



October, 2017

## Northeast Ohio Innovates: What It Is and What It Is Planned to Include

### What is Northeast Ohio Innovates?

**Northeast Ohio Innovates (NEO Innovates)**, is a Northeast Ohio regional adaption of the **Believe in Ohio (BiO)** program, which was a statewide STEM (Science, Technology, Engineering & Math) and entrepreneurship program for high school and middle school students that integrated entrepreneurship and innovation as pathways to create future jobs. The **BiO** program was developed by Entrepreneurial Engagement Ohio (EEO), a Northeast Ohio entrepreneurship-focused 501(c)(3), in collaboration with The Ohio Academy of Science (OAS), a statewide STEM-focused 501(c)(3) located in Columbus, with support from The Ohio General Assembly and the Ohio Board of Regents. **NEO Innovates** is a program of EEO. OAS supports NEO Innovates and remains a strategic and collaborative partner with EEO.

### Northeast Ohio Innovates - What it is planned to include:

#### 1. 8-10 BiO STEM Commercialization & Entrepreneurship Forums during the 2017-2018 school year:

- All Forums will be held on college campuses, during the school week, with four faculty innovators as speakers. Forums will be limited to about 300 attendees for each Forum. Forums will utilize college students as brainstorming mentors, and include an ending “Pitch” program. Forums are for high school and middle school students.
- Nine STEM Commercialization, Entrepreneurship and Innovation Forums are already planned with funding from the Burton D. Morgan Foundation for the 2017-2018 academic year.
- Forums are currently being scheduled at: Cleveland State University, the University of Akron, the Kent State University main campus in Kent, Youngstown State University, Lorain County Community College, John Carroll University, Hiram College, Ohio State University Ohio Agricultural Research and Development Center in Wooster, and the Kent State University regional campus in New Philadelphia.

#### 2. A teacher mentoring program for high schools and middle schools whose students participate in a local STEM Plan competition:

- Teachers will receive instruction on how to have their students use the *Ohio Roadmap to Future Jobs and Prosperity*. The *Roadmap*, which is similar to the *Lean Business Model Canvas* taught at university business schools around the world, is a student brainstorming, problem solving and critical thinking tool that students use to develop their STEM Commercialization Plan and STEM Business Plan ideas.

#### 3. A full range of teacher and student support materials, as on the BiO website: [www.BelieveInOhio.org](http://www.BelieveInOhio.org)

- Instructional ideas for teachers to help develop their students’ critical thinking and creative skills, analytical and problem-solving skills, communications and collaboration skills, research and technical writing skills
- Extensive materials to help students develop and write their STEM Commercialization and STEM Business Plans including:
  - Copies of the *Ohio Roadmap to Future Jobs & Prosperity* for student use.
  - STEM Commercialization Plan and STEM Business Plan templates and sample plans.

- Student instructions for determining the commercial feasibility of their STEM plans.
- Student instructions for writing and formatting their plans.
- Student instructions for preparing a three-year financial projection and STEM Plan research sites.
- Examples of winning plans from prior years' Believe in Ohio state competitions.
- Patent and intellectual property instructional information.
- Online STEM Forum speaker videos and videos and materials that interested teachers may use with students who might potentially earn college course credit for their work. These include:
  - A regional "Introduction to the Innovation Economy of Northeast Ohio" online course that teachers may use as a resource, which includes more than 100 videos.
  - A Career Tech C-Tag course (approved by the Ohio Department of Higher Ed) that may allow high school students to earn college course credit.

**4. Funding to recognize the winners from each high school and middle school that chooses to actively participate in a STEM Commercialization or STEM Business Plan Competition:**

- Although EEO has begun a fund-raising campaign, as of the date of this writing, funding has not yet been secured for this part of the program. Assuming that funding is secured, NEO Innovates program funding to local schools would follow the rules of the 2015-2016 Believe in Ohio program whereby schools would receive funding in proportion to the number of plans that are completed and graded by their teachers. Here are the planned local high school and local middle school competition award funding criteria: (Note: Local middle school competition awards would be one fifth those of local high school competition awards.)

**Planned Funding for Local High School Student Competition Cash Awards (Based on the number of completed Plans):**

(Each awarded plan must earn a graded score of at least 24 points)

Plans	1-9	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99	100+
Grant Amount	\$0	\$500	\$1,000	\$1,500	\$2,000	\$2,500	\$3,000	\$3,500	\$4,000	\$4,500	\$5,000

**Planned Funding for Local Middle School Student Competition Cash Awards (Based on the number of completed Plans):**

(Teachers are allowed to use discretion in how they recognize student winners.)

Plans	1-9	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99	100+
Grant Amount	\$0	\$100	\$200	\$300	\$400	\$500	\$600	\$700	\$800	\$900	\$1,000

- While students might either work individually or in teams of up to 4 students (as determined by their teachers), awards at the local plan competitions would generally be limited to no more than \$500 per winning plan, whether it be a team or an individual plan.
- All plans would be judged (i.e. graded) for purposes of award competitions by local judges organized by the teachers utilizing Believe in Ohio's standardized judging rubrics. Teachers, at their option, might also include a supplemental "Shark Tank" type "pitch" competition as part of the judging process to determine the student winners of their plan award competition.
- The EEO support team will advise teachers and students of the potential for their students to also participate in other "pitch" competitions such as the "Teen Tech Tank" video pitch competition conducted by the Young Entrepreneur Institute at University School (also funded by the Burton D. Morgan Foundation), and/or "pitch" competitions conducted by universities who host STEM Forums with student ideas related to their faculty members who make presentations at their Forum.

**5. Supplemental funding (in addition to local competition award funding) to award multiple \$1,000 - \$2,500 scholarships to one or more of the top performing plan competition students:**

- Although EEO has begun a fund-raising campaign, as of the date of this writing, funding has not yet been secured for this part of the program. Assuming that funding is secured, participating local high schools with an approved STEM Plan competition, might award these scholarships to one or more of their top performing competition students, either at the discretion of the school's "Scholarship Committee" (if they utilize one) or through holding an independently-judged supplemental "plan presentation competition" and/or "pitch" competition. Following would be the funding formula:

### Funding for Local High School Supplemental Student Scholarship Awards (Based on the number of completed Plans):

(Each student awarded a Scholarship must have earned a graded score of at least 24 points to qualify for consideration for a scholarship.)

Plans	1-9	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99	100+
Grant Amount	\$0	\$1,000	\$2,000	\$3,000	\$4,000	\$5,000	\$6,000	\$7,000	\$8,000	\$9,000	\$10,000

### Illustrative Examples of Planned Local Competition Awards and Supplemental Scholarship Awards:

	Total # of STEM Commercialization Plans Graded	Total # of STEM Business Plans Graded	Total Award Grants \$ for STEM Commercialization Plan Students	Total Award Grant \$ for STEM Business Plan Students
High School "A":	20	40		
Local Competition Award \$			\$1,000	\$2,000
Local Scholarship Award \$			<u>\$2,000</u>	<u>\$4,000</u>
Total Award \$			\$3,000	\$6,000
Middle School "B":	80	40		
Local Competition Award \$			\$800	\$400
Local Scholarship Award \$			-	-
Total Award \$			\$800	\$400

### What sets NE Ohio Innovates apart from other grade K-12 entrepreneurship/innovation programs?

- **Northeast Ohio Innovates (NEO Innovates)** is an offshoot of the highly successful, proven statewide **Believe in Ohio** program that operated during 2014, 2015, and 2016. In fact, **NEO Innovates** utilizes the same program materials and resources as the **Believe in Ohio** statewide program did. (See Exhibit A for information.)
- What particularly sets **NEO Innovates** apart from many NE Ohio entrepreneurship/innovation programs is its substance, its extensive array of resources for teachers and students, its emphasis on creating pathways between the K-12 education system to the University System of Ohio and Ohio's career tech centers, and the overall, comprehensive scope of the program. (See page 2, point 3 for available teacher and student resources.)
- Also setting **NEO Innovates** apart is its emphasis on STEM as the primary catalyst for innovation and the importance of developing an "entrepreneurial mindset" to be a continuing force for innovation in whatever career a student chooses to pursue in the future.
- Additionally, setting **NEO Innovates** apart from many others is its strong emphasis on developing students' creative problem solving, critical thinking, collaboration and other "soft" skills that they will need in the future. This is accomplished through experiential learning and by utilizing a variation of the *Lean Business Model Canvas* which is taught in higher education institutions around the world.

### How Northeast Ohio Innovates differs from the former Believe in Ohio statewide program?

- **NEO Innovates** is a plan to restore program funding for the benefit of as many teachers and students as possible in Northeast Ohio who participated in the former Believe in Ohio statewide program. A longer-term goal is to hopefully eventually restore funding across all regions of Ohio.
- **Northeast Ohio Innovates** differs from the previous years' BiO statewide program in that there is no statewide competition at which scholarships to Ohio colleges and universities are awarded. Instead, it is planned that participating high schools would be eligible to receive an additional amount of funding (proportionate to the number of students from each school who participate in the program) for them to make one or more scholarship awards to their students who are participating in the program.
- These scholarships might either be awarded at the discretion of the school's "Scholarship Committee" (if they utilize one) or through holding an independently-judged supplemental "plan presentation competition" and/or "pitch" competition.

## EXHIBIT A – Why *Northeast Ohio Innovates* is Important

**NEO Innovates is about our children and grandchildren, and about helping ensure that they will have an opportunity to enjoy the same prosperity that earlier generations have enjoyed.**

- Never before has our country and our youth faced such an uncertain future.
- “The fact is ... ours is an innovation-driven world, an innovation-based economy, and our national and economic security rests on a foundation of innovation.”<sup>1</sup>
- Maintaining our prosperity requires that business and industry continually innovate and re-invent itself to create the new and improved products and services and jobs of the future needed to maintain our prosperity.
- Maintaining our prosperity also requires that our students develop the critical thinking, creative problem-solving, communication, and collaboration skills needed to fill the high-value, high-wage jobs of the future and develop the “entrepreneurial mindset” and risk-taking skills to become our country’s next generation of innovators.
- This request is about developing a program that specifically helps Northeast Ohio high school and middle school students begin to address these challenges. The program is based on a successful statewide STEM and entrepreneurship program that integrates entrepreneurship and innovation as pathways to create future jobs.

### **Additional points to consider:**

- There is a “skills gap” in our country that includes a shortage of workers with STEM skills and an entrepreneurial mindset, and workers with the “soft skills” (e.g., creative problem solving, critical thinking, and collaboration skills) that are needed in today’s Innovation Economy.
- “At issue is a nationwide shortage of workers for jobs requiring skills in STEM” “Simply too few qualified candidates are in the market. As a result, many of the 4 million job openings in the US go unfilled every year”.<sup>2</sup>
- “Over the next decade, nearly 3 ½ million manufacturing jobs likely need to be filled and the skills gap is expected to result in 2 million of those jobs going unfilled.”<sup>3</sup>

### **FACT: Our country, our state and our region must stimulate the development of a more competitive, high growth economy that will generate high-value, high-wage jobs of the future**

- In 2012, the Ohio Board of Regents “Commercialization Task Force” published a report which was the first-ever comprehensive report providing recommendations on improving statewide commercialization efforts among the university research and business community. Led by Regent Vinny Gupta and a large group of high-level university and business leaders, along with 600+ participants statewide, the report focused on recommendations on commercialization efforts between university research, and business and industry to drive job creation.<sup>4</sup>
- While a majority of the report dealt with recommendations for improving job creation and technology commercialization within the business and university communities, the report also offered recommendations to create pathways between the State’s K-12 education system and the University System of Ohio. Those recommendations included:
  - “The next generation of technology innovation will come from today’s students who should be exposed to an entrepreneurial curriculum, provided with real life experiences and supported in promoting their intellectual ideas.” (Page 6)
  - Ohio should “promote business plan competitions with meaningful preparation awards and follow-up benefits.” (Page 44)
  - Ohio should “offer competitive full and partial tuition ‘Entrepreneurship Scholarships’ for promising students who plan to study and engage in entrepreneurship, akin to athletic scholarships.” (Page 44)

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<sup>1</sup> Mr. Wes Bush, CEO, Northrop Grumman Corp., as quoted in the Aerospace Industries Association 2015 report “The Defining Workplace Challenge in US Aerospace & Defense: STEM Education, Training, Recruitment & Retention”.

<sup>2</sup> Aerospace Industries Association 2015 report The Defining Workplace Challenge in US Aerospace & Defense: STEM Education, Training, Recruitment & Retention”.

<sup>3</sup> Deloitte/Manufacturing Institute report titled “The skills gap in U.S. manufacturing 2015 and beyond”:

<sup>4</sup> June 2012 Ohio Board of Regents report titled “The Condition of Higher Education in Ohio: Advancing Ohio’s Innovation Economy”: