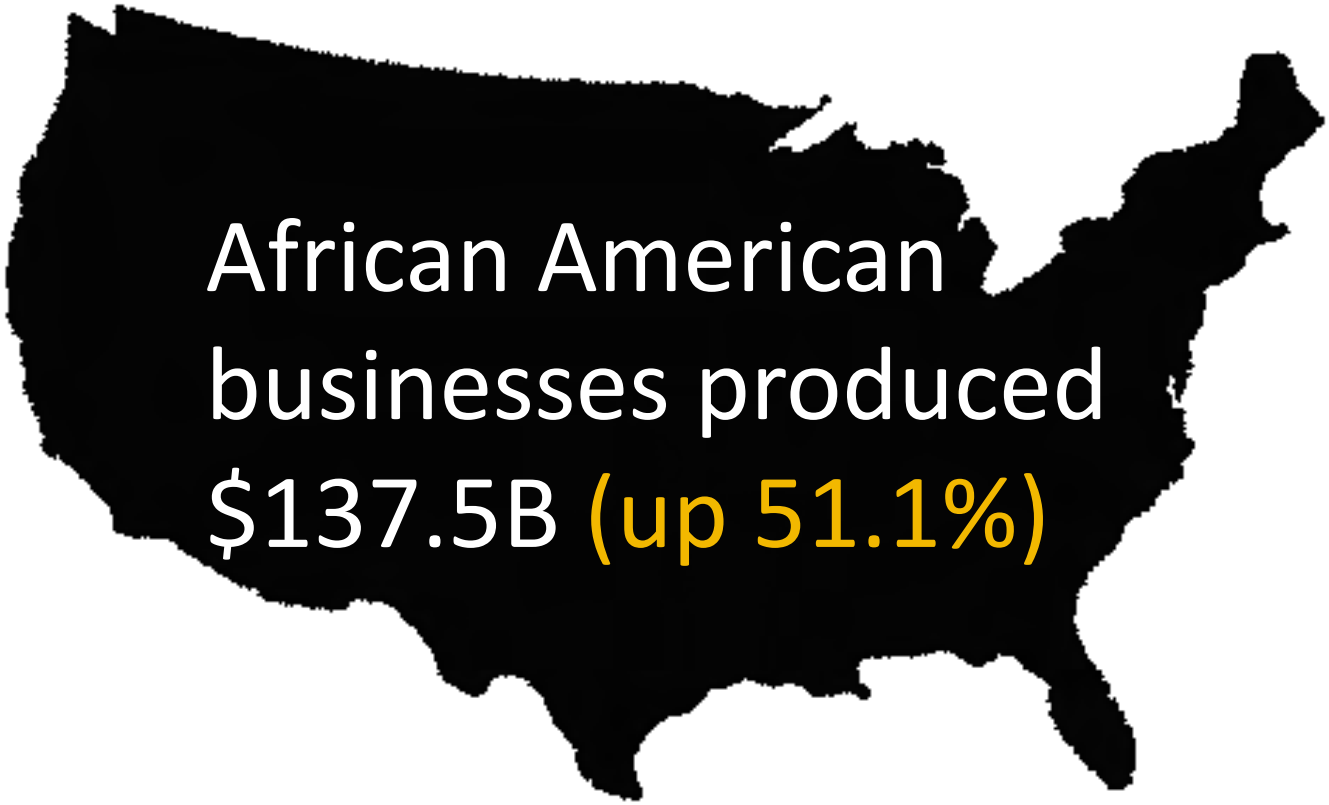
Source: Brookings Institution, 2010

Women LESS than **10%** GDP

Women: 51% of population
Produce LESS than 10% of U.S. GDP
Employ LESS than 6% of workforce

Source: American Express OPEN 2013 State of Women-Owned Businesses Report

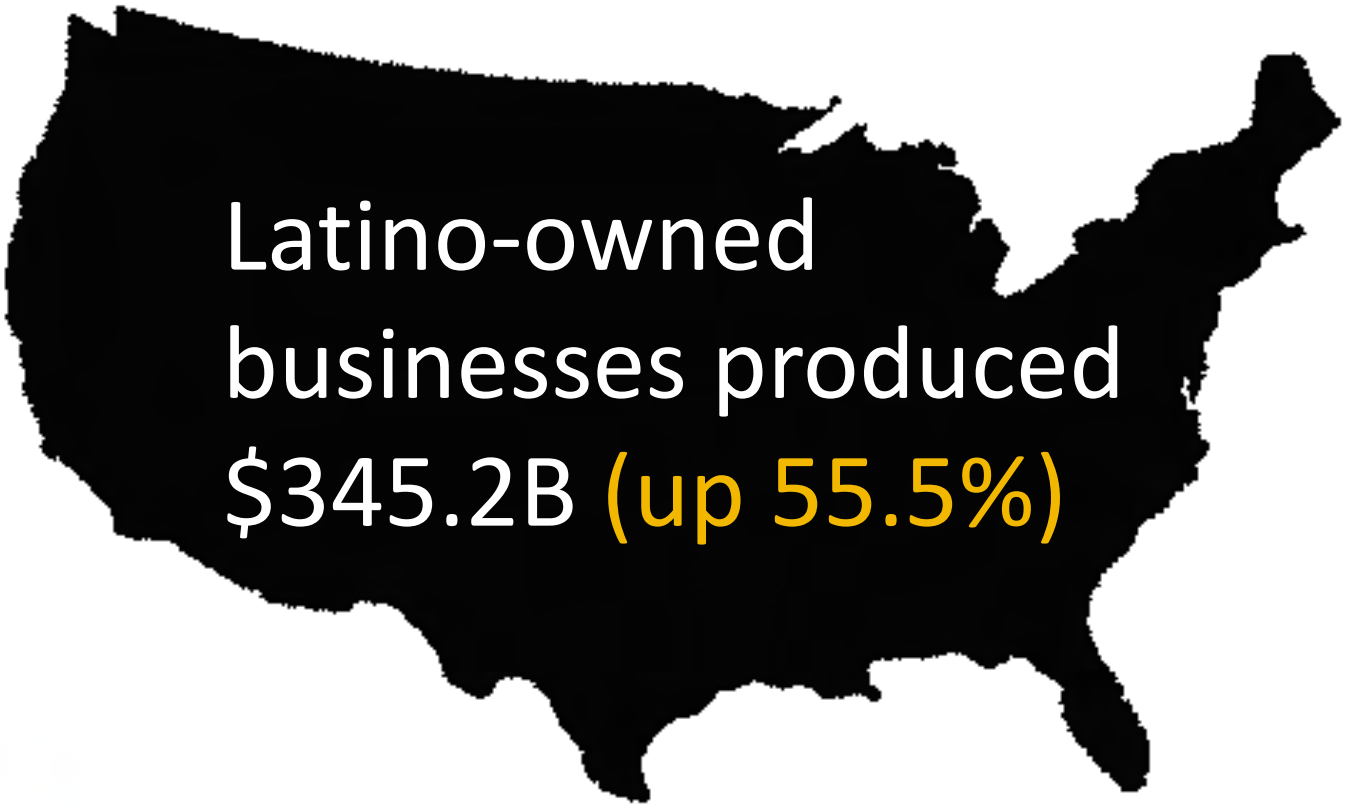
African Americans LESS than 1% GDP



African Americans: 13% of population
Produce LESS than 1% of U.S. GDP
Employ LESS than 0.5% of adults

Source: Census Bureau (data: 2002-07)

Latinos LESS than **2.5%** GDP



Latino Americans: 16% of population
Produce LESS than 2.5% of U.S. GDP
Employ LESS than 2% of adults

Source: Census Bureau (data: 2002-07)

Law of Inclusive Competitiveness

No state can sustainably increase economic competitiveness without educating enough people to create and take advantage of that increased economic competitiveness.

If our state's economic competitiveness goals do not focus on inclusion of underrepresented communities, we simply will not – *indeed cannot* – educate enough people to build a sustainable, resilient, state economy.

Five Irrefutable Facts

1. The problem *IS NOT* lack of entrepreneurial spirit.
2. The problem *IS* the absence of job and wealth-creating businesses.
3. Job and wealth creating high-growth businesses *ARE GENETICALLY DIFFERENT* from good, lifestyle businesses.
4. Higher-growth businesses are generally girded by *STEM (and STEAM) DISCIPLINES*.
5. High-growth businesses are substantially funded with *PRIVATE CAPITAL*.

One BIG Reality

A NEW economic narrative is needed for underrepresented Ohioan – women, rural populations, African Americans and Latinos

What is "narrative?"

"Narrative" refers to the dominant leadership and advocacy focused on underrepresented Ohio communities, which inform the kinds of business, economic and education support services and opportunities that are available.

Leadership, advocacy and services focused on and connected to the Innovation Economy – regional *tech-based economic development* – are at best, nascent.

At worst, they are *nonexistent*.

Innovation Economy Narrative

We define the *Innovation Economy* as the period in the late 20th and early 21st centuries marked by radical socioeconomic changes brought about by the extraordinary convergence of:

- further globalized commerce,
- democratized information,
- exponential entrepreneurship growth, and
- accelerated new knowledge creation.

Again, we *need a new economic narrative* focused on the Innovation Economy – STEM education, private capital formation and investment, and high-growth entrepreneurship.

Ohio's Innovation Economy Assets

Assets are *invisible* to those disconnected from them

Examples of Invisible Innovation Economy Opportunities

For Example: African Americans and Latinos comprise about 20% of the Northeast Ohio population, yet account for:

- **Only about *2% of businesses* in tech-based, growth industries***
- **Little more than *1% of sales and receipts* for all high-tech firms***
- **Less than *10% of employees* in tech-based, growth industries***
- **Less than *2% of gross regional product (GRP)****
- **Less than *0.5% of venture capital raised* *in 2012*****

($620K vs. $201M)

*Source: Fusion of Inclusion Report 2012
**Source: The Plain Dealer, January 25, 2013

More than a matter of equity, it's a *Ohio economic competitiveness imperative.*

Closing Take-Aways

"Three S"

Sober assessment

Serious policy framework

Sustained investment, action and impact

There is no magic!

We are behind!

Time to activate our state , now!

Attachment #2

Choose Ohio First

Inclusive Competitiveness: First Generation and Minority Students

Ohio | Board of Regents

University System of Ohio

Choose Ohio First

Choose Ohio First

What is Choose Ohio First?

- A premier model of recruiting and retaining students in STEMM and STEM education;
- A program to support increased participation in STEM disciplines;
- Choose Ohio First offers strong opportunities for students to benefit from early connections to business and industry – including awareness and readiness activities, co-ops, internships, and collaborations with businesses solving real-world problems.

Ohio Board of Regents
University System of Ohio




Inclusive Competitiveness: Why is it important?

- Workforce Development
- Economic Development
  - Projected economic impact
- Career Exploration and Awareness for Students
- Effective use of resources (public and private)
  - Matching funds generated
- Engaged and motivated students in the community

Ohio | Board of Regents
University System of Ohio




Choose Ohio First

Assessing Impact

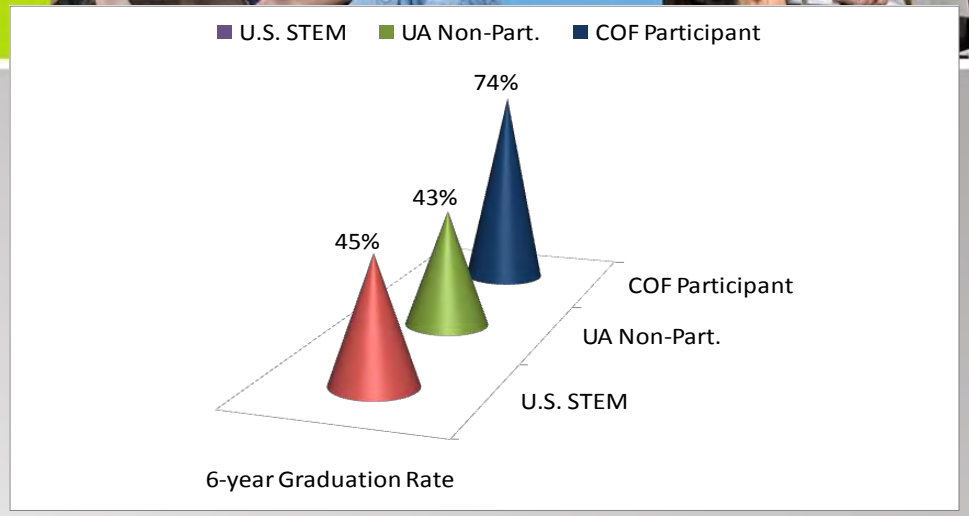
- **Enrollment (Recruitment)**
- **Persistence**
- **Graduation/Completion**
- **Degree program participation**

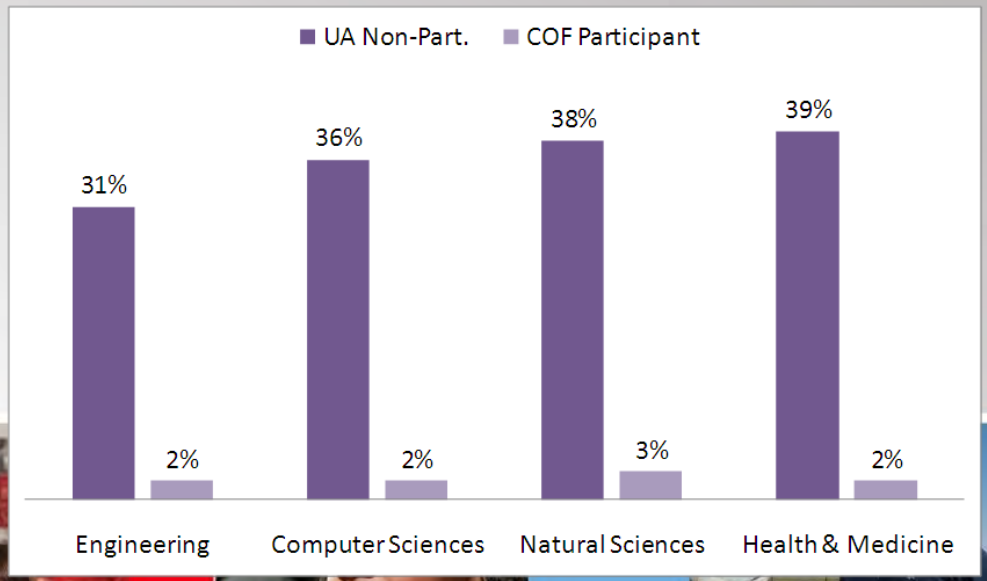
Ohio Board of Regents
University System of Ohio



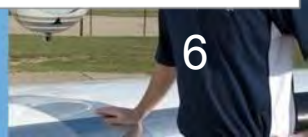

Exemplary Programs: University of Akron

- Graduation rate is more than 30 points higher than UA non-participants
- Attrition is 2-3% for COF students; more than 30% for UA non-participants in key STEM majors.
- Student retention is above 95% overall (this includes those who may change to an ineligible major)










Exemplary Programs: University of Toledo

- Actively recruits minority students to revitalize Toledo area
- Many COF programs, but also offer the Primary Care scholarships for medicine and nursing, the Woodrow Wilson Teaching Fellowships, and a Entrepreneurship program

2nd annual University of Toledo *Innovation Enterprises Challenge* Business Plan Competition

Resonance Group, Ltd (Jason Owens, President) – Produce and market an energy control system that integrates a new RG controller with state-of-the-art pulse motors and power management technologies for improved performance of electric motor-driven products. IP owned by Jason Owens. Honorable Mention Award ($500 prize).

Jason Owens, COFFEE Scholar, BSEE and BSCSE grad, December 2012







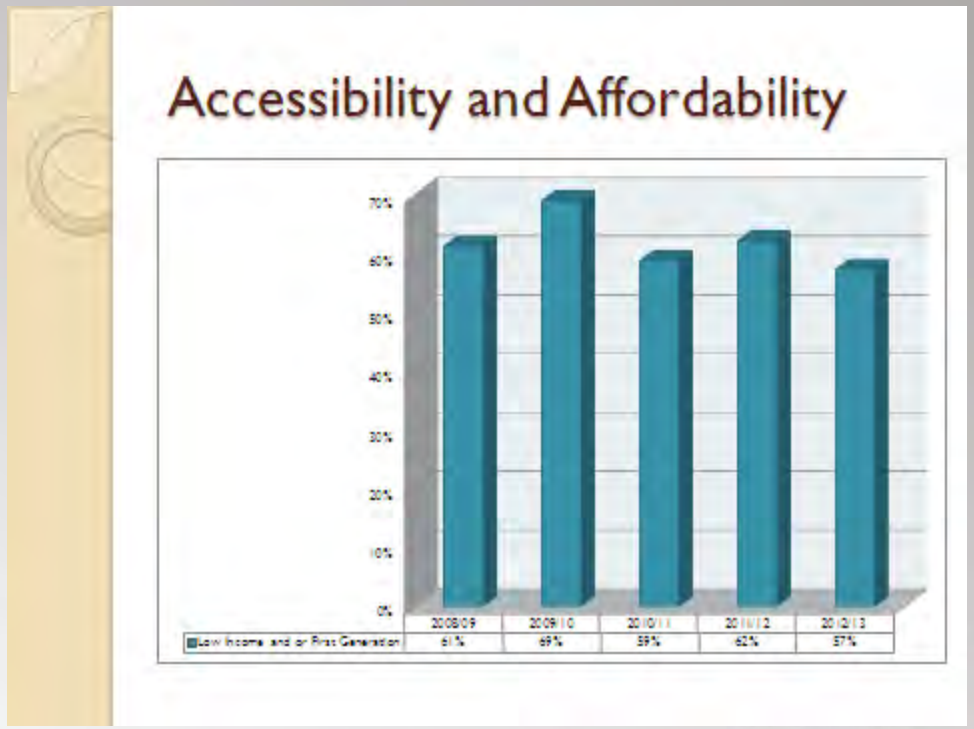
Exemplary Programs: Edison Community College

- 50% of Scholars are first-generation
- 63% are at poverty level
- 60% are female
- Serves a more rural population
- Most recent COF grad rate was 60% versus 26% for non-COF.




Exemplary Programs: Central State University

- Very high numbers of first-generation students
- Students must maintain at least a 2.8 GPA and participate in meetings and intervention activities.






CONTACT INFORMATION

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THANK YOU!

Ohio | Board of Regents
University System of Ohio




Attachment #3

Cincinnati State

Inclusive Competitiveness Forum
March 12, 2014

Monica J. Posey, Ed. D.
Vice President, Academics

Mission Statement:

Cincinnati State provides student-focused, accessible, quality technical and general education, academic transfer, experiential and co-operative education and workforce development.

Enrollment:
(African American & Hispanic students)

Information & Engineering Technology – 520
Nursing & Health – 1,243

Graduation:
(All students)

For Engineering Technologies and Engineering-Related Fields Cincinnati State is No. 8 in the country among two and four year institutions, and No. 5 among two-year institutions only. We are the highest in Ohio, with 270 graduates in 2011-12, a 24% increase over the prior year.

(Community College Week, 2013)

Goal:

Expand Our Reach

Focus on Targeted Populations

Strategies

High school & community connections

* ENGAGE 2013 – 1,000 students on campus
* Minorities in Math, Science & Engineering (M2SE)

High School Dual Enrollment

* 2013 focus mathematics at CPS

STEM Academy

* High school on campus

Scholarships

* Choose Ohio First
* Louis Stokes Alliances for Minority Participation (LSAMP)

Innovative & High Demand Programs

* Bioscience, Health IT, Welding

Goal: Increase Student Success

Driving Academic Achievement

Strategies

* Industry Partnerships/Cooperative Education
*Academic Foundations improvements
* Pathway to Employment Center (PTEC)
* Black Male Initiative
* Starfish Early Alert System
* Supplemental Instruction

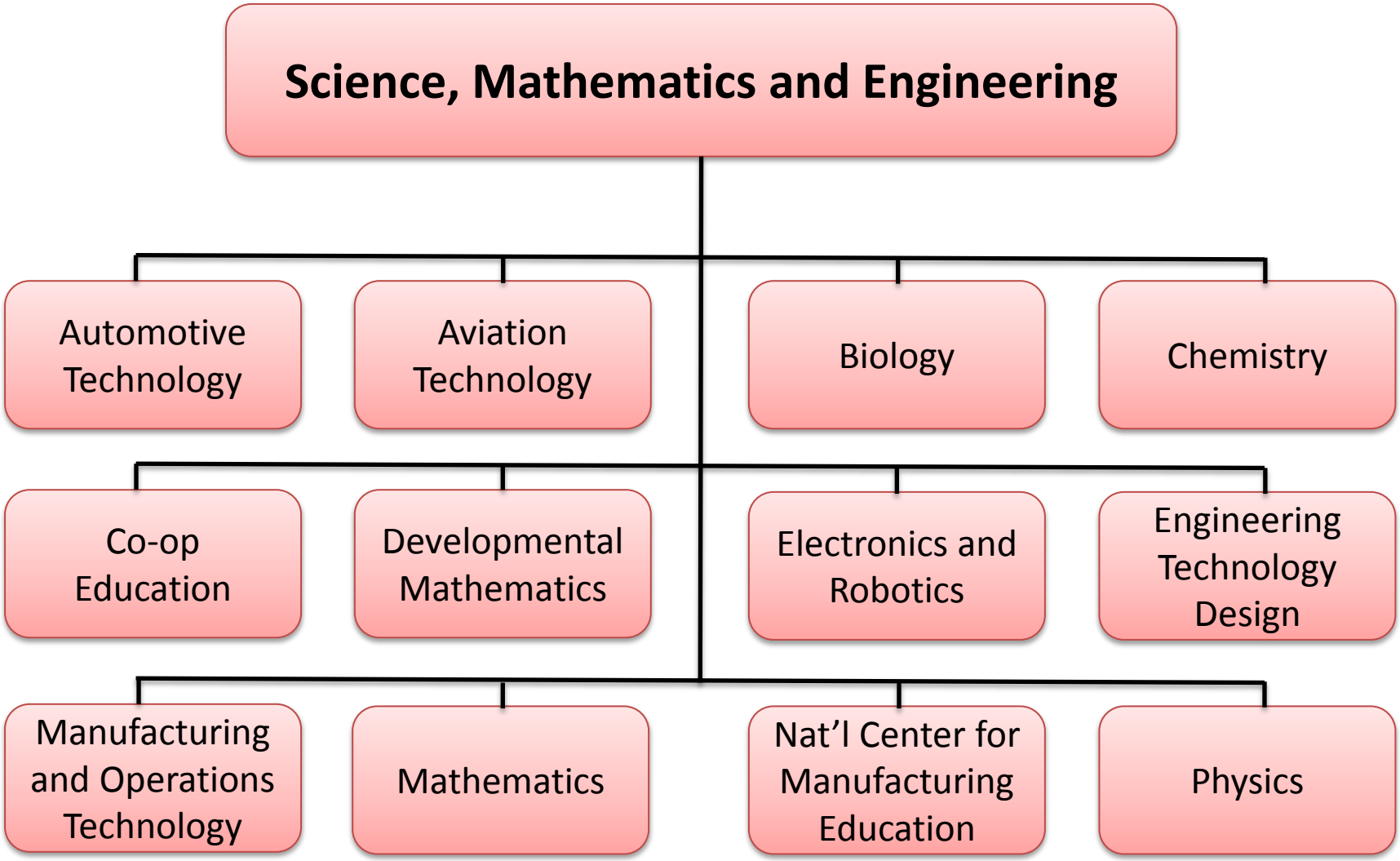
Cincinnati State

Attachment #4

March Inclusive Competitiveness Forum

Anthony M. Ponder
Dean
Science, Mathematics & Engineering

Kathleen Cleary, Ph.D.
Associate Provost
Connect 4 Completion


Science, Mathematics and Engineering
Automotive Technology
Aviation Technology
Biology
Chemistry
Co-op Education
Developmental Mathematics
Electronics and Robotics
Engineering Technology Design
Manufacturing and Operations Technology
Mathematics
Nat'l Center for Manufacturing Education
Physics

Underrepresented Individuals Currently in STEM Majors

All STEM Programs	13/FA Head Count	13/SP Head Count	13/SU Head Count
American Indian or Alaskan Native	19	19	6
Black or African American	389	399	219
Hispanic or Latino	91	70	47
Native Hawaiian/Other Pacific Islander		1	
Total	**499**	**489**	**272**

Underrepresented Individuals Currently in the Engineering University Transfer (EUT) Program

EUT Program	13/FA Head Count	13/SP Head Count	13/SU Head Count
American Indian or Alaskan Native	5	4	2
Black or African American	51	27	20
Hispanic or Latino	17	12	6
Native Hawaiian/Other Pacific Islander			
Total	**73**	**43**	**28**

Increasing STEM Diversity

Dayton Regional Summer STEM Academy (DRSSA)

- Sinclair and Wright State University partnered to offer a rigorous two-week residential STEM Academy II for eligible Ohio high school juniors and seniors interested in STEM disciplines.
- 17 students from 5 counties attended the academy.
  (Clark, Greene, Mason, Miami, Montgomery)
- 7 students passed the math proficiency exam with a grade of C or higher thus earning credit for MAT 1470 College Algebra.

Increasing STEM Diversity

Women in STEM (WiSTEM)

- Established in 1994 when a grant was acquired to enable young women in grades 10-12 to explore the different areas of engineering technologies.
- The WiSTEM Institute is a week of fun, hands-on activities relating to the area of science, technology, engineering and mathematics. Each day students participate in lab sessions that cover a wide variety of skills and knowledge.

32 female students from 24 different high schools participated in the 2013 WiSTEM Summer Institute.

Increasing STEM Diversity

Lou Stokes Alliance for Minority Participation (LSAMP)

- ***Sinclair is one of 11 Ohio Colleges and Universities*** partnering to increase the quality and quantity of STEM bachelor's degrees earned by under-represented minorities
- ***Local programming activities are designed to improve student success***
- ***Sinclair Community College*** was awarded $41,500 for 2013-14 and approximately $50,000 per year for 2014-2018 ($241,900 total).

Increasing STEM Diversity

Lou Stokes Alliance for Minority Participation (LSAMP)

- ***Major activities:***
  - Summer bridge program in Mathematics at Wright State University
  - Workshops on study skills and other supportive topics
  - Peer mentoring activities and events
  - Local professional society meetings
  - Tutoring and supplemental instruction
  - Attendance at national conferences

Recruitment of Minorities and Other Underrepresented Individuals

- Strong recruiting presence in area high schools; particularly those that serve a higher proportion of minority and first-generation college-going students.
- Career and Community Resource Centers in seven local high schools to increase college readiness.
- Strong relationship with Tech Prep and Project Lead the Way (PLTW) to recruit more students into STEM.

Graduating Underrepresented Individuals in STEM Areas.

- The 2.5 year accumulated average **term to term retention of minority PTC students is 29% higher** than non-PTC (not at-risk) students. Minority student's average term to term retention is 97%.
- The average **Year to Year retention of PTC minority students is 51% higher** than non PTC (not at-risk) students. Minority student's average year-to-year retention is 84%.

Economic Pathways for Underrepresented Populations

Choose Ohio First

STEMM =

Science
Technology
Engineering
Mathematics
Medicine

- ***Center on Education and the Workforce*** reports that eight million new jobs will be available in STEMM-related fields by 2018.
- ***Choose Ohio First Scholarship Program*** is part of the state's strategic effort to significantly strengthen Ohio's position in world markets such as aerospace, medicine, computer technology and alternative energy.
- ***Sinclair Community College*** was awarded $400,000 for years 2013 – 2015.

Economic Pathways for Underrepresented Populations

University of Dayton EUT Scholarship Program

- Selected students will be guaranteed admission into the College of Engineering at the University of Dayton
- Students will received a one-third tuition scholarship for their junior and senior years.
- Award is contingent upon completion of an Associates Degree in the Sinclair Engineering University Transfer (EUT) program with a cumulative GPA of at least 3.0

Economic Pathways for Underrepresented Populations

Wright State University EUT Scholarship Program

- Selected students will be guaranteed admission into the College of Engineering and Computer Science at Wright State University
- Students will received a one-third tuition scholarship for their junior and senior years.
- Award is contingent upon completion of an Associates Degree in the Sinclair Engineering University Transfer (EUT) program with a cumulative GPA of at least 3.0

Successful Strategies and Practices

- Gates Foundation: Completion by Design
- Title III: Career Communities
- Dept. of Labor: Accelerate IT
- Mathile Foundation: City Connects

Improving the Performance of Underrepresented Ohioans

- Caseload Model
- Steering Committee Model

Contact Information

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Cincinnati USA Regional Chamber
Minority Business Accelerator

Attachment #5

Ohio Board of Regents
Inclusive Competitiveness Forum

Miami University

March 12, 2014

Cincinnati USA Regional Chamber
Minority Business Accelerator

Cincinnati USA Regional Chamber
Minority Business Accelerator

Minority Business Accelerator

Mission of the MBA

The Minority Business Accelerator is the economic development initiative of the Cincinnati USA Regional Chamber designed to **accelerate** the development of **sizable minority businesses** and **strengthen and expand** the regional minority entrepreneurial community.

Cincinnati USA
Regional Chamber
Minority Business Accelerator

Our Opportunity: 2010 Study

Minority Business Slice of the Sales Pie

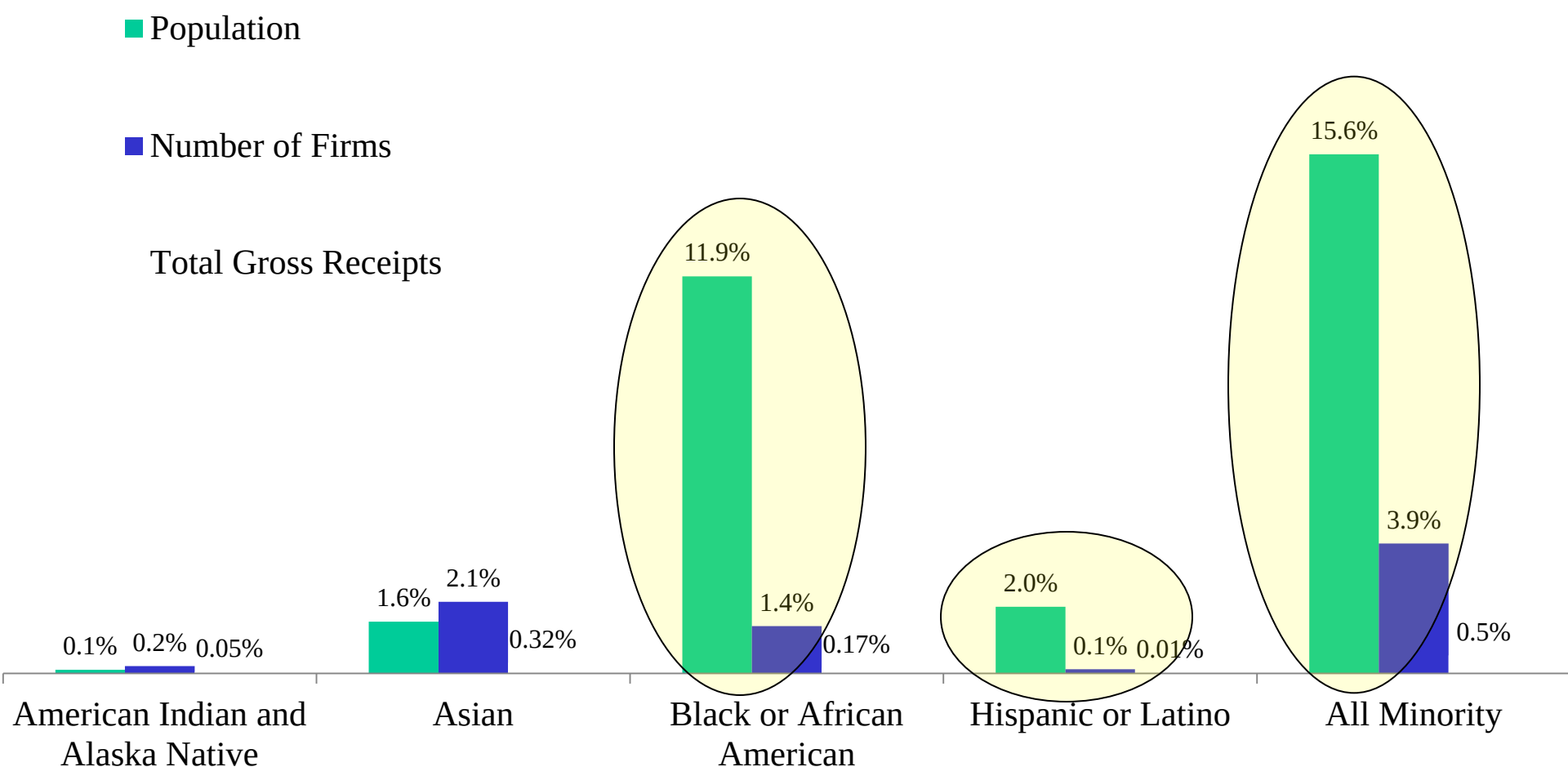
Total Sales for Cincinnati MSA

= $192.5 Billion

Cincinnati USA Regional Chamber
Minority Business Accelerator

Our Challenge: 2010 Study

Percentage of Minority Population, Number of Firms and Gross Receipts Compared to All Firms



Cincinnati USA Regional Chamber
Minority Business Accelerator

Components of the MBA Concept

The MBA uses a two-pronged strategy:

Supply Side Strategy – Improving the readiness of minority businesses

Demand Side Strategy – Engaging support from the corporate community through committed annual spending with local minority firms.

MBA Portfolio Criteria

1. Minimum sustained sales of $1million.
2. Sales growth potential of double digit growth in the 3 to 5 years.
3. The potential to create &/or retain jobs in Cincinnati USA
4. Significant source of revenue is from mid-sized and corporate relationships.
5. Headquartered or significant operations in Cincinnati region.
6. Certified as a minority business by a reputable third party certifying agency.
7. Business owner and management must have expressed intent to grow business at accelerated pace.

Cincinnati USA Regional Chamber
Minority Business Accelerator

Work of the MBA

Building MBE Capacity

- This is the FOUNDATIONAL TECHNICAL work of the MBA that creates "BETTER" firms.

Stimulating Accelerated Growth

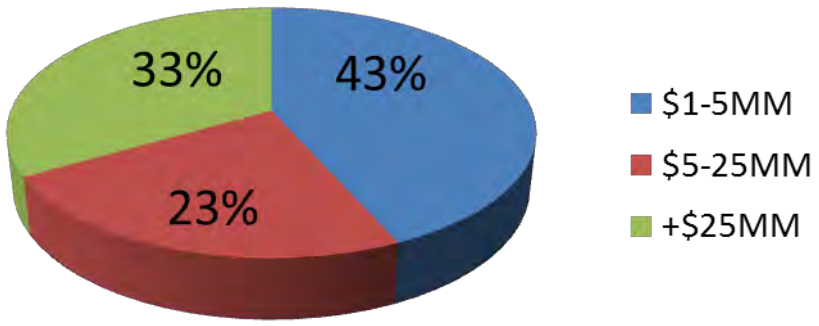
- This is the REVENUE CREATION work of the MBA that creates "BIGGER" firms.

Fostering Economic Inclusion

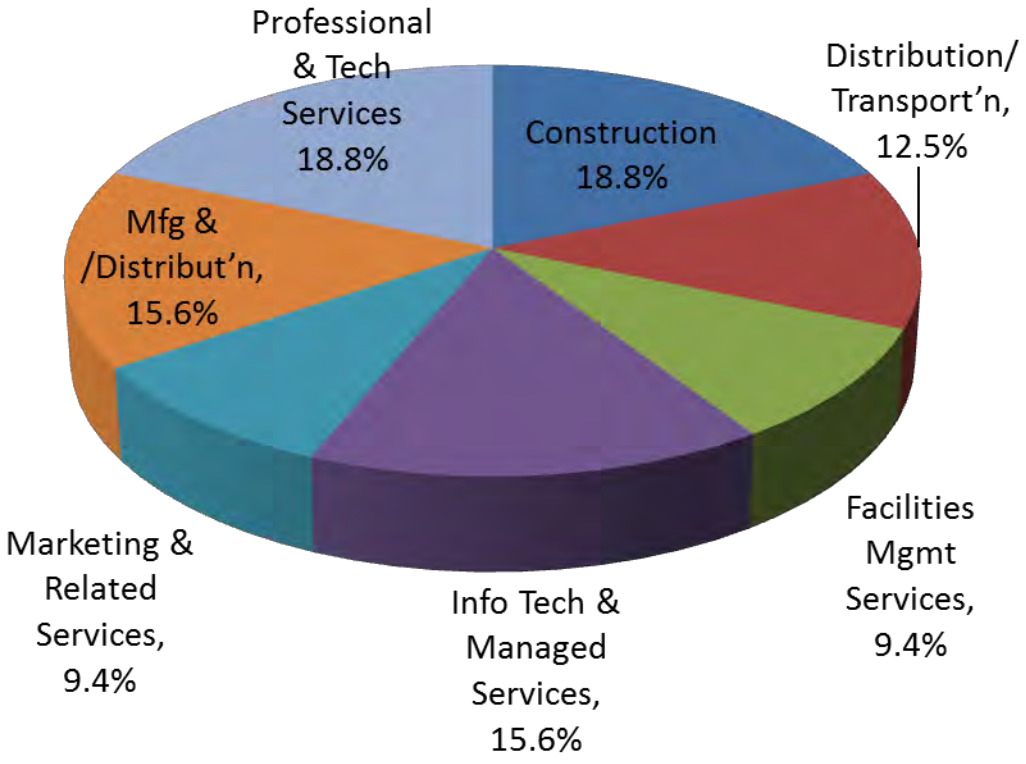
- This is the INFLUENCING work of the MBA that is about regional inclusion efforts that creates "INSTITUTIONAL" change.

MBA Portfolio

Revenue Distribution

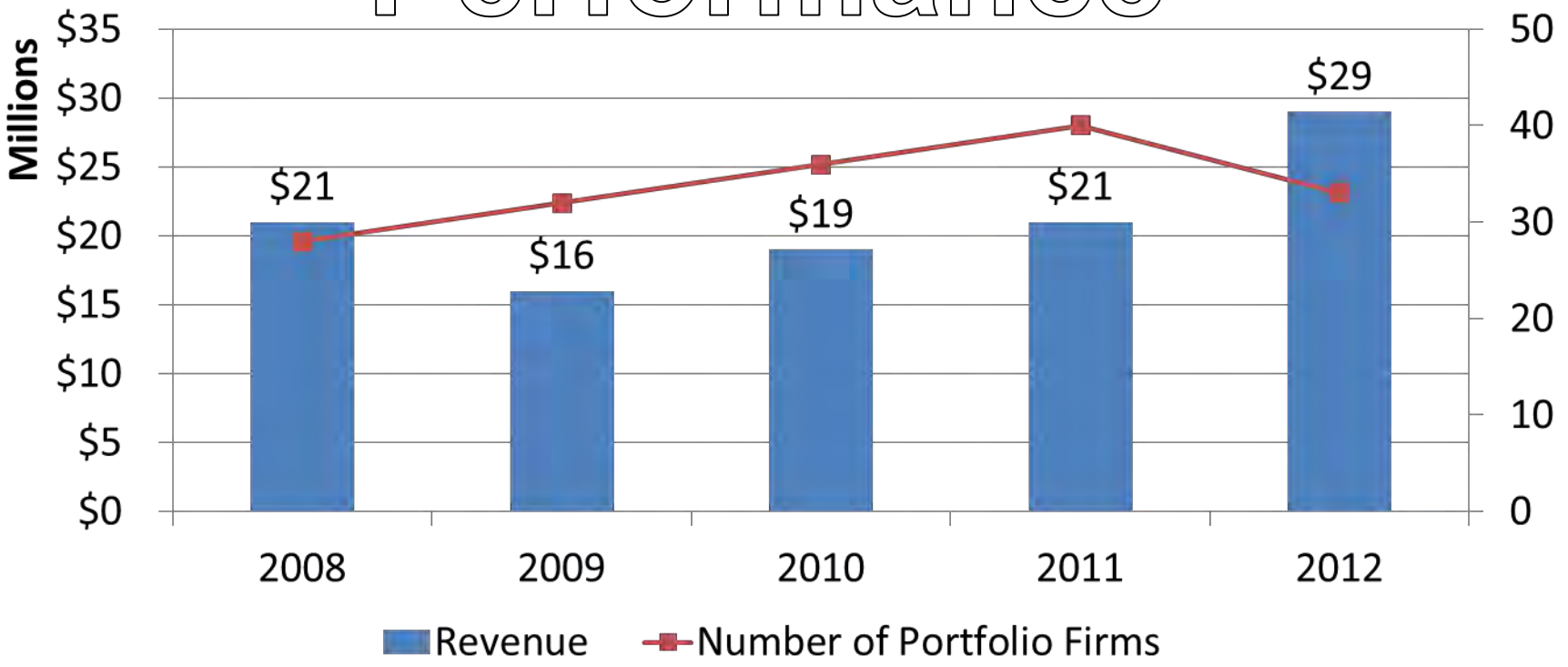


Industry Distribution



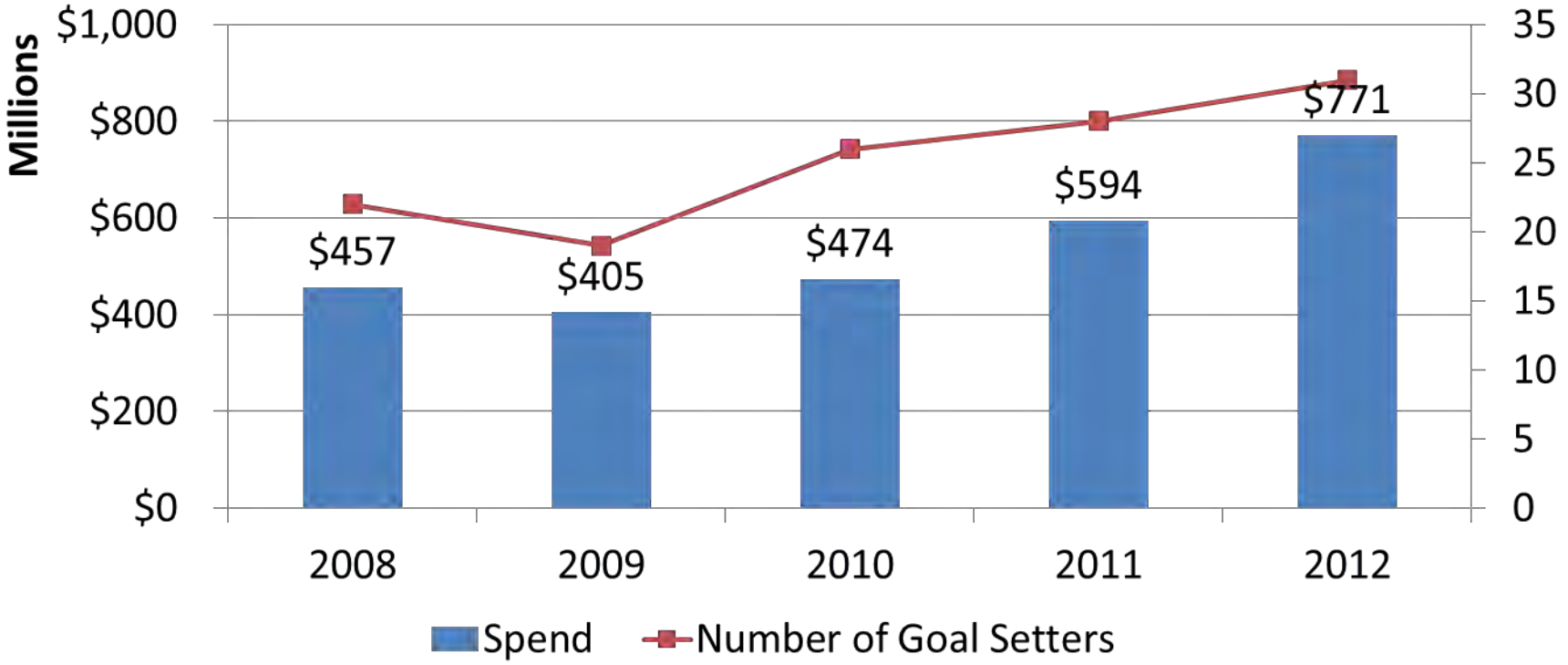
Cincinnati USA Regional Chamber
Minority Business Accelerator

2012 Snapshot: Portfolio Firms Performance



Cincinnati USA Regional Chamber
Minority Business Accelerator

2012 Snapshot: Local Minority Spending



Local Corporations and Organizations Set Goals with the MBA to spend with local minority firms

Cincinnati USA
Regional Chamber
Minority Business Accelerator

Fostering Economic Inclusion

INFLUENCING THE REGION

Cincinnati USA Regional Chamber
Minority Business Accelerator

Cincinnati's Industry Strengths

Our economic development efforts are targeted in specific industries to catalyze growth.

Cincinnati USA Regional Chamber
Minority Business Accelerator

MBA Pipeline

- To harness the region's greatest economic potential we must have diverse representation in today's fastest growing industries.
- The most innovative start-ups and growth firms will likely come from these industry clusters
- The MBA's future depends on the diversity of entrepreneurs within these clusters.

Cincinnati USA Regional Chamber
Minority Business Accelerator

"Creating a Pipeline"

Cincinnati Minority Business Collaborative

Start Up Assistance & Lending

Greater Cincinnati Micro-Enterprise Initiatives

Business Literacy

Urban League Economic Empowerment Center

Business Development

Hamilton County Development Center

Workforce Development

Cincinnati State

Start-Up → **Growth** → **Sustaining**

New Venture/Start Up & Certification

Minority Business Assistance Center

Training, Networking, Advocacy

African American Chamber & Hispanic Chamber

MBE Certification & Corporate Engagement

Ohio Minority Supplier Development Council

Accelerated Growth & Expansion

Minority Business Accelerator

Cincinnati USA Regional Chamber
Minority Business Accelerator

Pipeline Constriction

- Innovation Ecosystem- has low throughput of minority founders and entrepreneurs
- Too few minority innovation entrepreneurs to push through the pipeline
- Too little accountability to inclusion measures to pull them through

Cincinnati USA Regional Chamber
Minority Business Accelerator

MBE Innovation Efforts

- **Cultivate a pipeline** of high potential Minority firms with a eye for fast growth industry firms
- **Provide** tactical services to entrepreneurs and start-up businesses which are ready to pursue capital (angel investing, early stage or venture capital).
  - We have found and supported 16 firms with less than a FTE
  - This is not our space, we push from outside

Cincinnati USA Regional Chamber
Minority Business Accelerator

Innovation Solutions

- **Influence** in the innovation eco-system to demonstrate the importance of inclusion by setting appropriate goals and supportive strategies.
- **Introduce** technology and best practices (and practitioners) to the innovation eco-system for adoption and ownership that will increase diversity among the entrepreneurs, business management, advisors and investors.
- **Monitor** minority entrepreneur matriculation into Cincinnati USA's Innovation Ecosystems incubators and accelerators
- **Develop industry focused education** to equip graduates for leadership within the region's fast growth industries
- **Engage** publicly funded start-ups to do speaker series on campuses to encourage and invite students to join the innovation ecosystem

Attachment #6

MIAMI UNIVERSITY

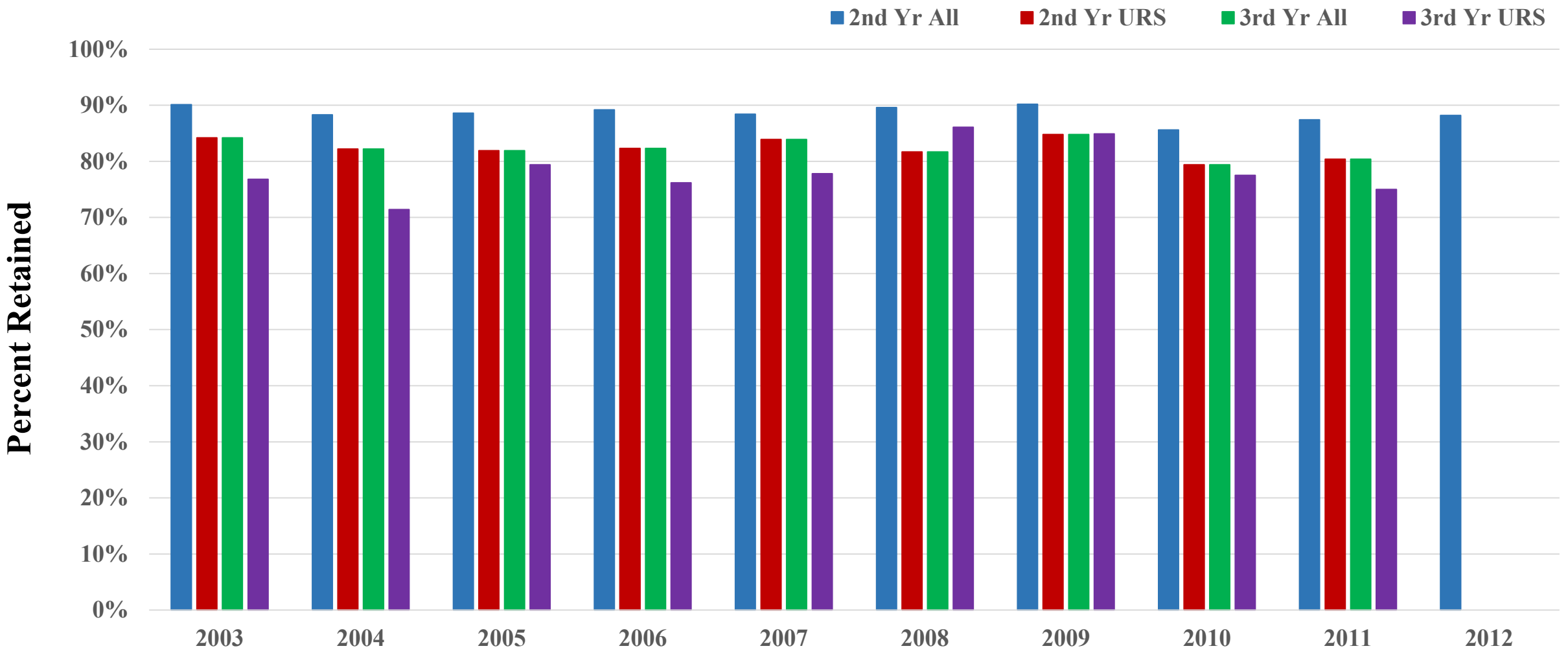
Ohio Board of Regents

Innovation Economy

Phyllis Callahan, Dean
College of Arts and Science

March 12, 2014

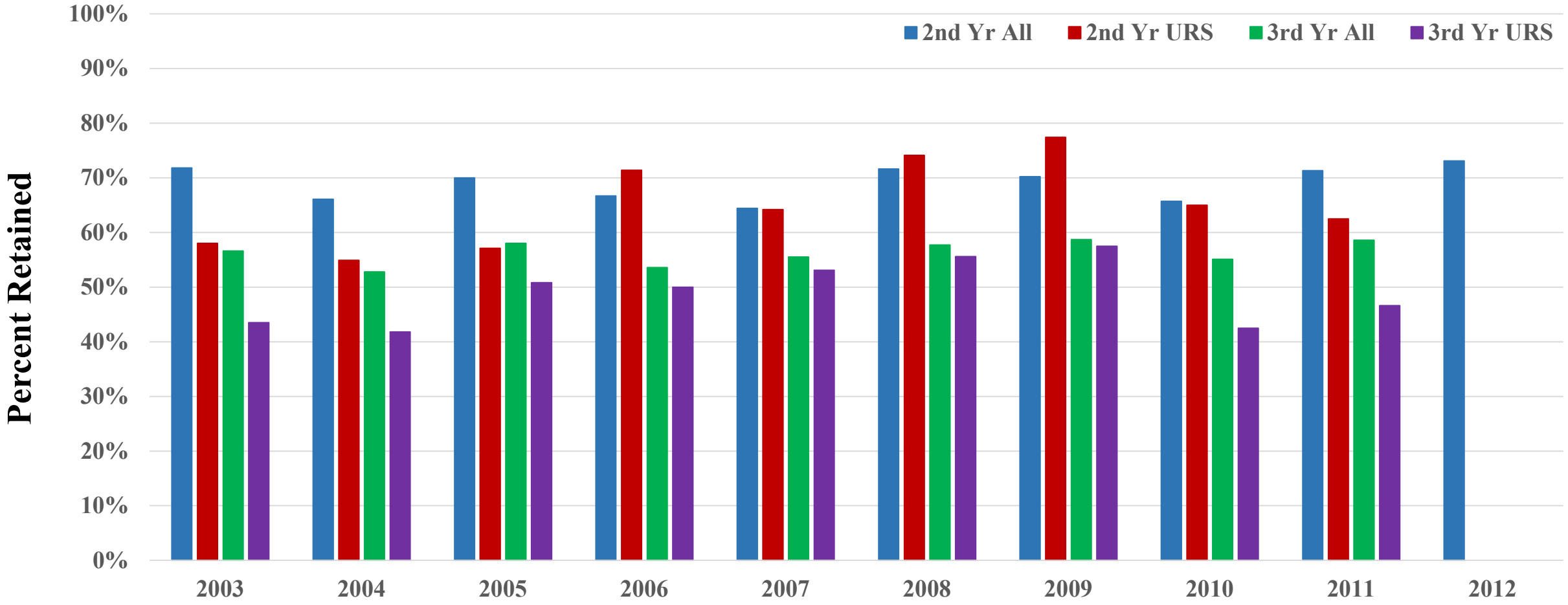
Miami University Retention



MIAMI UNIVERSITY

Data Source: MU OIR

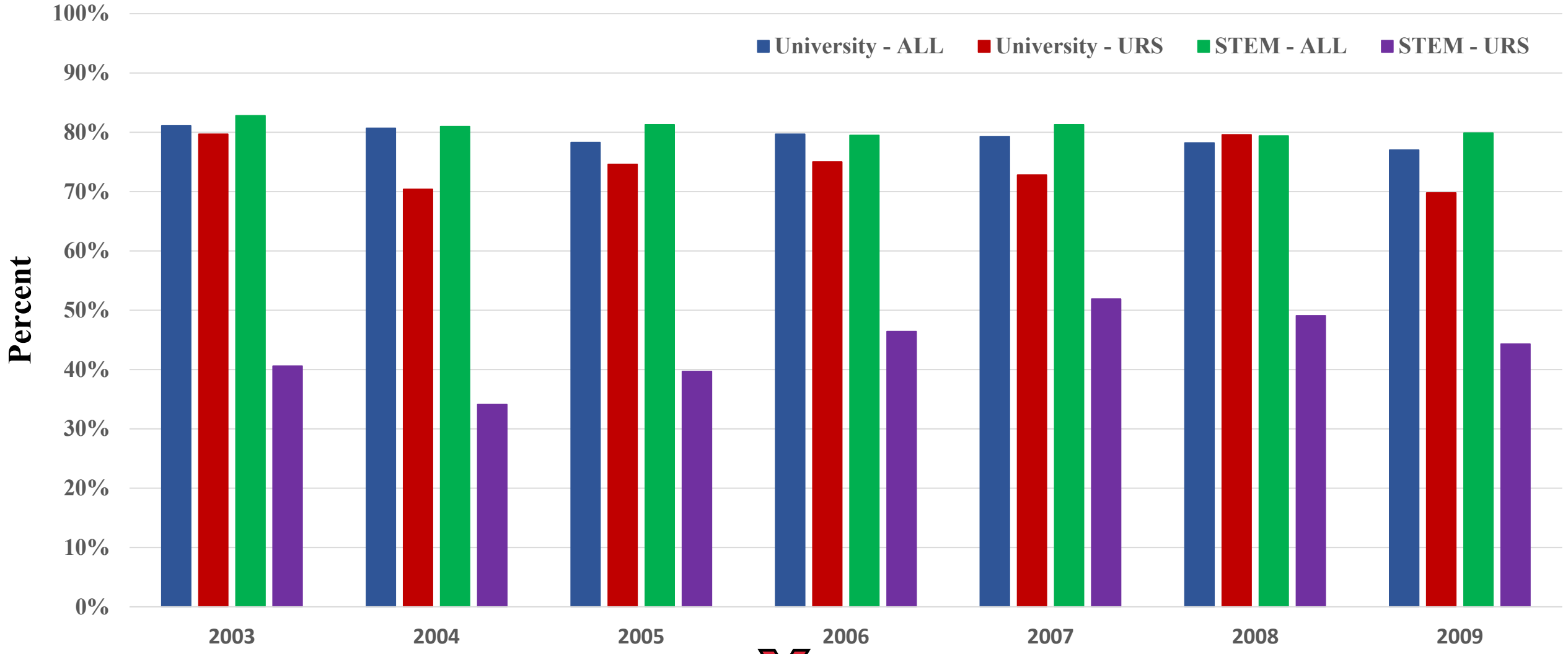
Miami University STEM Retention



MIAMI UNIVERSITY

Data Source: MU OIR

Graduation Rate / 5th Year Retention



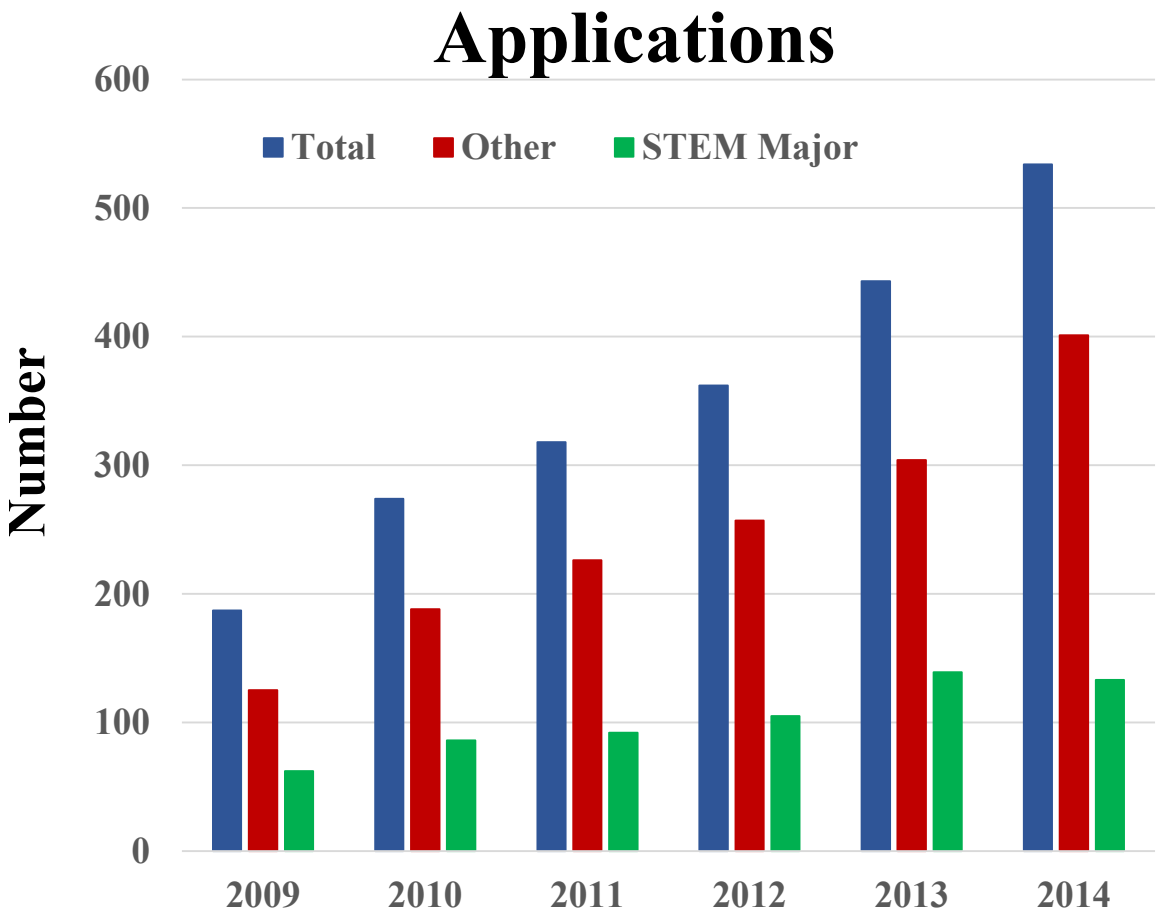
MIAMI UNIVERSITY

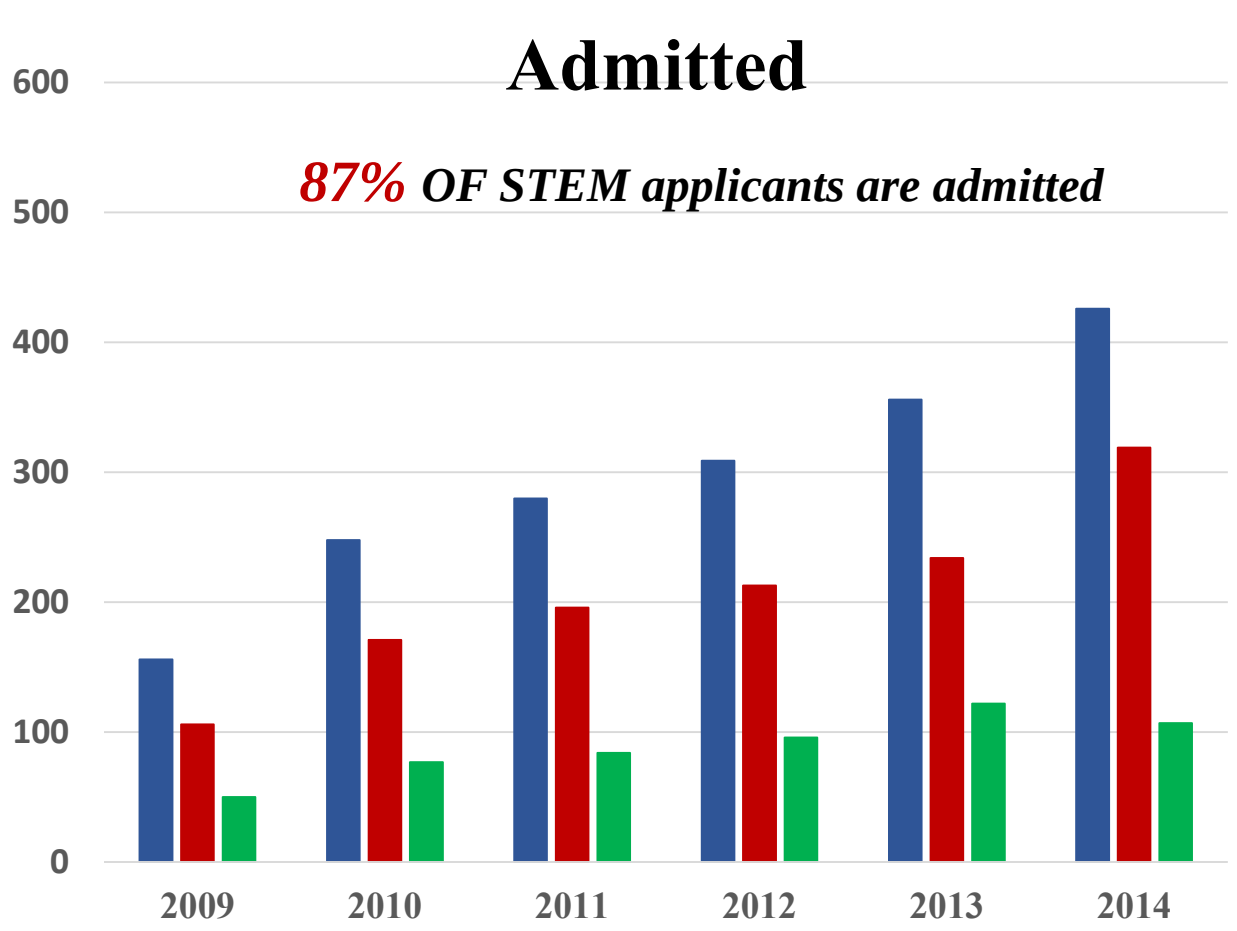
Data Source: MU OIR

Building the Pipeline – Recruitment

1. Minorities in Mathematics, Science and Engineering (M^2SE)
2. STEM Exploration Academy (2010-13)
3. Summer Scholars Programs
4. NSF and NSA Summer *Undergraduate* Mathematical Science Research Institute (SUMSRI)
5. Articulation agreements and off – campus academic advising
6. ***Bridges (2009-Present)***

Strategies - Bridges

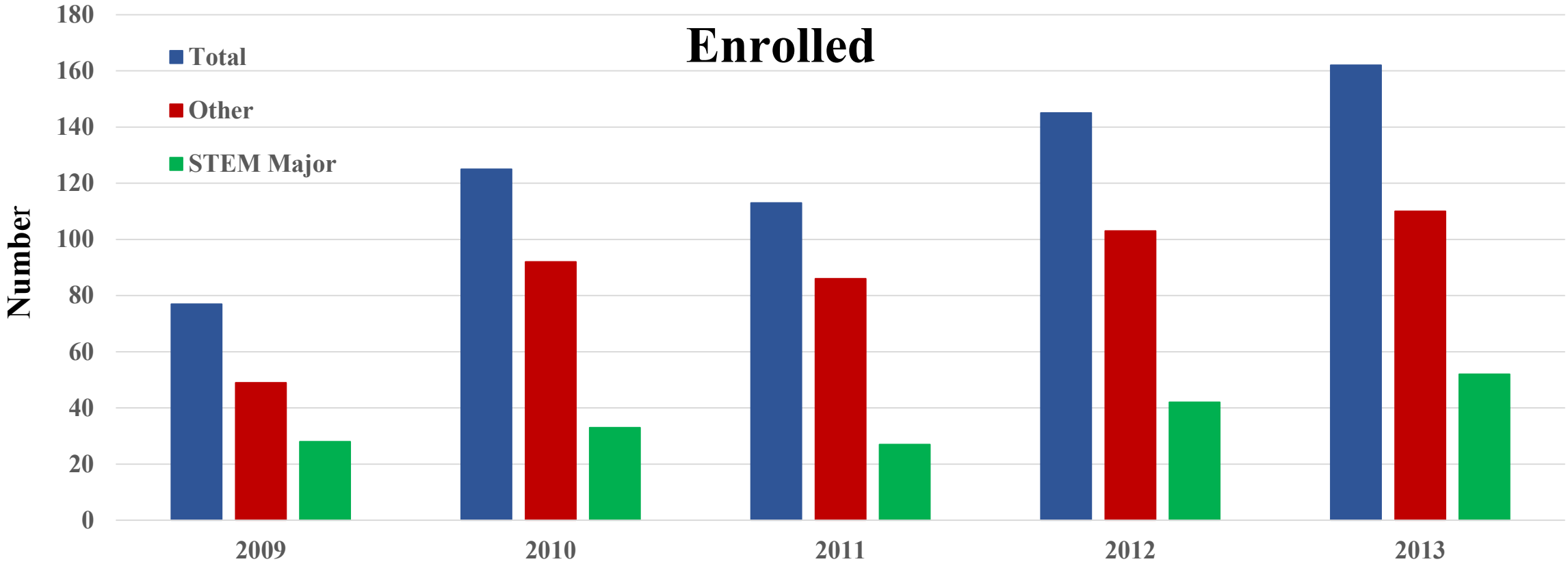




Data Source: MU OIR and OEM

MIAMI UNIVERSITY

Outcomes - Bridges



47% of admitted students enroll at MU

43% of admitted STEM applicants enroll as STEM majors (~30% of total admitted)

Data Source: MU OIR and OEM

Effective Transitions

1. University Academic Scholars Program
2. Louis Stokes Alliance for Minority Participation (LSAMP)
    a. Bridge Program
    b. Cohort Enrollment
    c. Tutoring and Mentoring
    d. Research
3. Curriculum
    a. 100 level – Field Specific for professional development
    b. 100 level – Sprint, supplemental course for General Biology

Retention

1. First Year Research Experiences (FYRE)
   a. Living Learning Communities
2. NSF Undergraduate Research and Mentoring (URM)
3. NSF Research Experience for Undergraduates (REU)
   a. Chemistry
   b. Ecology
4. NSF S-STEM
   a. Chemistry
   b. Engineering

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Attachment #7

Ohio Board of Regents
Inclusive Competitiveness Forum
March 12, 2014
Miami University
Oxford, Ohio

Presented by
Kenneth Simonson
University of Cincinnati

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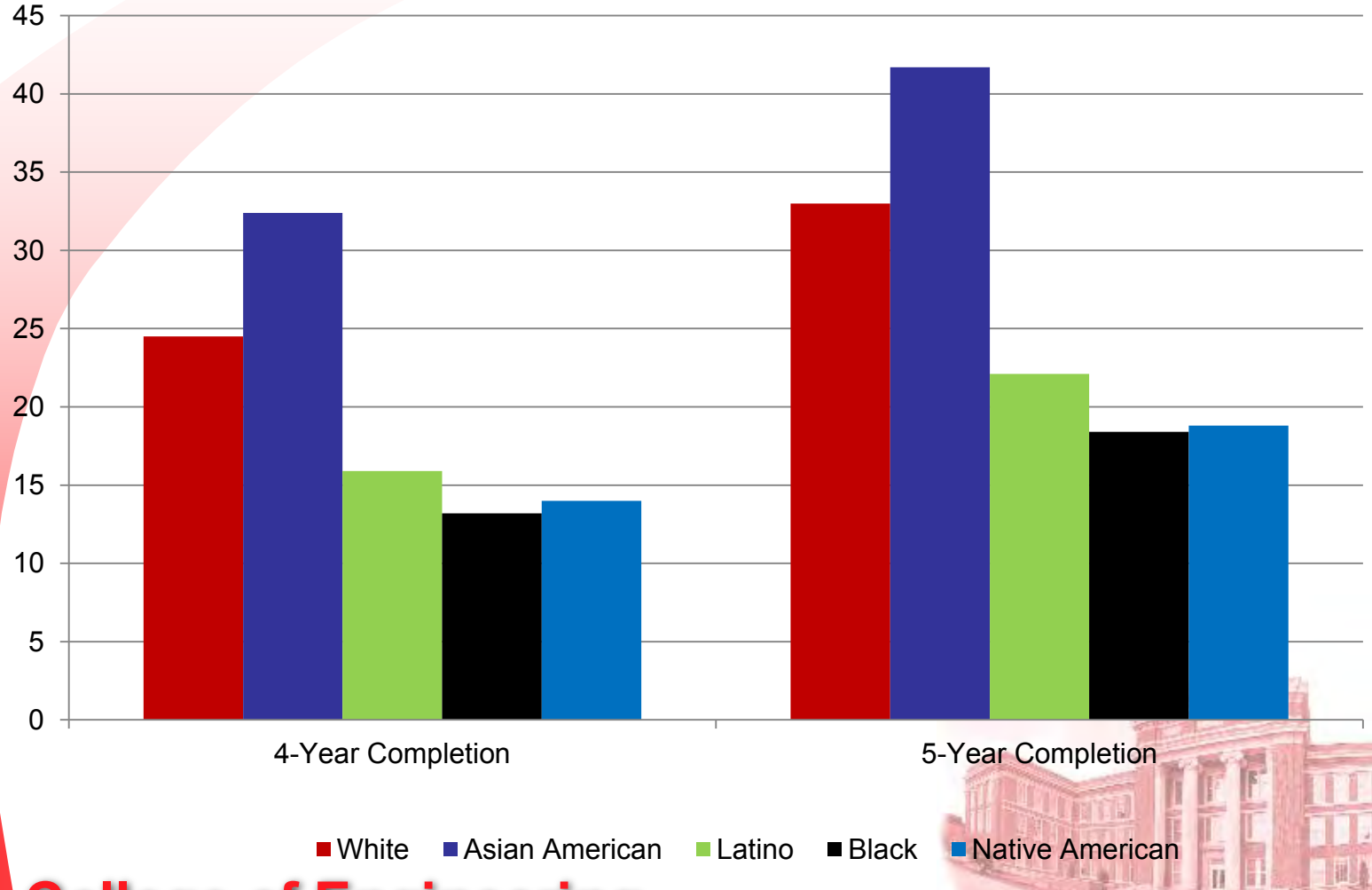
STEM Completion Rates

Percentage of 2004 STEM Aspirants Who Completed STEM Degrees in Four and Five Years, by Race/Ethnicity



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National Academies Report Recommendations for Expanding Minority Participation in STEM

America's Science and Technology Talent At The Crossroads

National Academy of Sciences
National Academy of Engineering
Institute of Medicine

- Preparation
- Access and Motivation
- Affordability
- Academic and Social Support

The National Academies Press, Washington, DC. 2011

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American College Testing College Readiness Benchmark Score

The College Readiness Benchmark Score is the minimum score needed on an ACT subject-area test to indicate a 50% chance of obtaining a B or higher or about a 75% chance of obtaining a C or higher in the corresponding Credit-bearing college courses, which include English Composition, Algebra, Social Science and Biology.

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2013 Ohio ACT Benchmark Data For Math and Science

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American College Testing College Readiness Benchmark Score 2013

The average percentage of students in Ohio meeting the ACT Benchmark Math Score of 22 is (49%)

The average percentage of students in Ohio meeting the ACT Benchmark Science Score of 23 is (44%)

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Percentage of Students Meeting College Readiness Benchmark Score by Race and Ethnicity for Mathematics

	2006	2007	2008	2009	2010	2011	2012	2013
African American	13%	11%	12%	12%	14%	14%	14%	15%
American Indian/Alaskan Native	34%	41%	33%	36%	42%	36%	36%	31%
Caucasian/White	49%	49%	51%	51%	54%	55%	56%	56%
Hispanic	32%	33%	33%	35%	36%	36%	36%	36%
Asian American/Pacific Islander	64%	67%	69%	69%	72%	72%	75%	70%

ACT Profile Report – State Graduating Class 2013 Ohio

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Percentage of Students Meeting College Readiness Benchmark Score by Race and Ethnicity for Science

	2006	2007	2008	2009	2010	2011	2012	2013
African American	6%	5%	6%	7%	7%	7%	7%	11%
American Indian/Alaskan Native	22%	27%	20%	25%	28%	21%	24%	27%
Caucasian/White	33%	34%	36%	37%	39%	40%	39%	50%
Hispanic	20%	22%	22%	24%	24%	23%	22%	33%
Asian American/Pacific Islander	43%	47%	48%	48%	53%	54%	53%	59%

ACT Profile Report – State Graduating Class 2013 Ohio

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University of Cincinnati
STEM Strategy for Increasing Participation of Underrepresented Ethnic Students

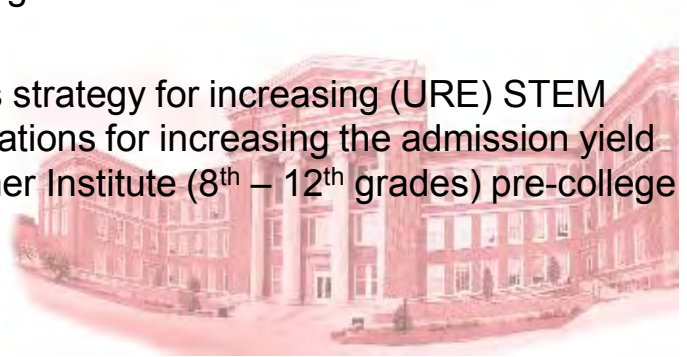
Participation in the National Science Foundation Louis Stokes Alliance for Minority Participation (LSAMP) – The Ohio Alliance - 11 four year and 7 two year institutions with the goal of doubling the number of underrepresented ethnic STEM graduates in five years.

The Emerging Ethnic Engineers (E3) Dr. Edward N. Prather Summer Bridge Scholars Program (26th year) will transition from a engineering/engineering technology bridge program to a STEM bridge program representing (URE) students from Arts & Sciences, Allied Health and College of Engineering and Applied Science.

Extensive academic year infrastructure for enhancing academic success. E3 (URE) engineering/engineering graduation rate is significantly higher than campus STEM rate. The D,W,F rate in calculus and pre-calculus for E3 students is significantly lower than the college rate. E3 students consistently earn Deans' List Honors fall semester over and above the college rate. The E3 Program is being used to expand the university institutional strategy for underrepresented ethnic, low-income, first generation (ELFG) STEM students.

The Provost has committed university funds for the new STEM bridge program.

The university has recognized the importance of pre-college programs as strategy for increasing (URE) STEM enrollment/success, and has created a task force to develop recommendations for increasing the admission yield from these programs. The Provost has committed funding for the Summer Institute (8th – 12th grades) pre-college program.



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Remediation of Ohio High School Graduates Going Directly to a University System of Ohio College:
High School Graduates in 2013 Enrolling as First-Time College Students in Fall 2012 Results by District of Graduation

	#Students	%Developmental Math
Cleveland Municipal	761	66%
Columbus City School District	820	57%
Cincinnati Public School District	615	49%
Total/Averages	2196	57%

Of the students left over, how many were admissible and decided to enroll in a STEM discipline?

Ohio Board Of Regents, University System of Ohio December 2013

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Internal/External Barriers For Successful Inclusion of Underrepresented Populations in the Innovative Economy

Lack of number of students proficient in English, math, and science that can be considered for admission to STEM disciplines.

Lack of investment in successful programs for increasing (ELFG) STEM students and the over reliance on external funding and grants.

Lack of critical mass of K-16 educators who use evidence-based strategies for learning/teaching methodologies for educating all STEM and in particular ELFG students.

The need for data driven decision making for developing a K-16 state-wide STEM strategy for increasing the number of underrepresented ethnic, low income, and first generation ELFG students who enroll/graduate from disciplines for the “New Innovation Economy”.

We don’t know and or measure the impact of current Ohio STEM recruitment, student success, learning/teaching methodologies initiatives associated with building the “New Innovation Economy”. For example, the Ohio STEM Learning Network was established in 2007 creating seven hubs. What is the number of (ELFG) students from the STEM hub high schools who have enrolled in a STEM discipline in Ohio?

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Identifying Resources To Improve Performance of Underrepresented Ohioans in STEM and In the State's Innovation Economy

Re-authorize the Choose Ohio First Scholarship Program with emphasis on underrepresented ethnic, low-income, and first generation ELFG STEM students.

Direct OBR investment funding to complement federal grant funding like the NSF Louis Stokes Alliance for Minority Participation (LSAMP) – The Ohio LSAMP Alliance.

Direct OBR investment in university engineering/STEM bridge programs and academic year successful strategies for increasing the number of ELFG STEM graduates. Housing is the most expensive cost of the bridge program, and on all campuses housing is an auxiliary (cost center) that has to charge.

Develop an OBR STEM Advisory Council of "practitioners" to develop state-wide STEM education policy for increasing the number of ELFG STEM graduates.

Re-direct OBR, Department of Education, and Third Frontier funds to evidence-based initiatives, and programs that are increasing the number of ELFG STEM students.

Use Third Frontier funds in collaboration with industry in providing internship opportunities for students who don't have access to co-op programs as a strategy to recruit students.

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References

ACT Ohio College Readiness and The Condition of STEM Reports

http://www.act.org/newsroom/data/2013/states/pdf/Ohio.pdf

http://www.act.org/newsroom/data/2013/pdf/profile/Ohio.pdf

http://www.act.org/stemcondition/13/pdf/Ohio.pdf

NATIONAL STATE-WIDE SYSTEMIC STEM PROGRAMS

http://mesa.ucop.edu/programs/ (40 YEARS OLD AND OPERATING IN NINE STATES)

http://www.highered.nysed.gov/kiap/colldev/CollegiateScienceandTechnologyEntryProgram.htm (25 YEARS OLD)

Dr. Freeman Hrabowski

http://www.uc.edu/ucit/digitalvideo/mcmicken_hrabowski_short.html

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Attachment #8

Ohio Development Services Agency Initiatives & Program Outreach

Ohio Board of Regents Subcommittee on Inclusive Competitiveness

March 12, 2014

Ohio | Development Services Agency

Ohio Third Frontier

1st Frontier – **Agriculture**

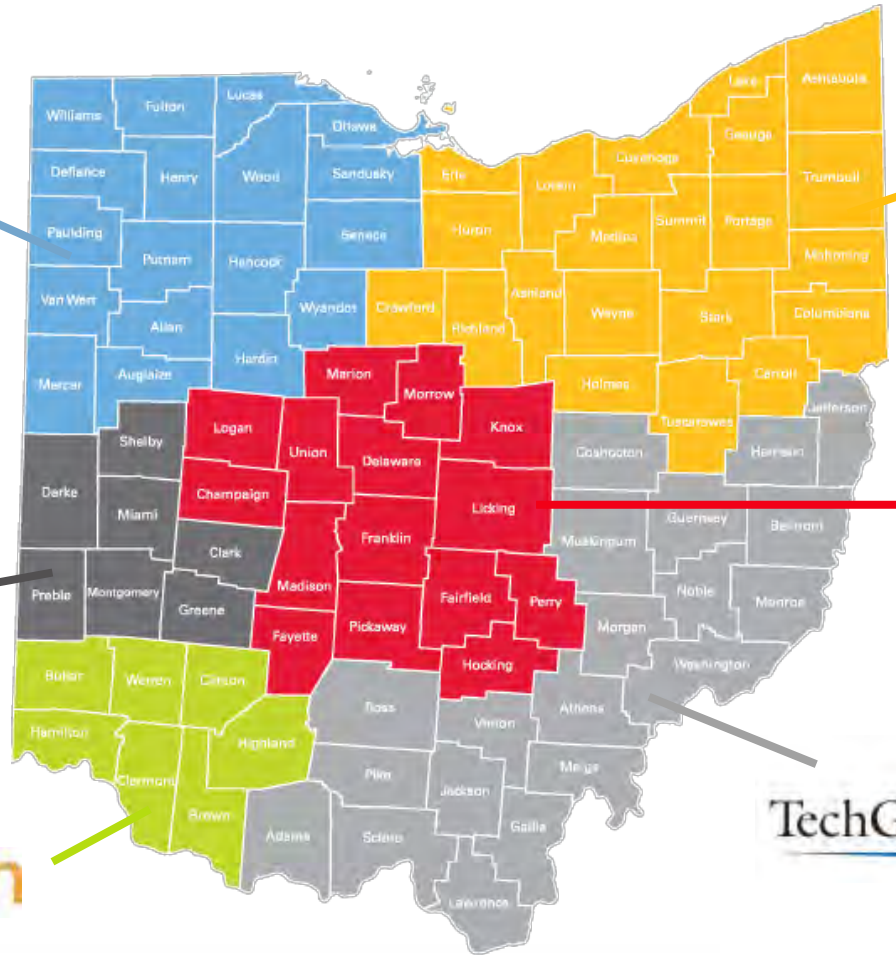
2nd Frontier – **Industry**

3rd Frontier – **Technology**

Entrepreneurial Signature Program (ESP)

- Goal to attract, retain & develop technology-based entrepreneurs and small tech-based businesses
- Statewide, regional network of entrepreneurial assistance organizations and early-stage capital
- More than $200 million invested in ESP & related pre-seed funds

Entrepreneurial Signature Program (ESP)



Rocket Ventures
TECHNOLOGY ... REALIZED

jumpstart

TECH COLUMBUS

accelerant
start something big

TechGrowth Ohio

cincytech

Ohio Development Services Agency

TechGrowth

- Location directly addressing rural, Appalachian Ohioans
- 10% active clients minority-led
- Partnerships Regional Higher Education Institutions
  - Shawnee State
  - Rio Grande

TechGrowth Ohio

CincyTech

- Imagining grant program supporting 13 minority entrepreneurs
- $2.4 million investment in 6 minority-owned startups

cincytech

JumpStart

- Dedicated Inclusion e-zine *Inside Inclusion* (2,700 recipients)
- Embedded Inclusion strategy
- Assistance to 83 rural companies

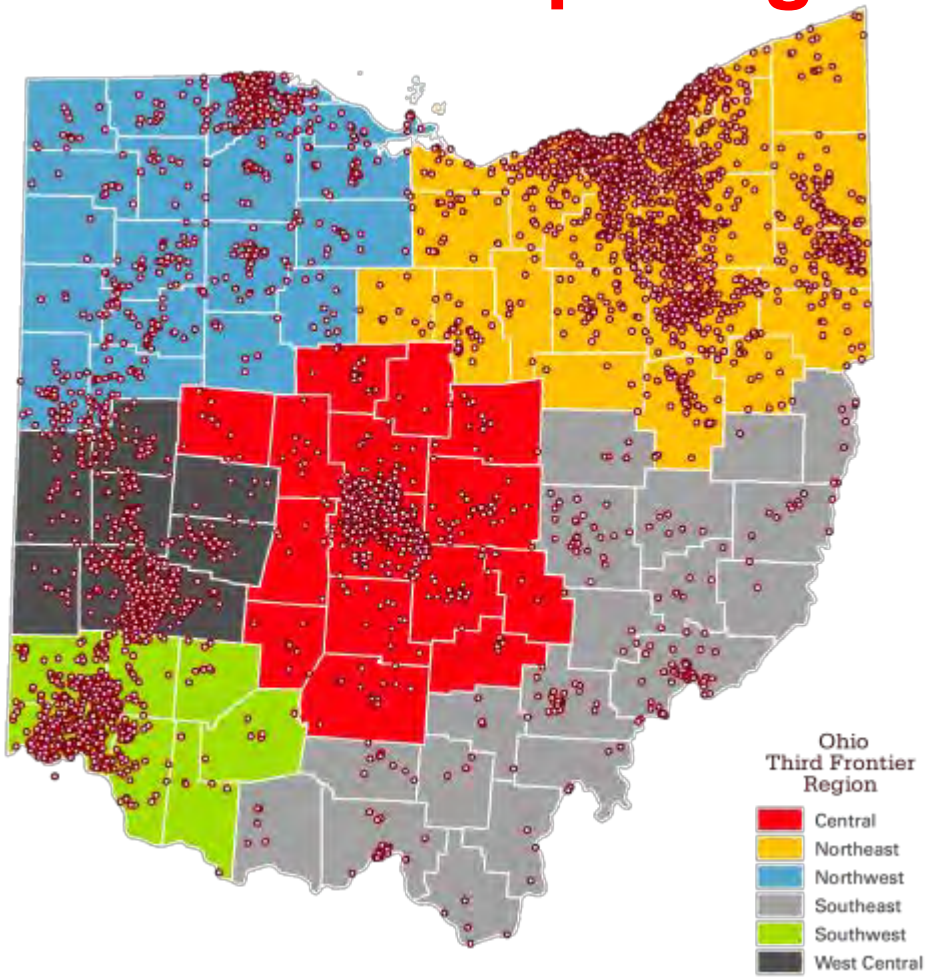
jumpstart

Emerging Market Venture Fund

- Addresses shortfall in early-stage investment capital available to minorities
- Connects accredited minority investors/institutions interested with minority-owned businesses.

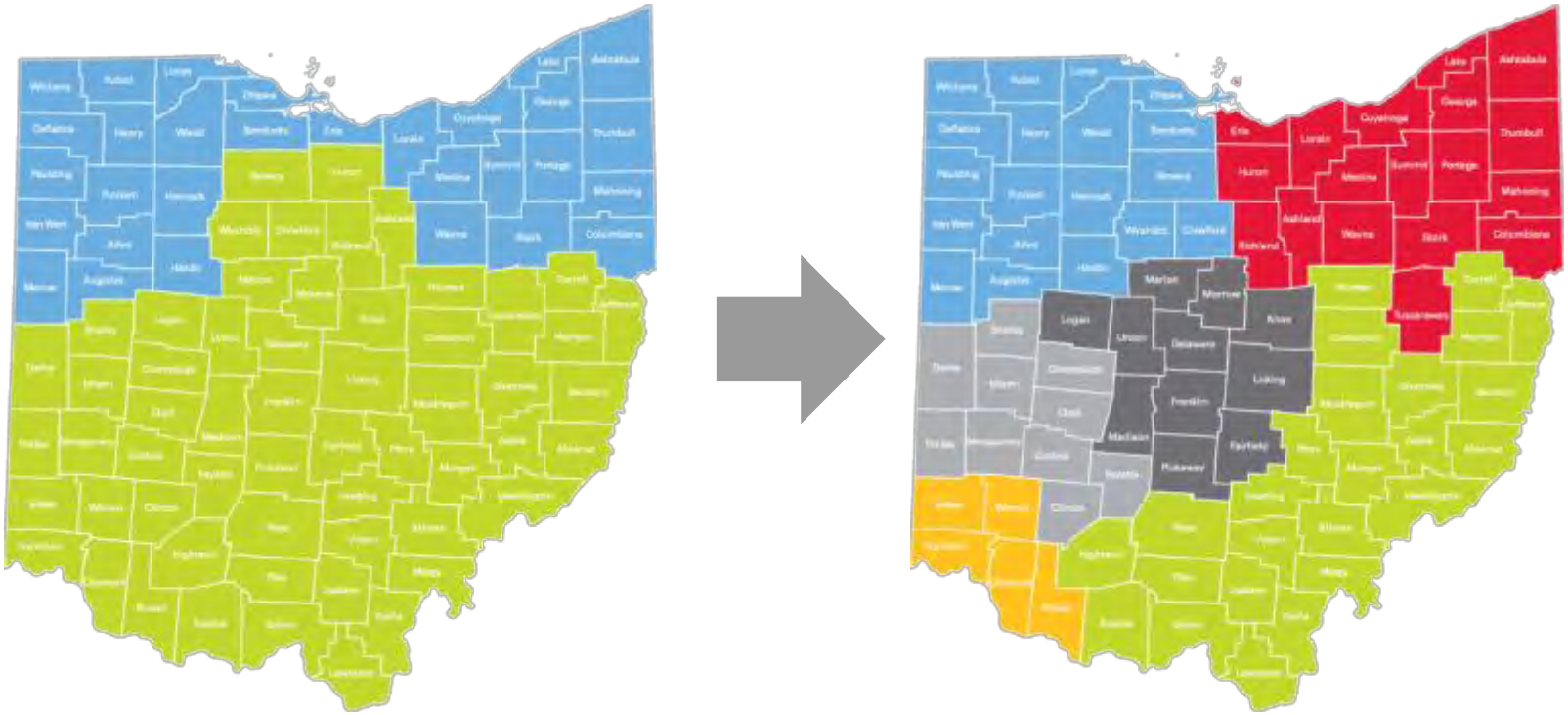
Ohio Third Frontier Internship Program

- $234,000 to companies in Southeast Ohio FY 2013
- Participation 2013 12% minority or female



Manufacturing Extension Partnership Program (MEP)

- New regional model established 2012
- Better reach rural Ohio



Governor's Office of Appalachia

Youngstown Business Incubator
(Mahoning County): $50,000 grant

Washington County Career Center
(Washington County): $110,100 grant

University of Rio Grande
(Gallia County): $108,000 grant

Annual Oakridge Summer Math-Science-Technology Institute

- Partnership Appalachian Regional Commission & Oak Ridge National Laboratory
- 2014 Outreach:
  - 730 Appalachian principals, school officials
  - 20 stakeholder groups Appalachian region
  - 200 reporters including minority media across region

Business Assistance Centers

Key

- Interstate Highway
- Other Highway
- City or Village

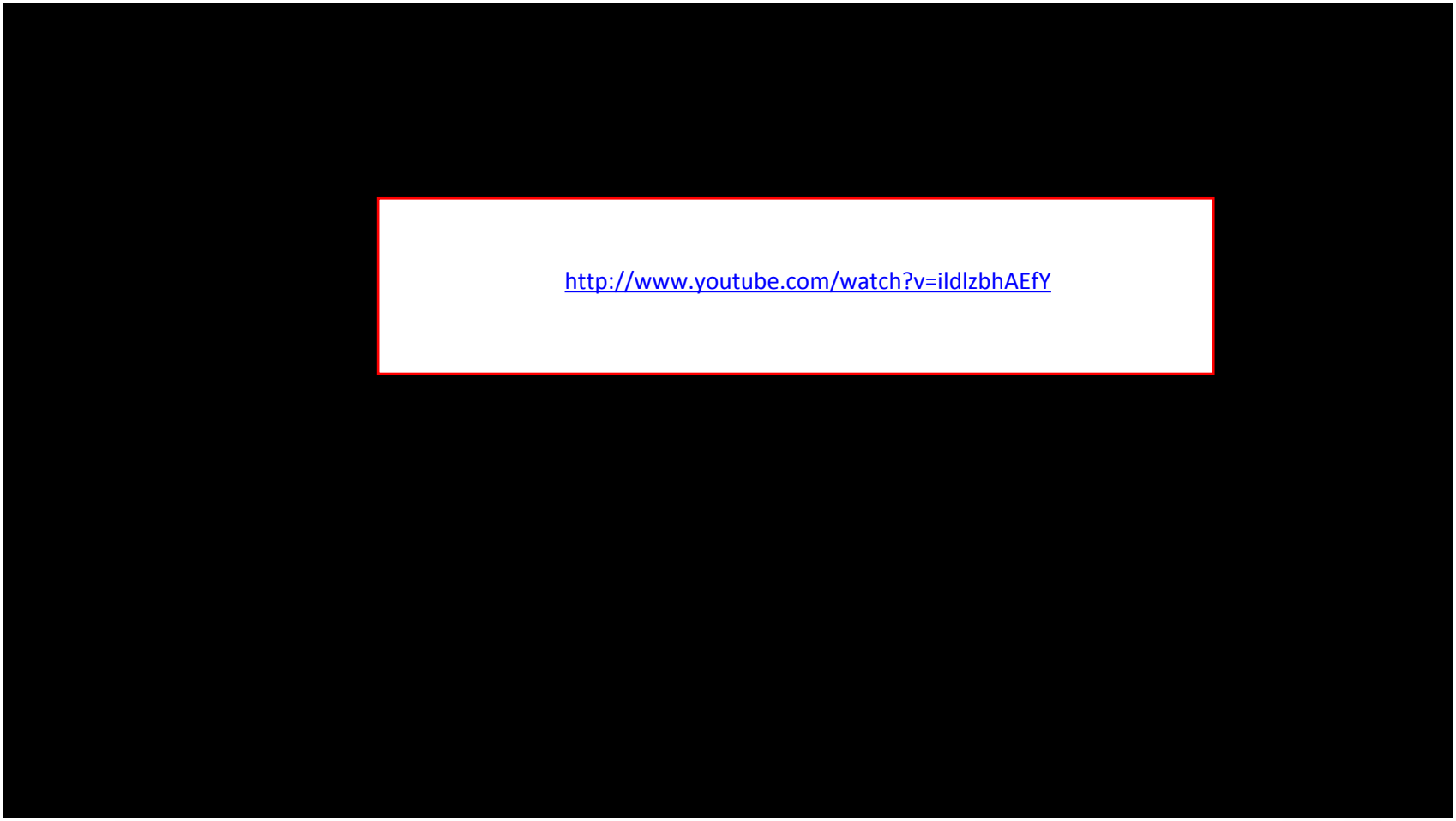
Business Centers

- Small Business Development Center (SBDC)
- International Trade Assistance Center (ITAC)
- Procurement Technical Assistance Center (PTAC)
- Manufacturing and Technology SBDC (MTSBDC)
- Minority Business Assistance Center (MBAC)
- Manufacturing Extension Partnership (MEP)

The Minority Business Assistance Centers (MBAC)

Ohio Development Services Agency

Success Story – EZ Electric Motor Service



Questions?

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