



## Impact Report

Indigitize creates, supports, and advocates for ecosystems of computer science (CS) learning that meaningfully engage Indigenous students and their communities. Our goal is to reach 10,000 Indigenous students with CS by the end of 2024, approximately 10 times more young people than any prior initiative. By 2030, **we envision that all Indigenous youth in the United States will have the opportunity to use computer science to create solutions that benefit their communities and improve the world through Indigenous perspectives, values, and vision.**

## Introduction to Our Work

With technology rapidly advancing and Artificial Intelligence disrupting the landscape, the time has never been more critical to ensure that all students have access to a CS education and increased understanding of AI in their lives and the future of work. Computer and information technology careers are expected to grow 14.6% between 2021-2031, well over the 5.3% average for other occupations (US Department of Labor, 2022). At the same time, more than 9 out of 10 parents want their children to be able to take a CS course in school (White House, 2016) but only 53% of schools offer any CS curriculum (EdSurge, 2022). Systemic shifts need to happen in conjunction with new innovations to ensure our youth learn about and can benefit from technological advancements and jobs in the CS industry. Nowhere is this more important to act urgently than in our education system for Indigenous youth, who have had less opportunity than their peers to access a CS curriculum. According to a comprehensive Code.org report released in November 2023, "Unless explicit attention is paid to the participation gaps for Native American/Alaskan students, the relatively low access rate for these students will likely worsen."

At Indigitize, we believe that providing Indigenous students with hands-on experience in emerging technologies is crucial for preparing them for future leadership roles; similarly, it is equally important to implement culturally-relevant and responsive curriculum and engage Native mentors for our youth to increase their perspectives of representation in the field. Our approach to computer science education for Indigenous youth prioritizes drawing on the knowledge that exists within communities, weaving Indigenous knowledge with new learning grounded in the values of the local community in service to the community. By fostering CS education within Indigenous communities, Indigitize provides the tools for young people to become active agents in shaping a future inextricably linked with computing technology. Indigenous-led approaches to technology could unlock a multitude of benefits for Indigenous communities, including promoting sustainable paths to community-led economic development, revitalizing endangered languages, and creating innovative strategies to mitigate the impacts of climate change. By leading in the development of



these technologies, Indigenous youth can ensure that these tools are designed and deployed in ways that align with their cultural values, priorities, and aspirations.

## Strategy

Indigitize addresses three primary CS challenges for Indigenous communities – Equitable Access to CS Education, Quality of CS Education, and Cultural Relevance of CS Education – and by doing so, we deliver high-quality, engaging Indigenized CS learning experiences, promote opportunities for Indigenous students to participate in a variety of CS opportunities, and catalyze the experience of belonging and persistence in CS.

Indigenized learning experiences include experiences designed by our team and those created by trusted partners. They range from one-hour introductory experiences through multi-day immersion programs. “Indigenizing” learning means to create culturally relevant and locally responsive programming. Our strategy is to provide these types of indigenized learning experiences through four education programs:

| <b>SkoCode</b>  | <b>Sponsorships</b>  | <b>Direct Programming</b>  | <b>Partnerships</b>  |
|---|--|--|--|
| SkoCode, our AmeriCorps program, trains Native young adults to provide CS education in community and school settings, and provides a resource for CS connections and learning across K-12 settings. | We sponsor high-quality initiatives to expand opportunity for Indigenous youth, such as the Vex Robotics Native American Showcase and convenings such as the Four Corners CS Summit. | Indigitize staff design and teach students directly; for example, customized CS lessons in Native languages or with Indigenous curricular focus or perspectives. They co-design and pilot Indigenized learning with teachers in real time. | We deeply partner with school districts, Tribes, charter schools and community organizations. Partners make commitments to CS equity and receive catalytic grant funding and technical support for implementation. |

This strategy results in:

1. Strong, diverse partners who are incentivized and inspired to make and keep CS commitments across a community of practice and district catalyst teams.
2. Increased access to CS education for Indigenous students nationally while remaining deeply grounded in the context of the community.
3. A more diverse CS workforce of the future as more Indigenous youth experience and gain fulfillment in CS opportunities, which will bring Indigenous values and experiences to the overall sector.
4. A scalable, national approach to impact with strong return-on-investment.



## Timeline & Impact

Indigitize officially launched in September 2022 at CSEdCon. In the short amount of time since then, we have already impacted the CS landscape in significant ways. As a nimble organization, we are able to respond to immediate needs and partner with community, philanthropy, schools, and tribal governments to meet their interests and address their aspirations for CS and AI within Native American communities and for Native American students.

We have conducted a **landscape analysis** to guide our approach and ensure it is as impactful as possible; this included interviews and relationship building with 65+ CS organizations, Indigenous organizations, educators, and practitioners. One key finding is that a significant number of school districts that serve Native populations have not prioritized computer science education due to a lack of understanding and limited resources. At the local level, especially in rural tribal communities, schools lack time, money, and space for CS, and teachers themselves lack CS exposure and skills. Efforts to date have been piecemeal, and often stop when key people leave or funding ends. However, administrators have interest in building their understanding and offering CS to their students. When asked if they would like to know more and are interested in providing this opportunity to their students, they agree it is important and need a path toward making access a reality. To reach a day when all Indigenous students have access to CS, the field needs an approach that makes it easier for Indigenous communities to develop a community-led CS vision. **Indigitize is filling a clear gap in existing CS efforts** as it is a Native-led, Native-serving organization with significant experience as a national leader in Indigenous Education, making it more likely than other, non-Indigenous initiatives at reaching scale in a systemic and sustainable manner.

We have secured **commitments from five school districts**, and conducted teacher training sessions and vision and alignment workshops. These districts are excited about the potential for CS opportunities for their students and have already made significant progress in exposing more youth to CS education and opportunities.

We are facilitating **direct student CS opportunities**, including Coding for Climate Action camps and activities. We co-sponsored the VEX Robotics Southwest Native American Showcase for the past two years, alongside Google and Amazon Future Engineer, which was hosted on White Mountain Apache land in Arizona, and will grow this partnership to include more students and schools. The event brought together 284 students in 2022 and 400 students in 63 teams in 2023. In addition to providing financial sponsorship for the event, Indigitize also supported a district team from Bernalillo Public Schools. This partnership is set to expand the VEX experience to more students and Indigitize is building a more aligned and deeper partnership in 2023 and leading into 2024.



We are creating **culturally-responsive and relevant CS and AI curricula**, pivoting from the westernized approach CS has taken in its evolution. By providing Indigenous expertise into CS learning, we imagine a new realm of innovation will result from customized curricula (such as Diné CS, Lakota CS, Apache CS, etc.) that helps students learn and use CS to solve complex community issues. We partnered with NISN on a curriculum effort to create the first Diné Coding Curriculum, which is based on Carnegie Mellon University's (CMU's) CS Academy's CS 1 course. The full curriculum will be piloted this year at Dził Dít'ooí School of Empowerment, Action and Perseverance with support from Indigitize. Indigitize is also partnering deeply with the Native American Community Academy to build out curriculum serving Urban Indigenous youth through its wellness perspective and in how technology can be grounded in Indigenous values. Finally, Indigitize will work collaboratively with AI Education to build and disseminate AI Indigitized curriculum to Native American serving students and educators.

We have secured **partnerships and funding** from key field leaders, including: Amazon Future Engineer, Google, Computer Science Alliance, Encantado, Code.org, BootUp, New Mexico Community Trust, and the Corporation for National and Community Service. We currently have a new opportunity to raise funding with a challenge grant provided by a private foundation, where it will match, dollar-for-dollar, other new grants or donations up to \$100,000, for a total of \$200,000 in new funding.

## A Community-Driven Approach to Systemic Change

Indigitize is building a cost-effective, scalable, community-driven approach to equity in computer science for Indigenous youth. With an unwavering focus on CS access and cultural relevance, the program has sparked excitement and engagement among educators and Indigenous communities. We owe much to our strategic partnerships and the robust investment by philanthropic partners who have helped propel the project forward. While the stark inequities in CS education have emerged as a national area of concern, it has helped us gain widespread support for ensuring **every** student's access to this vital field. We know that with a sustained commitment to Indigenous CS, Indigenous communities will be leaders in harnessing the benefits of new technology and exploring its myriad possibilities, including its potential to help preserve Indigenous languages, mitigate the impacts of climate change, and promote economic development.

**Overall, in one year, Indigitize has:**



Directly impacted 460 students through educational programs



Engaged 14 schools in 3 states to implement CS



Built internal capacity, adding two team members who are leading workstreams designed to accelerate impact & scale



Trained 16 teachers in an inaugural cohort focused on Indigenous students



Expanded national awareness of the importance of CS education for Indigenous youth & secured 5 state/district commitments to expand CS

A significant milestone in Indigitize's journey is the secured funding and impending launch of an AmeriCorps program in 2024, called SkoCode Corps, which will provide the opportunity for up to 27 Native young adults to teach and facilitate CS and AI opportunities across Indigenous communities annually, with an expected reach of 4,000 Native American students each year of the program. Moreover, the groundbreaking development of a Diné CS curriculum, the first of its kind, exemplifies the program's dedication to honoring and preserving Indigenous knowledge while fostering a new generation of tech leaders. And this summer, with Google's support, Indigitize helped organize the Four Corners CS Educational Summit where more than 175 educators gathered to start building a community of Indigenous CS teachers – an early step toward building long-term sustainability of Indigenous leadership and innovation in the CS field. As Indigitize continues to gain momentum, we hope it serves as a shining example of how education can be a catalyst for both equity and cultural empowerment.

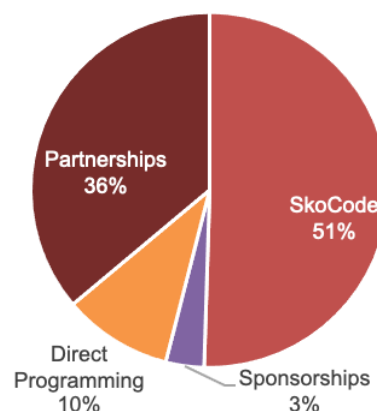


## Moving Forward

**Our top priority is to reach our stated goal of 10,000 students by the end of the 2024-2025 school year.** Aligned with our strategies, our plan to scale up and reach this number of youth includes:

1. **SkoCode:** Our recent grant from AmeriCorps, through which we'll launch and roll out our service-learning program, will reach 5,100 students by December 2024. SkoCode service members will work with schools and districts to directly provide CS experiences to Native students, teachers, and families to incorporate CS into the school day, community, and/or after school programs, depending on the community setting.
2. **Sponsorships:** Sponsorships facilitate Indigenous student participation in existing CS activities (such as the Vex Robotics Challenge, etc.), and provide the opportunity for impact even with our small staff size. With this strategy, we anticipate reaching 350 students directly.
3. **Direct Programming:** Our staff and advisors will optimize opportunities to teach curriculum through our myriad partnerships and in conferences, with an expected student reach of 1,000 by the end of 2024. For example, Indigitize is working directly with the Native American Community Academy in Albuquerque on lessons focusing on, "What is CS?" as well as implementing Indigenized open-sourced CS curriculum.
4. **School, District, Tribal, and Community Partnerships:** In addition to existing partners (see Appendix), we have had preliminary conversations with some of the largest Native-serving institutions in the nation, and have a number of inquiries for support. Through funding, curriculum support, teacher training, and direct-to-student opportunities, we will reach 3,650 students with existing partners by December 2024, and even more if we expand.

Path to Reach 10,000 Students



We are also working to establish commitments with national out-of-school time partners as a potential ideal space to impact thousands of youth in priority communities. Our focus is largely on rural and reservation communities with 80%+ Native American populations, as those that are most significantly impacted by the lack of access to CS and because they contain the most promise for reaching our 10,000 student goal at scale. We are additionally exploring a partnership with the College Board to develop an Indigenized version of AP Computer Science Principles.



We are working on the launch of an Indigenous AI Literacy Initiative in the Spring of 2024 with AI Education, with the idea to identify Indigenous communities interested in learning more about what Indigenous AI Literacy can provide as students, teachers and families begin to delve into deepening our understanding of AI and its implications for our communities. From those communities, each would select hundreds of educators to participate in summits, community conversations and Indigenous AI Literacy for Educators convenings.

Finally, we will continue to develop culturally relevant, state-of-the-art curricula in AI, workforce opportunities, cybersecurity, and robotics while indigenizing existing CS resources – which will help sustain the program and spread CS within Indigenous communities beyond the coming year. Indigitize will publish lessons on our Indigitize website and share with partner schools and educators. These efforts will build lasting resources while expanding the reach of accessible Indigenous CS curricula beyond our immediate partners.

## Appendix: Partnership List

### Districts & Schools 2023

- Bernalillo Public School District
- Central Consolidated School District
- Cuba Independent School District
- NACA Inspired Schools Network
- New Mexico Public Education Department
- Mahpiya Luta
- Native American Community Academy

### Partner Sector Organizations (not exhaustive)

- BootUp
- Code.org
- Computer Science Alliance
- NM CSforAll
- Navajo Technical University
- IndigiGenious
- AI x Education

### Research Partners

- Amazon Future Engineer
- American Institutes for Research
- Native Pathways
- Reimagine Research Group

### Philanthropy, Corporate Giving, and Federal Funding

- Amazon Future Engineer
- Corporation for National & Community Service
- One Generation
- Encantado Foundation
- Google
- New Mexico Community Trust



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