FINAL REPORT
Grant No: NVF-PITUN-Massachusetts Institute of Technology-Subgrant-009287-2019-09-01

1. Narrative report (10 pages maximum), including the following information

a. Goals and objectives, with results achieved:

The 2019 PIT-UN grant was used, as promised, to create four (three hours a week) online teaching modules and a certification exam to train qualified cybersecurity risk assessors. These modules have been available (free) online on MITx/Edx since May 2020. In just four months, more than 6,000 people have enrolled and 857 of them have paid the $100 to take the certification exam at the end of the fourth module. Of the 857 who paid to take the certification exam, about 51% of them have passed the exam and received a certificate of completion. This is an incredible achievement in such a short period of time. The number of enrollments continues to grow at a consistent rate (see Figure 1). In terms of geographic distribution, over 147 countries have been represented by the enrollees, with the highest number of enrollments from the United States (13.4%), followed by India (12.5%).
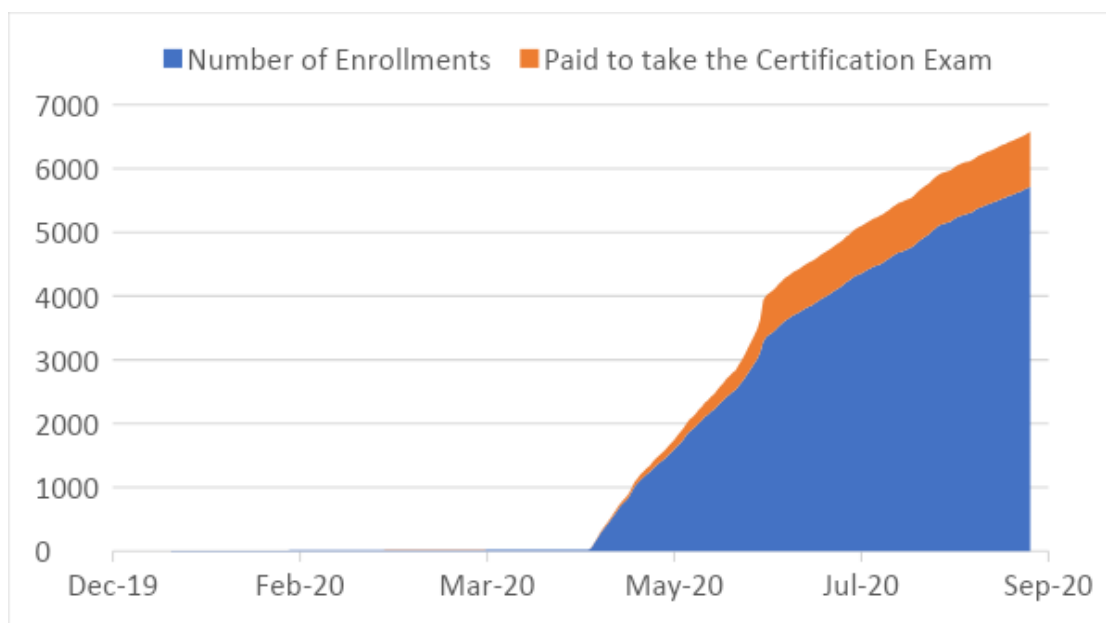

Figure 1. Number of Enrollments in the MITx/Edx Modules (May-Sep 2020)

With the help of MITx/Edx, the four modules and certification exam were made available at half price for the first 50 enrollments from PIT-UN member universities, including Pepperdine University and Pardee Rand Graduate School. We anticipate greater participation from other member universities in the Fall and coming Spring (2021).

In Spring 2020, the online modules were folded into new undergraduate and graduate classes at MIT (The Cybersecurity Clinic) and were pilot tested during the entire semester. During the pilot test run, many suggestions were offered by MIT students, especially on the practice questions embedded in the four modules. Lots of improvements have been made based on the feedback provided by the students during this pilot test. This Fall, the revised online modules have been folded into a new "hybrid" course: MIT Cybersecurity Clinic which has been added officially to the MIT catalogue (course numbers: 11.074/11.274) for both undergraduate and graduate students. First, the students complete the four modules online during the first four weeks of the semester while meeting weekly with Professor Susskind and Clinic Director, Mr. Jungwoo Chun. Then, they will meet in person with the instructors once a week for two hours during the remaining nine weeks of the semester to review their ongoing work for client agencies. The course is part of the new 11-6 Urban Science joint degree between the Department of Urban Studies and Planning and the Department of Computer Science and Electrical Engineering and currently in the process of being reviewed for inclusion as an Institute-wide undergraduate requirement – one of the Restricted Electives in Science and Technology (REST).

The MIT Cybersecurity Clinic has established partnerships with state and local agencies including MassCyber and the Massachusetts Municipal Association. MassCyber and the Massachusetts Municipal Association are actively helping to advertise the Clinic's availability to cities and towns in the New England region. They are encouraging them to apply to become clients of the Clinic. Current clients working with the Clinic this Fall include Worcester, Massachusetts, the second largest city in New England, and Framingham, Massachusetts, one of the largest towns in Massachusetts.

Since the launch of the pilot run of the course last Spring, Professor Susskind has been invited to teach in the Cybersecurity research workshop in the Sloan School of Management and to make a presentation in the cybersecurity course offered by the MIT Department of Political Science. Professor Susskind also collaborated with colleagues who teach cybersecurity-related courses across the Institute (including Sloan School of Management, CSAIL, and the School of Humanities and Social Sciences) to submit a joint proposal on Cybersecurity and AI to NSF. Unfortunately, it was not selected, but the relationships among faculty across the MIT campus who teach all aspects of cybersecurity are solidifying.

Professor Susskind has maintained communications with PIT-UN staff and offered to host a webinar for PIT-UN member schools. He prepared a short video for the PIT-UN staff on the lessons learned from the project. He has also agreed to present at the upcoming PIT-UN Conference in November. In response to a request from a faculty member at the University of Alabama who plans to launch a Cybersecurity Clinic modeled after the PIT-UN sponsored Clinic at MIT, Professor Susskind has shared all the materials MIT uses to guide student work with client agencies. MIT Cybersecurity Clinic is committed to helping other PIT-UN member universities launch regional Clinics of their own.

b. Copies of any publications or media generated as a result of the project

- *Link to MIT Cybersecurity Clinic:*
  http://urbancyberdefense.mit.edu/cybersecurityclinic

- *Link to introductory video of the MITx/Edx online modules:*
  https://www.edx.org/course/cybersecurity-clinic

- *Link to WGBH article and audio "MIT Expert Explains Ransomware Attacks":*
  https://www.wgbh.org/news/science-and-technology/2019/11/07/mit-expert-explains-ransomware-attacks

- *MIT Sloan School of Management Newsletter "8 non-technical ways to improve your company's cybersecurity" by L. Susskind and S. Brown:*
  https://mitsloan.mit.edu/ideas-made-to-matter/8-non-technical-ways-to-improve-your-companys-cybersecurity

c. As stated in Section VII(B) of the Agreement, the full report must include the following certification:

I, Larry Susskind, PI of this project, certify that all Massachusetts Institute of Technology activities were and are consistent with charitable purposes under Sections 501(c)(3) and 509(a)(1), (2) or (3) of the Internal Revenue Code, and Massachusetts Institute of Technology complied with all provisions and restrictions contained in this Agreement, including, for example and without limitation, those provisions related to lobbying and political activity.

2. List of all intellectual property and assets purchased or created with the Grant.

The MITx/Edx modules distributed online are copyrighted by MIT with credit to PIT-UN. We have agreed to make the materials available for free to anyone who wants to use them (except the certification exam). There is a $100 fee to take the certification exam. We will provide discount coupons (50% off) for up to 50 PIT-UN registrants for the certification exam.