2023

21st Century Techforce Annual Dossier

DEPARTMENT OF ECONOMIC DEVELOPMENT AND COMMERCE

21ST CENTURY TECHFORCE PUERTO RICO

Approved by the Office of the Election Comptroller OCE-SA-2024-03485

Manuel Cidre
Secretary of Puerto Rico's Department of Economic Development and Commerce (DEDC)

Welcome to the 21st Century Techforce 2023 Annual Dossier. It is our responsibility to share with all our stakeholders the progress, challenges and success we have seen with this project. I am extremely proud of the work our team at DEDC and the community members engaged have produced. This past year was centered on forging strong partnerships and cultivating a shared vision dedicated to investing in Puerto Rico's exceptional human capital,with the goal of establishing the island as a leading force in the global knowledge economy. The contributions of community members, including K-12 schools, universities, and the private sector, have been instrumental in developing the foundational investments and roadmap to enable this vision.

On a personal note, I am profoundly moved by the success stories emerging from community champions dedicated to advancing initiatives in collaboration with the DEDC. Moreover, I hold the utmost respect for those who have seized opportunities that require significant commitments to enhance their professional skills through various program offerings, such as coding bootcamps, among others. Although embracing these challenges is not without difficulty, I am confident that their hard work will yield significant rewards.

Looking ahead to 2024 and beyond, we at the DEDC remain committed to working with the same rigor and passion as in our inaugural year, ensuring the program's successful realization and expanding opportunities for the people of Puerto Rico. I extend my heartfelt gratitude to all who have participated in this program. It is an honor to collaborate in building a more prosperous Puerto Rico.

Our goal

Become a top 10 state/territory for 21st century talent by generating

+50K

additional skilled workers over the next 10 years

The DEDC's vision is for Puerto Rico to become a top 10 state/territory for 21st Century talent by generating about 50,000 additional skilled workers over the next 10 years. So far, DDEC has distributed $20 million to fund 9 K-12 Career Connection Lighthouses pilots across the island; fund 9 institutions to scale their training offering in Puerto Rico; provide grants and technical assistance to 6 higher education institutions to revamp existing programs and introduce stackable credentials; and design and fund the new employer workforce concierge capability within InvestPR which serves as a recruitment and training service for employers looking to locate or expand in Puerto Rico.

K-12 Lighthouses

Better prepare K-12 students for 21st century jobs by increasing technical career-focused programs and upskilling teachers

Impact

9 schools

selected as pilot lighthouses to integrate computer science in the classroom

1700+

students in K12 schools impacted across pilots

Short-form Credentials Grant

Increase availability and quality of short-form technical credentials

Impact

9 providers

providers selected as grant winners

259+

enrolled students to date

Stackable Credentials Grant

Enabling multiple credentials that stack on or supplement each other to support universities

Impact

6 universities

partners chosen to re-design their curricula into stackable certificates

840+

students to be impacted next year once program launches

Employer Workforce Concierge

Provide a one-stop-shop for employers to address 21st century talent needs including custom recruiting and training

Impact (expected)

2-3 companies

procured with employer concierge service

100+

roles filled in applicable industries

Deep Dive | Short Form Credentials

We partnered with short form credential providers to set up a robust set of alternative, short term pathways (e.g., coding bootcamps, data analytics courses, etc.) for people who are interested in learning tech skills without the need to go back to college.

Why this matters:

Providing lower cost, short-term alternatives to learn tech skills will allow people to enhance their professional skillset and pivot in their career paths. Additionally, it expands access to tech careers by reducing the time commitment or cost burden that learning these skills would otherwise entail. Short form credential providers play a vital role in not only teaching these skills but also in helping students find tech careers once they have graduated, facilitating economic mobility.

9 Providers as grant winners

forte
Holberton
IRON HACK
NUC UNIVERSITY
UNIVERSIDAD DE PUERTO RICO CAROLINA
gener8tor
Xtillion
34

Key general progress facts:

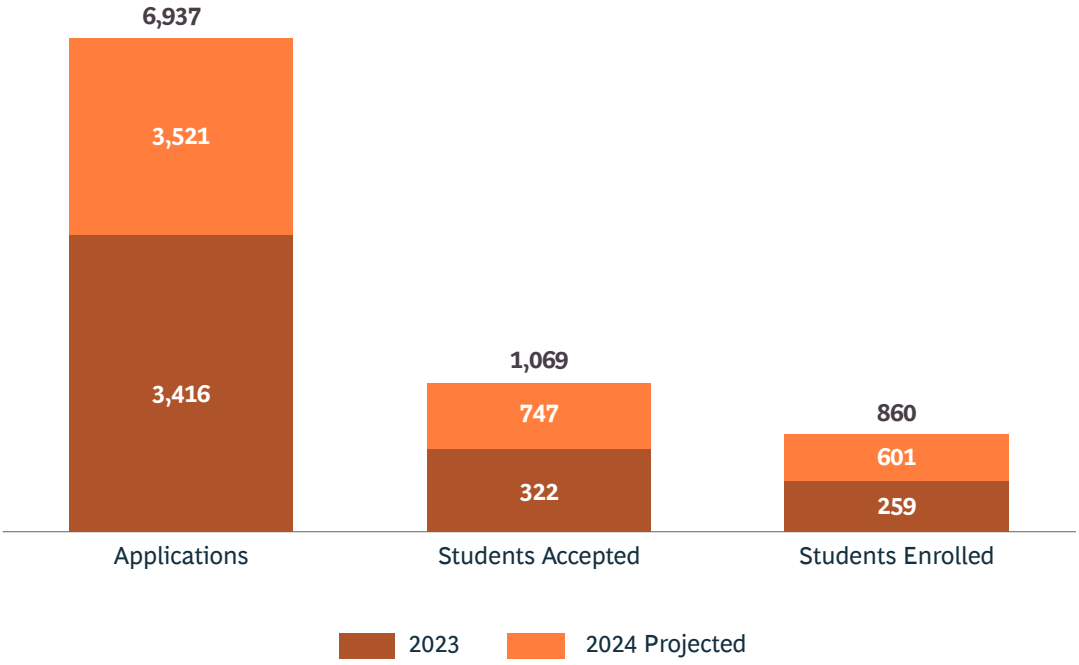
10+ technology competencies offered through programs (e.g., coding, web dev, cyber-security, etc.)

3 programs launched, 3 programs teaching, and 3 still in design

More than 3000 applications received and 259 enrolled students across programs

600+ total students projected to be impacted by 2024

As of December 2023:



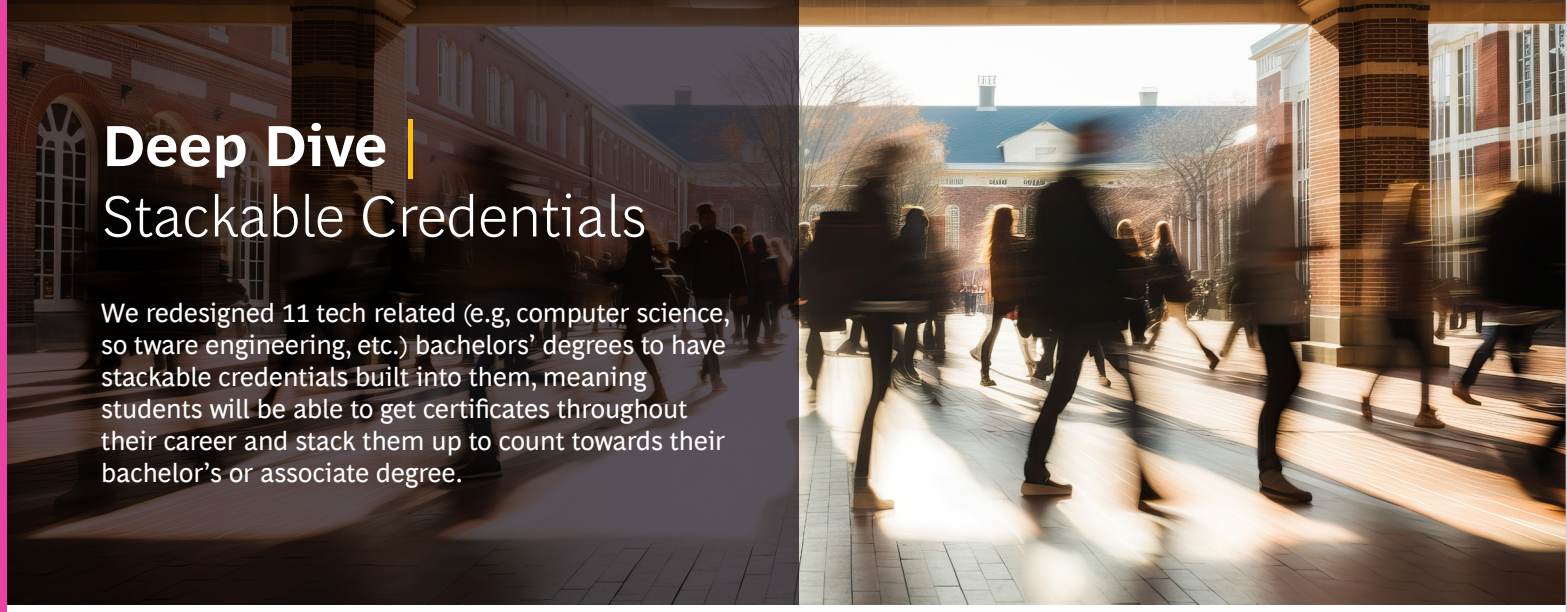
Spotlight:

Luis and Alex with Ironhack

Luis and Alex are twin brothers who have always wanted to design websites, understand how information is managed, and visualize data in technology. After school, they realized they needed more practical experience to launch their careers in technology. Luis joined the web development program, while Alex enrolled in the data analytics program. They are expected to graduate in February of 2024.

Gabriel from Holberton Coding Academy

Gabriel completed a bachelor's degree in Psychology, but upon realizing that it would take him several more years to practice in his field, and upon hearing the news that his family would grow, he decided to study the highly demanded field of programming. Ten months later, after choosing Holberton, Gabriel is already employed at Evertec as a software developer.



Deep Dive | Stackable Credentials

We redesigned 11 tech related (e.g, computer science, so tware engineering, etc.) bachelors' degrees to have stackable credentials built into them, meaning students will be able to get certificates throughout their career and stack them up to count towards their bachelor's or associate degree.

Why this matters:

Stackable credentials give flexibility to students who might not be able to complete a bachelor's or associate's degree in one go, while giving them industry validated certificates that will be useful to get jobs. Furthermore, these credentials are additive by nature, and they count for general degree progress. It is a tailored approach to education with the needs of students in mind, recognizing that students need not suffer if they cannot complete their degree continuously while granting them credentials that will help them in the labor market.

6 Universities as grant winners

UNIVERSIDAD DE PUERTO RICO EN BAYAMÓN 1971

UNIVERSIDAD ANA G. MÉNDEZ UAGM

UNIVERSIDAD POLITÉCNICA PUERTO RICO

SAGRADO Universidad del Sagrado Corazón

RECINTO UNIVERSITARIO DE MAYAGÜEZ UNIVERSIDAD DE PUERTO RICO

INTER

Key general progress:

11 bachelor's redesigned offering 26 credentials amongst them
- 9 associates degrees redesigned
- 17 certificates made available

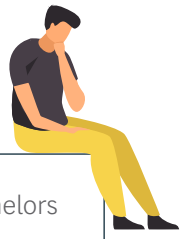
750+ students automatically eligible for certificates

90+ students that can obtain certificates retroactively

We provided technical assistance to grantees to ensure the highest quality and consistency. Here are some of the design guidelines:

- Bachelor program has an associate degree and certificates within it (stackable design)
- Certificates are within 12–19 credits, minimum 150 hours, and can be attained in less than two years. Associates have 55–70 credits and can be achieved in a minimum of two years
- Courses were strategically designed to have technical skills related to the program name and to have an emphasis on developing both critical thinking and English skills
- Degree includes a capstone/fieldwork real project as a culmination of studies
- Private sector stakeholders were engaged to not only validate curricula offerings but to give ideas of what skills would it be most helpful to develop in line with workforce needs

Did you know?



1. Certificates can be attained by graduates from other Bachelors
2. Offerings include credits that can be taken in high-school

Spotlight:

Professor Omar Diaz-Rivera – *UPR Bayamon*

As a university professor deeply committed to fostering innovation and academic excellence, I am immensely grateful for the opportunity presented by the recent grant awarded to our institution. This grant serves as a catalyst for developing and enhancing technological curricula within our university, allowing us to expand our educational horizons. The importance of integrating technology into our academic programs cannot be overstated in today's rapidly evolving world. It equips our students with the essential skills and knowledge needed to thrive in a digital landscape, preparing them to become adaptable and proficient contributors to various industries.

Deep Dive | K-12 lighthouse schools

We trained teachers in 9 pilot schools to start teaching computer science and robotics. This served as the building block for the subsequent program expansion where teachers will be trained across the island. Starting 2024, all K-12 will be required to take a computer science class to graduate. Additionally, schools are being partnered with universities and private companies as part of our innovative “Techforce Partnerships” to increase students’ exposure to tech careers.

Why this matters:

Students that get exposure and see the importance of computer science are 4x more likely to be interested in learning about it. Providing spaces for students to engage with tech from an early age will generate opportunities for them to envision the possibilities that further exploring tech as a professional career could have and set them up for success.

Survey results:

Ran a survey recurringly of +1k K12 students to gauge their interest and exposure to tech.

36%	60%	8%	9%
August	December	August	December
have had technology classes		interested in Computer Science as a career	

***Note:** computer science classes began after survey was distributed in August

9 pilot K12 lighthouse

Key general progress facts:

9	schools selected as pilot lighthouses to integrate computer science in the classroom
1,700+	students expected to be impacted across pilots
Trained **20**	teachers in computer science and 19 on robotics
Established **9**	"Techforce Partnerships" each with a school, a university, and a local private sector company

Working with pilot schools to install new materials in tech classes

Schools have submitted a list of materials to refurbish and modernize technology classrooms to provide the highest quality learning experience for students

Spotlight:

Sotero Figueroa Specialized School

Sotero Figueroa is one of the nine schools that has started implementing computer science classes as part of their curriculum. Their teachers were given an intensive training session that prepared them to start teaching this content to students ahead of receiving grant materials.

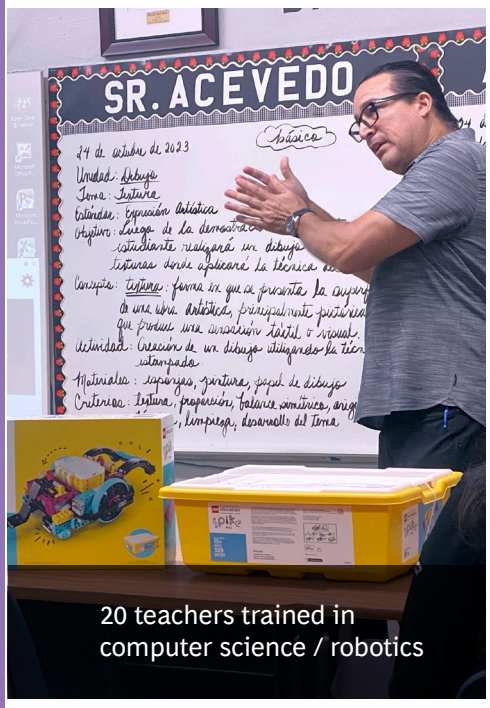
Escuela Juan Cancio Ortiz de la Renta

The Juan Cancio Ortiz de la Renta school received and installed several materials to start the tech labs in December. This school, which delves into agricultural topics with its students, will be using an agro-bot and a greenhouse to further its innovative thinking.

Executive order signed to advance exposure to tech from an early age through new graduation requirement for all K12 schools

New school graduation requirement

Executive Order 2023-031 now requires all K-12 students to have taken at least one Computer Science course prior to graduation.



20 teachers trained in computer science / robotics

The reasons to pursue this initiative were abundant…

- Survey of 1000+ K12 students reveals **70%** is interested in learning tech skills while only **22%** wants to pursue a career in tech
- Students are **17%** more likely to get into university if they have previously taken a computer science course in high/middle school
- Computer science graduates can make up to **40%** more in earnings than graduates from other careers, in average

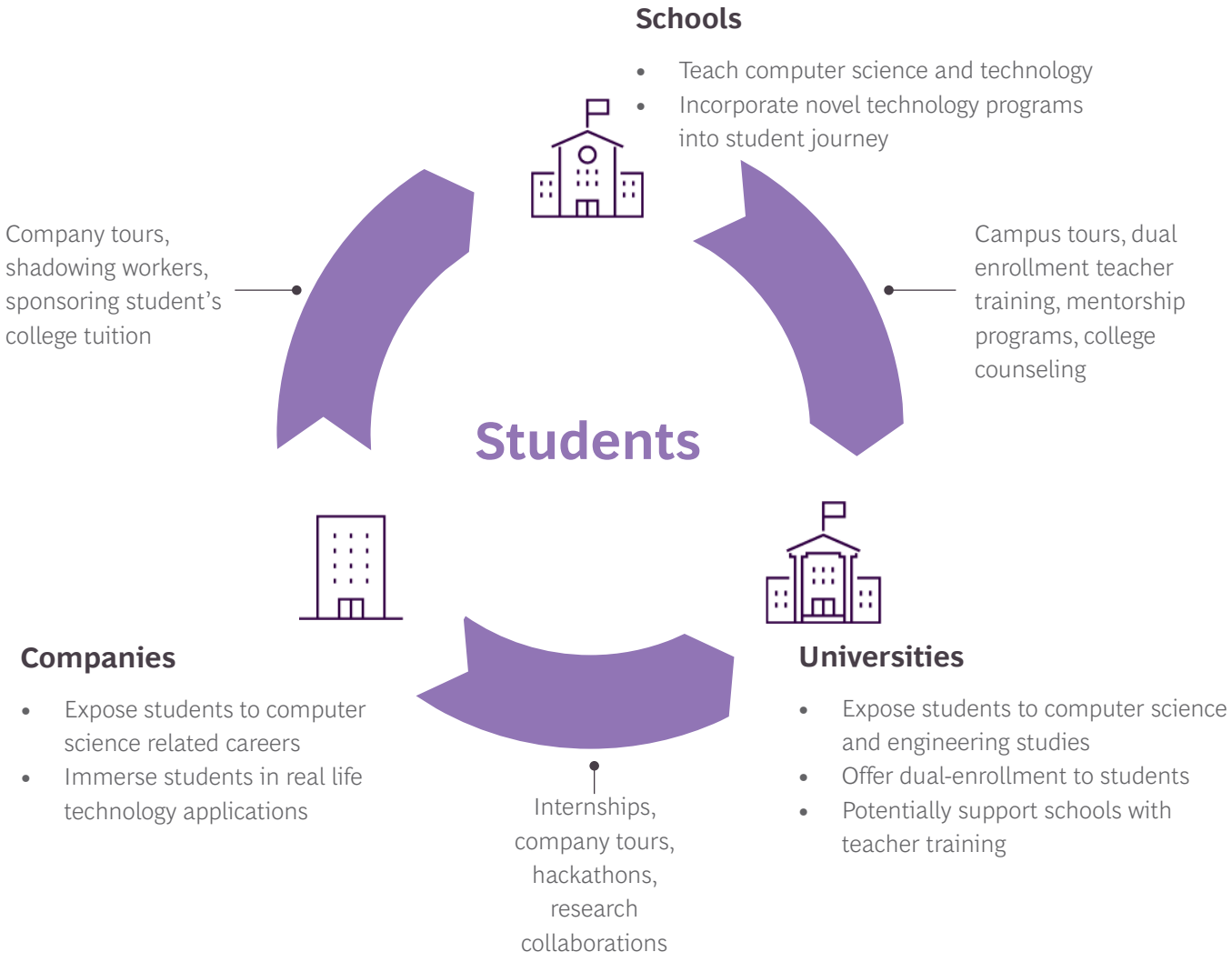
…and we are excited to implement it through a detailed plan

- So far, 20 teachers have already been trained. By next year, the goal is to train 230 teachers, covering all PR high schools.
- Integrate developed foundational curriculum of computer science and applied technologies so that by school year 2024-2025 all PR schools offer computer science classes

Source: Bureau of Labor Statistics Employment Projections; National Center for Education Statistics (NCES) IPEDS Completions Survey; The Hamilton Project (Brookings); Code.org

Techforce Partnerships

Techforce partnerships are models between schools universities, and private companies that will support students and expand their exposure to Computer Science and Technology pathways / careers, through programmed activities and initiatives

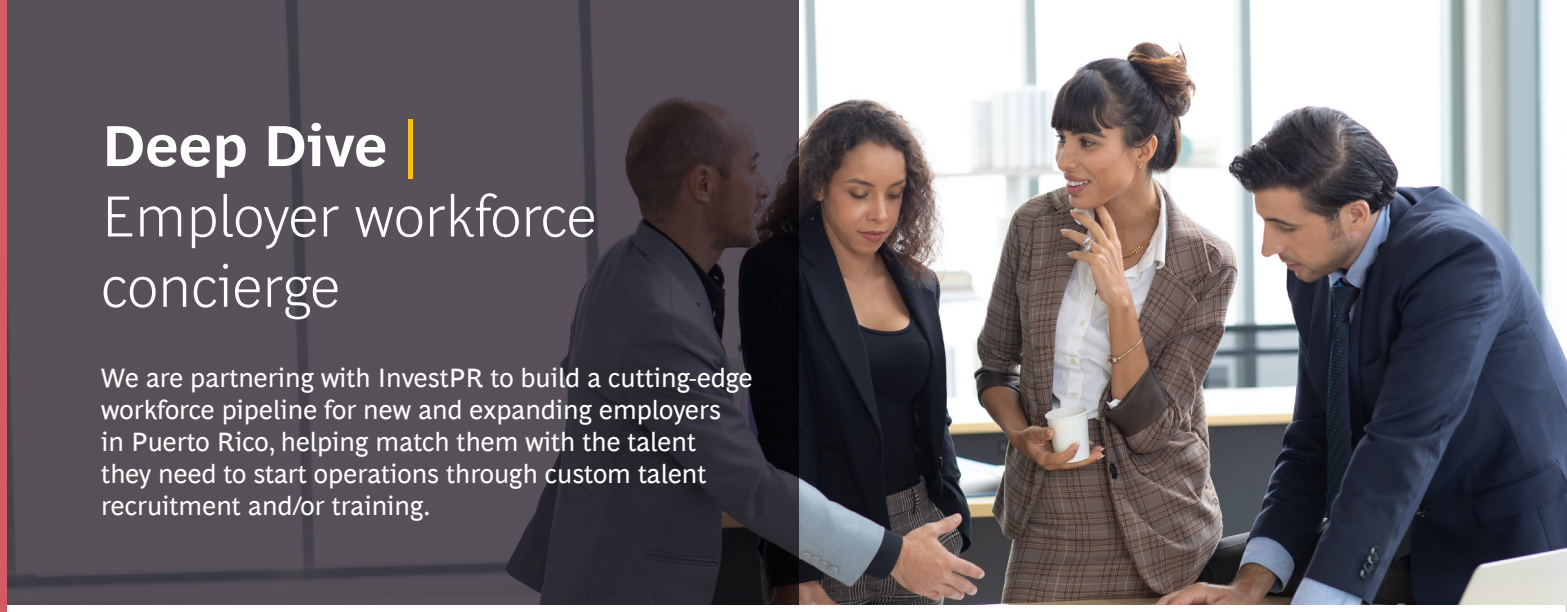


We are grateful to our partner universities and companies for making this possible

AUDIO.VISUAL.CONCEPTS · CGI · BANCO POPULAR · CooperVision · AMGEN

UNIVERSIDAD DE PUERTO RICO CAROLINA · RECINTO UNIVERSITARIO DE MAYAGÜEZ · UNIVERSIDAD DE PUERTO RICO EN BAYAMÓN · UNIVERSIDAD ANA G. MÉNDEZ UAGM · UNIVERSIDAD POLITÉCNICA DE PUERTO RICO · INTER

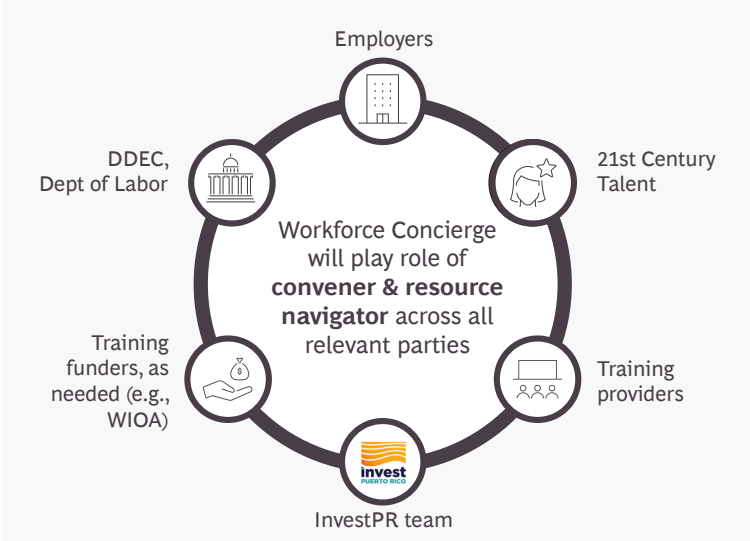
Deep Dive | Employer workforce concierge



We are partnering with InvestPR to build a cutting-edge workforce pipeline for new and expanding employers in Puerto Rico, helping match them with the talent they need to start operations through custom talent recruitment and/or training.

Why this matters:

It's critical to ensure that individuals' 21st Century skills are aligned with the needs of the job market. Working directly with companies investing in Puerto Rico will allow us to proactively adapt programs to emerging employer needs and ensure that 21st Century talent is being placed into relevant roles. Additionally, offering high-touch workforce support to priority employers will help attract new businesses to the island, since 95% of executives rate availability of skilled labor as critical in site selection.



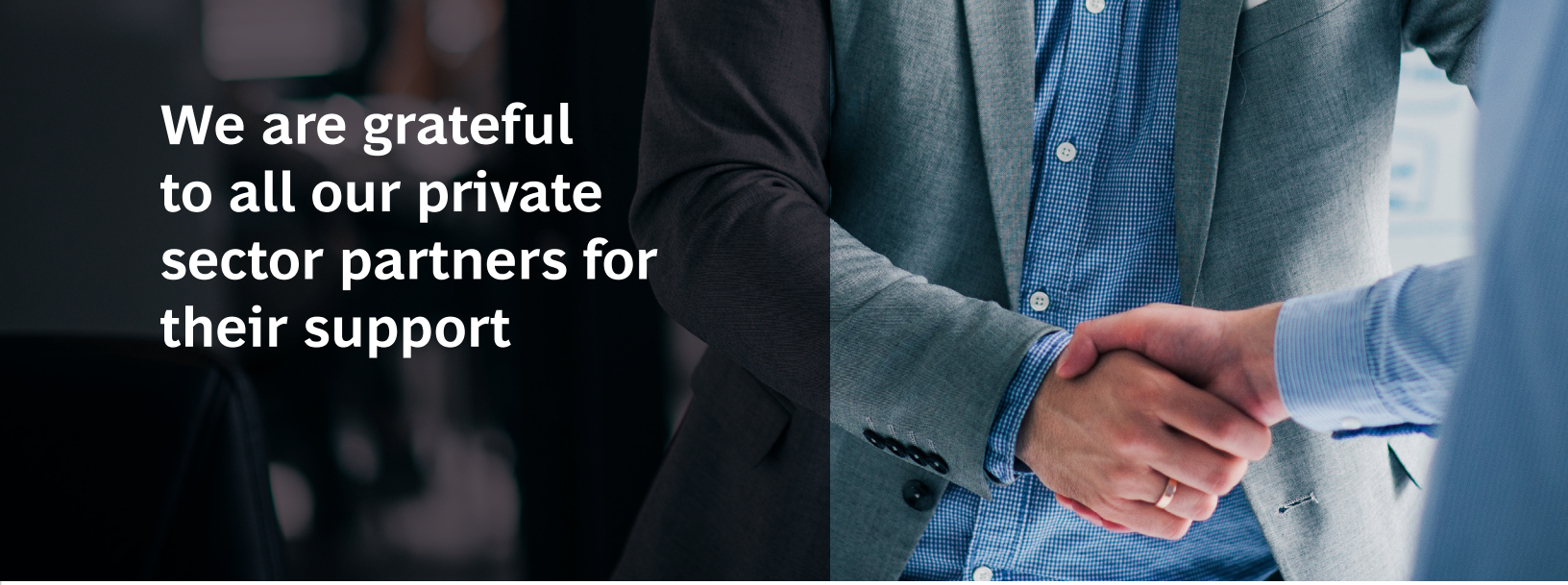
Concept is modeled after long-running, successful programs in other states

Georgia Quick Start[1]
Delivered 6,630+ projects training 1.2M+ employees since its creation in 19671
Cited as "deciding factor" in companies choosing Georgia – e.g., Kia, King's Hawaiian, SK Battery, Takeda Pharmaceuticals, Hyundai, Starbucks, and more[1]

South Carolina's ReadySC
Trained 300k+ employees for 2,200+ companies since 1961[2]
Boeing, BMW, Mercedes Benz Vans, Samsung, Volvo, and more have touted the training program's competitive edge[2]

Louisiana Fast Start
Trained 32k+ employees and 230+ companies since 2008[3]

1. Technical College System of Georgia website 2. SC Technical College System Budget Request 2021-22 3. Expansion Solutions Magazine



We are grateful to all our private sector partners for their support

Employer Panel

Gathered +10 plus private sector leaders to give input to stackable and short form grantees on their curricula design

Techforce Partnerships

Engaged five local companies to connect with K12 students in various initiatives with the goal of exposing students form an early age to careers in tech

Advisory Board

Regularly met with Advisory Board comprised of business leaders to provided guidance on overall project direction

1:1 sessions

Provided multiple spaces for private sector advisers to meet with stackable and short form grantees

Luis Ramos
Senior Director - Critical Systems Architecture Engineering COE, Honeywell

In a world where technology is a critical part of every industry, and skilled talent is increasingly in demand, the significance of training individuals for new opportunities is clearer than ever. We urgently need skilled, well-trained professionals to turn our most ambitious ideas into reality. That's why programs like the 21st Century Techforce are so vital.

Since its inception, the 21st Century Techforce has been laser-focused on aligning educational pathways with the actual needs of the workforce. As a leader in the aerospace industry, my involvement with this project has been both a privilege and an eye-opening experience. Collaborating with educators and training providers, we have tailored programs that not only meet industry standards but also elevate the skillset of our participants. The collective insights from industry leaders and thought pioneers have been instrumental in shaping a curriculum that prepares Puerto Ricans not just to land a job, but to excel in it.

On a personal note, this initiative deeply resonates with me. My own path didn't follow the usual educational route, so I appreciate the value of flexible and diverse learning options. It's encouraging to see our local universities offer varied degrees and certifications through the Stackable Credentials Grant. These programs recognize each student's unique situation and provide valuable, industry-endorsed credentials.

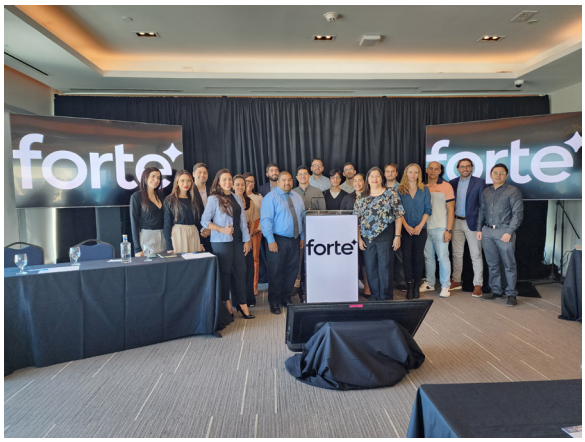
I encourage every participant to embrace their unique journey into these roles as a distinctive advantage. The diversity of your experiences and perspectives is a strength that will enrich our industries.

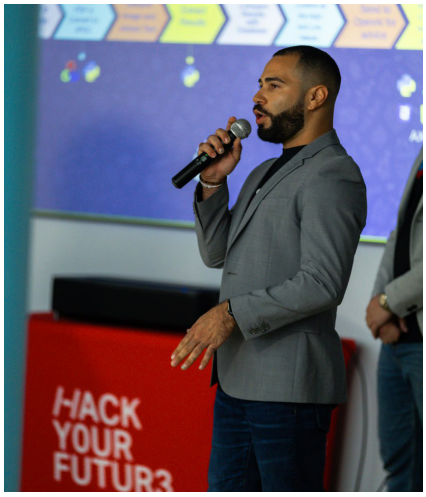
As we move forward, I urge all stakeholders – from government entities to private sector leaders – to continue supporting and investing in this vital program. The 21st Century Techforce is more than an educational initiative; it's a cornerstone for Puerto Rico's future in the global landscape.

Together, let's continue to build a workforce that's prepared not only for today's challenges but is also equipped for the innovations of tomorrow.

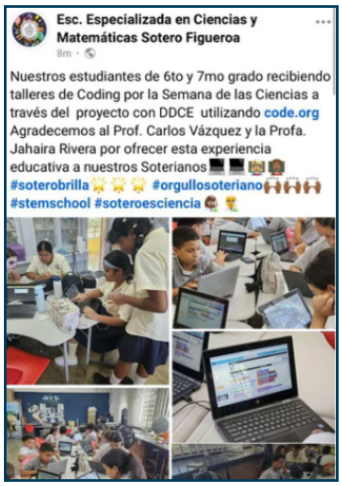
Sincerely,

Building community through partner events





From awareness to action: Sharing our vision with all Puerto Ricans as a call to action



Key progress to date and goals for 2024

Initiative	2023 Progress	2024 Goals
Short-form Credentials Grant	**259** enrolled students **29** graduates	**600+** enrolled students **300+** graduates
Stackable Credentials Grant	Programs in design and going through accreditation process	**700** enrolled students (Programs launch scheduled of second semester of 2024)
K-12 Lighthouses	**20** teachers trained **1000+** students impacted **$1.3M** invested in equipment	**315+** teachers trained **100%** high schools covered (229) **18** certified local facilitators
Employer workforce concierge	Program in design	**2-3** companies procured through workfoce concierge service **100+** new roles filled in applicable industries