LEHMAN
COLLEGE

SCHOOL OF CONTINUING
AND PROFESSIONAL STUDIES

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Report
January 2016 - Present

CUNY New York City Council-Funded Initiatives at the Technology Incubator and Innovation Lab, CUNY on the Concourse, Lehman College, the City University of New York
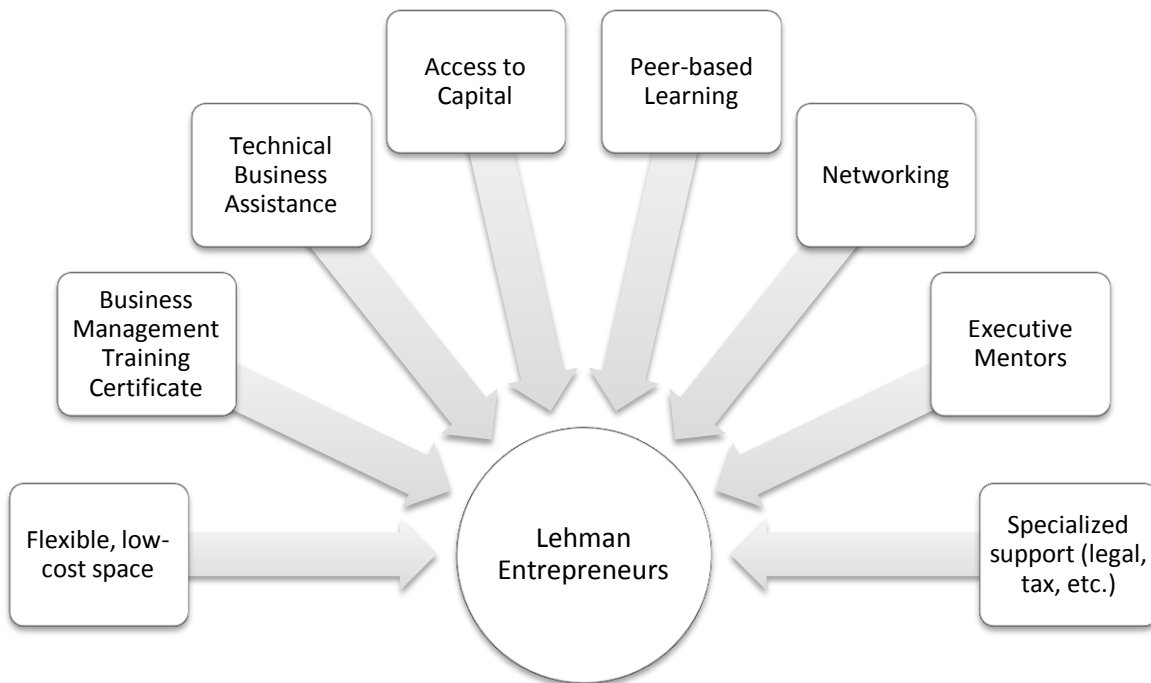
Introduction

Lehman College School of Continuing and Professional Studies (SCPS) is pleased to submit this report on the second year of the CUNY New York City Council-funded initiatives at the Technology Incubator. Small businesses are the driving force of economic improvement and social mobility in underserved communities. Lehman College has enhanced its two existing incubators (Bronx Business Bridge and Innovation lab located at CUNY on the Concourse), creating a core of talent and the foundation to attract high tech startups in the Bronx and enhance existing businesses by creating jobs, enhancing academic excellence and student success, encouraging collaborations, and leveraging resources. The key to Lehman's approach has been to combine skills development with an appropriate level of overall management theory while offering a full range of entrepreneurial supports and technical assistance. The Bronx Business Bridget provides its participants with flexible, low-cost space in which to bring their business plan from concept to reality and move to the next level. Successful completion of a business incubation program increases the likelihood that a startup company will stay in business for the long term. According to National Business Incubation Association, 87% of incubator graduates stayed in business, in contrast to 44% of all businesses.

New York City Council funding allowed Lehman College SCPS to:

1) *Develop & offer* advanced information technology training programs to prepare Bronx residents for careers in information technology
2) *Incubate* skilled entrepreneurs through enhanced focus on professional practice and business development.
3) *Utilize* the Bronx Business Bridge and the Innovation Lab to develop and nurture talent and creative leadership.

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Innovation Lab and Technology Incubator Design and Services

For startups and businesses expanding in the Bronx, Lehman's incubator enables entrepreneurs to bridge the gap between plans and execution. The services include a full suite of business management support services, free training on Computer Science coding and social media strategy, business fundamentals and entrepreneurship, and access to a loan program and early stage capital for eligible participants. The Innovation lab benefits from its proximity to public transportation and its central location. It is also a focus for services and support from Lehman College's School of Continuing and Professional Studies, including the Small Business Development Center, Continuing Education, which provides a multitude of certification courses in the tech industry and the Adult Degree Program.

Diagram of services pointing to "Lehman Entrepreneurs": Access to Capital, Peer-based Learning, Technical Business Assistance, Networking, Business Management Training Certificate, Executive Mentors, Flexible, low-cost space, Specialized support (legal, tax, etc.)

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http://www.lehman.edu/bronx-business-bridge/

In its design, the layout of the open-plan format of both the Bronx Business Bridge and the Innovation lab encourages the development of a community among tech entrepreneurs and other small businesses to foster collaboration.

January 2016 – Present

Funding from the city council enhanced the technology and innovation lab and made possible:

1. Computer Science and Coding Training, Events and Workshops
2. Creation of a Social Media Strategy & Resource Guide and Social Media Campaign
3. Computer Science After-School and Summer Program at Lehman High School

The strong infrastructure developed through this funding also made possible the foundation for the next stage of the development of the technology and innovation lab, that is, a Virtual Reality Training Academy, described in section 4 of the attachments.

1. Computer Science and Coding Training, Events and Workshops

In spring 2016 Lehman faculty, Hendrix Taveras and Eva Sofianos, held multiple meet-up events to engage the Bronx Community and bring in aspiring entrepreneurs. At eighteen meet-ups held between January 12, 2016 and February 15, 2017, an average of 30-100 technologists met up at CUNY on the Concourse for events including Google cloud training, Android and other study jams, "Path to Success" for women techmakers, Bronx Innovation Start up Ideas. Events included a series of idea pitch nights, followed by a MVP (Minimum Viable Product) Weekend Event. Web and Android App Development training sessions provided entrepreneurs with training in how to use some of the technical tools available. Technically savvy members of the business community connected with the less-technical to share good practice and work together. The meet-up calendar, information and photos from these events can be found at:

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https://www.meetup.com/GDG-Bronx/events/past/

This training culminated in the development of the Social Media Strategy and Resource Guide, a manual intended to disseminate information more widely.

Innovation lab events in spring 2016 built on the momentum of 2015 when Lehman faculty ran 2 sessions of Traincube in which businesses from the Bridge and Lehman students developed prototype solutions in an effort to win their bids and continue working together, thus providing lower cost technical solutions to the small businesses. Slides, videos with further detail and photos can be found at:

http://bit.ly/traincube-summer2015
https://www.youtube.com/watch?v=VesFzbuNekM
https://www.youtube.com/watch?v=A62fU6cIQHI
https://www.youtube.com/watch?v=1424hKJCf48
https://www.youtube.com/watch?v=3qzZB3B3yak

Innovation lab special events: (Item number 1 from the attachment)

a) Tuesday April 5, 2016
   The Path to Success - Women Techmakers 2016

b) Friday May 27, 2016
   Google I/O Extended Bronx 2016

c) Tuesday June 21, 2016
   Bronx Innovation Lab - Startup Ideas: Pitch & Networking

d) Saturday, October 29, 2016
   The Google Developer Group held a Bronx DevFest at the Bronx Innovation lab from 9:30am-4:00pm where they celebrated and leaned about Firebase and Progressive Web Apps

e) Friday, December 9, 2016

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Clive Bolton, a Google Developer and Group Lead Organizer from Seattle (formerly development director at Full Stack Hacker) presented on progressive web apps at the Bronx Innovation lab

2. **Creation of a Social Media Strategy & Resource Guide and Social Media Campaign**

The Social Media Strategy and Resource Guide and Manual (Item number 2 from the attachment) was created by the two Lehman faculty, Hendrix Tavarez and Eva Sofianos, who had been working with the entrepreneurs and recognized the need to collate information into one accessible site. Along with the director of CUNY on the Concourse (Samira Bahrami) in fall 2016 they created the Guide with the goal of making available a resource for all the small businesses served in the Bronx Business Bridge, the Innovation lab, the Small Business Development Center and the programs comprising the School of Continuing and Professional Studies. The total number of small businesses impacted by this resource is:

- Business Incubator/Bronx Business Bridge: 30
- Innovation lab: 300
- Small Business Development Center: 672

SCPS departments that are using social media for outreach and recruitment include the Adult Degree Program (enrollment: 1,138), Workforce Development (enrollment: 708) and non-credit Continuing Education (enrollment: 8,608), which together serve over 11,000 adult community residents with training, certification and degree programs.

The primary goal of the resource guide and manual was to enable small businesses, both those involved in technology and those using technology, to reach and engage with their customers with creativity, humor and consistency and thereby to foster their missions and goals, expand their businesses and prosper.

Technically savvy members of Bronx business community who attended the Innovation lab program (Startup Ideas, Pitch & Networking) during June 2016, were carefully selected by Lehman faculty, Hendrix Tavarez and Eva Sofianos, to support the small businesses at Bronx Business Bridge, primarily to develop and implement their social media campaigns. The technically savvy individuals, known as "IT mentors", were stationed at the Innovation lab for a duration of two months to

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provide Social Media and Web Design services to the businesses, as needed, on a "drop in" basis. The purpose of linking tech innovators with entrepreneurs was to maximize the spread of the social media knowledge and resources throughout the business community in the Bronx.

Outcomes and Economic Impacts

Initiatives at the Technology Incubator over the past year resulted in:
a) A steady growth in the number of job-ready skilled entrepreneurs from the Bronx.
b) Growth in the number of new tech businesses launched in the Bronx.
c) Growth in tech-related job opportunities in the Bronx.
d) Increase of minority and women-owned businesses in Technology.
e) Capital expenditures present opportunities for local employment and sales, stimulating entrepreneurial effort in the Bronx.
f) The businesses using COTC are helping build the foundation for Technology employment and activity in the Bronx.

Businesses served by Lehman College's Small Business Development Center, which were directly and indirectly assisted by all the training at CUNY on the Concourse created 114 jobs, saved another 126 and had an economic impact of over $9 million (defined as the combination of equity contribution and bank financing).

3. **Computer Science After-School and Summer Program at Lehman High School**

The skills and future careers of youth in the Bronx will be developed through a computer science after-school and Saturday program at Lehman High School and a computer science summer program at Lehman High School.

Using funds from the City Council and supported by SCPS, Lehman High School will host a computer science after-school, Saturday and summer program, which will benefit teachers, students and parents. The curriculum will consist of an engaging blend of instruction in web development (HTML, CSS), programming (Scratch, JavaScript) and technology entrepreneurship offered on Saturdays and after school. The Summer Program will be an immersive experience for students that will prepare

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them to study computer science at Lehman College. A total of sixty (60) students in grades 10-11 will participate in the computer science training, which will act as a feeder program for the Advanced Placement Computer Science Principles course and eventually Lehman College. All Lehman high school students will learn about the local computer science programs through the recruitment process. See Item number 3 of the attachment for the scope of work and the request for proposals for this program for high school students, which is currently being bid out through Lehman College's procurement office.

Lehman College and a technology training partner (to be named after a competitive bidding process is completed) will run Code/Lehman^2, a customized computer science and coding program for 60 students, five teachers, and five parents from Lehman High School. Because we share a common namesake, Lehman College has a particular interest in helping the school to reinvent itself. The Code/Lehman^2 curriculum will focus on web development (HTML, CSS), programming (Scratch, JavaScript), and technology entrepreneurship. Students will attend an after-school program offered once per week at the high school and Saturday sessions held at the Lehman College Innovation Lab located at CUNY on the Concourse.

We also intend to offer an immersive summer experience for 20 of the 60 students that will prepare them to major in computer science at Lehman College. The summer program will include:1) an advanced computer science curriculum geared toward the AP Computer Science Principles exam; 2) volunteer speakers from the tech community; and 3) field trips to tech companies throughout New York City.

The program was presented on October 27th, 2016, to the Lehman High school principal and was subsequently announced to the students during the school assembly on December 14th 2016. Flyers were distributed and further student enrollment in to the program was left to be finalized after the formal award of the technology training partner.

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IT Incubator Budget FY 2017		$450,000
	Planned	**Actual**
Personnel		
Temp	254,867.26	$296,578.60
Fringe (13%)	33,132.74	$52,637.40
Total Personnel	288,000.00	$349,216.00
OTPS		
Supplies	5,000.00	$3,924.00
Services	100,000.00	$69,860.00
Acquisition	57,000.00	$27,000.00
Travel	-	
Total OTPS	162,000.00	$100,784.00
Grand Total	450,000.00	$450,000.00

Next Steps

4. <u>Virtual Reality Training Academy- EON</u>

The business incubators are part of Lehman's multi-year vision to create an Information Technology Hub in the Bronx. This now includes a Virtual Reality Training Academy and Development Lab to train the borough's growing sector of technology professionals. As industries continue to be disrupted by technological advances, new fields are emerging and workers will need retraining to adapt and stay competitive. The Virtual and Augmented Reality field is quickly growing and will require an infusion of talent to meet the market's demands, which some project could be $150 billion by 2020. Lehman College is the first local higher educational institution to offer this training. The college was chosen to partner with EON Reality Inc., a world leader in virtual and augmented reality knowledge transfer. EON Reality's seventeen years of experience in using Virtual Reality for training and education will empower Lehman to create VR learning modules to help train workers for other industries. It has created a conduit for talent and ideas to reach important decision makers in the information technology industry.

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The 11-month program starts in May 2017 with three months of classes in which students will be immersed in VR and AR content creation and theory (topics of study will include animation, 3D graphics, and web design). The following eight months will be devoted to real-life lab projects that students can use to develop their entrepreneurial skills. Additionally, the facility includes an Icube Mobile, a four-wall immersive VR room that will enable students to experience and test their creations. The Virtual Reality Training Academy is a major addition to the Bronx Business Bridge and the Innovation lab, building on all the technology related business development concentrated at CUNY on the Concourse and further expanding possibilities for significant job growth in the technology sector in the Bronx.

The Virtual Reality and Information Technology Hub is supported by Lehman's President Jose Luis Cruz and Borough President Rubén Díaz Jr who has said: "Advances in science and technology move at the speed of light and our higher-learning educational institutions must keep up, at the same pace, with the changes that occur in their field. I am extremely proud of my alma mater, Lehman College, launching a Virtual Reality Training Academy, understanding the importance of teaching new career fields and giving their students—our future leaders in science and technology—the necessary tools to adapt and compete with the best-of-the best in the global job market. I want to thank Lehman College for starting up this program and providing our brightest students with the most modern means to elevate their career skill-sets, bolstering our local, city and national economy in the long-term by providing quality education, further enhancing the Bronx's workforce."

For more information visit: http://lehman.edu/vr/ and www.eonreality.com.