

Team4Tech's mission is to advance 21st century education in developing countries by connecting technology industry professionals and solutions with high impact non-governmental organizations (NGOs) that have a demonstrated track record of improving education outcomes and expanding economic opportunities for youth and other underserved



populations. The Team4Tech approach focuses on implementing relevant, sustainable technology solutions and delivering training in digital literacy, educational software, and 21st century skills. Since 2012, Team4Tech has deployed over 110 volunteers representing 10 technology companies on 10 projects, benefitting 10,000 students and teachers in Brazil, Cambodia, India, Kenya, South Africa, Tanzania and Vietnam.

Why Private Sector Partnership

The private sector has a proven ability to innovate when it comes to developing technology solutions for difficult challenges. Private tech companies are also increasingly interested in cross-border service learning as a means of advancing their corporate social responsibility objectives, educating their employees about technology usage in emerging markets, and developing their leaders through hands-on experience with collaboration and creative problem solving. The emerging millennial workforce, in particular, has shown a strong interest in using their skills to solve global problems.

Private Sector Interest in Cross-Border Service Learning

53% of professional and 72% of students say they want to make a social impact (NetImpact Talent Report 2012)

91% of Gen X women say that it is important to contribute their communities or the world through their work (Stanford Social Innovation Review, 2013)

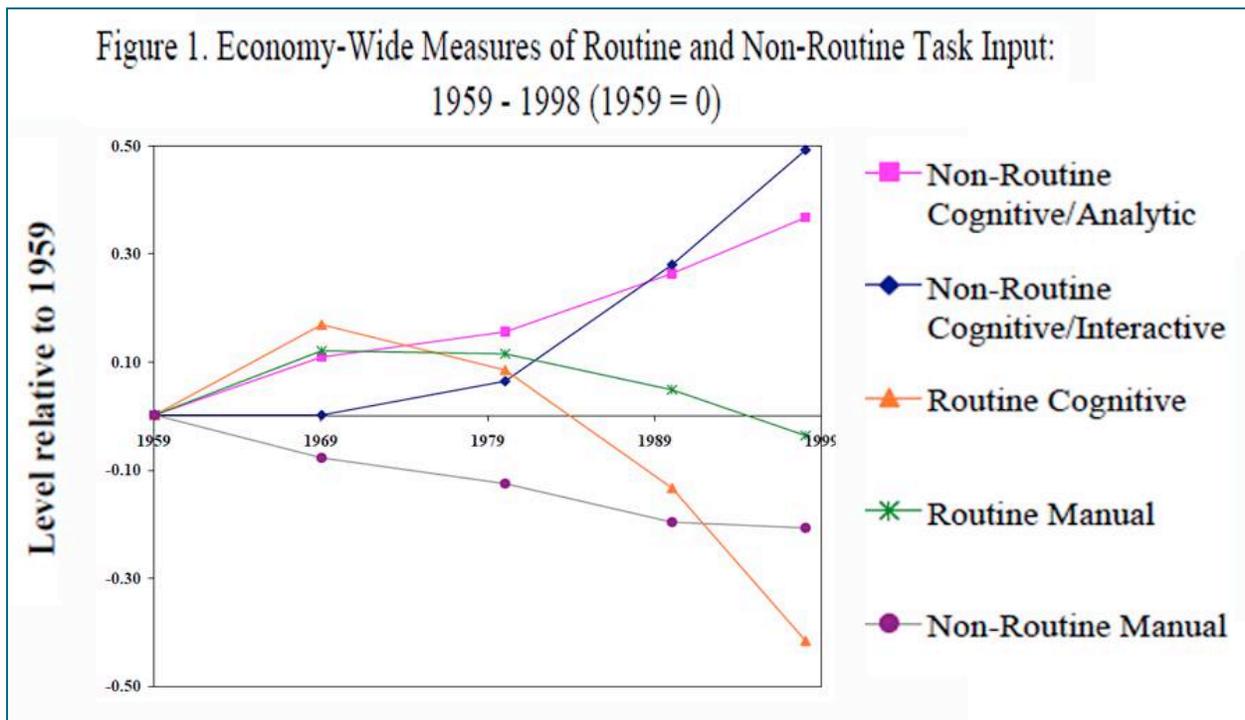
Millennials rate a company's cause work as the #3 factor when applying for a job; 97% prefer to contribute their skills vs funding (2014 Millennial Impact Report)

International corporate volunteering programs have been found to be more effective in leadership development than elite, classroom-based models (Stanford Social Innovation Review, 2013)

Only a third of leaders report being effective in leading across countries and cultures (Forbes, 2014)

Why 21st Century Skills

The requirements for competing in today's global knowledge economy have changed dramatically. Instead of repetitive, manual tasks, employees today are expected to be able to think critically, solve problems creatively, collaborate globally, and communicate effectively. As the chart below demonstrates, empirical data from the United States shows that demand for routine tasks declined dramatically at the end of the 20th century, while the demand for non-routine, cognitively complex skills rose equally dramatically.



Team4Tech works to support the development of these 21st century skills in the students and teachers engaged in our projects, as well as in the project volunteers. By helping teachers design collaborative problem solving activities, and providing them with assessment frameworks to evaluate progress, Team4Tech strives to support a deeper form of learning – one that will develop skills that are relevant in the knowledge workforce.

Why Technology

Information and Communication Technology (ICT) has grown by leaps and bounds in the last decade enabling low-cost and widespread applications such as high-speed

mobile networks, knowledge creation and sharing, tablet devices, processing of huge amounts of data, sophisticated online gaming and personalized applications. The remarkable ways technology has influenced several aspects of our lives promises to impact the education world as well through autonomy, engagement, efficiency, collaboration and data-driven decision making.

Some education technology trends that are apparent in developing countries these days are: 1) large scale initiatives to put tablet computers into the hands of students, 2) translation of readily available digital learning materials into other languages, 3) social networking has exploded among students and teachers and it is being utilized by students as part of their learning activities outside of school, especially as a homework and test prep aid, and 4) collection and mining of new data to support relevant decision making for example as it relates to the 'tracking' of students and teachers (Trucano, 2012).

A number of factors are concurrently enabling ICT to fulfill the promise of deeply impacting education worldwide:

Rise of the Digital Natives

Today's students, who are referred to as digital natives, are born in a technologically-rich world (Prensky, 2001). In developing countries, 47% of young Internet users are digital natives. Vietnam, Brazil, Mexico and India are among the top 10 countries with the largest number of digital natives, and the numbers are rising - over the next 5 years, the number of digital natives will more than double (International Telecommunication Union, 2013).

Digital natives are experiencing a transformation in the way they learn, socialize and communicate. Their frequent use of new media contributes significantly to the development of both technological and social skills. Electronic media also provide an opportunity for intense, self-directed, interest-driven study. The benefits of far-reaching digital technologies extend beyond learning to promoting creativity, entrepreneurship and activism (UNICEF, 2011).

Our technologically enriched society and today's tech savvy generation expect a relevant, flexible, engaging, and customized education that helps them acquire 21st century skills.

Jobs of the Future and Workforce Requirements

In today's economy, the requirements for both competition and collaboration are greater than ever. The 21st century is characterized by exponential advances and an ever-increasing pace of change in information, technology, and globalization unimaginable to earlier generations. The increased innovation in technologies and industries will result in the creation of many new jobs in many new industries. We need to prepare today's students for the workforce of tomorrow.

Moreover, the world is confronting a worsening youth employment crisis with young people three times more likely to be unemployed than adults and over 75 million youth worldwide hunting for work. High levels of unemployment are a detriment to economic growth. One of the factors behind this phenomenon is the global issue of skills mismatch. Skill gaps usually reported by employers around the globe include a lack of generic or soft skills, namely team work, interpersonal skills, leadership, knowledge of foreign languages, readiness to learn, problem solving and ICT skills (Helve, et al., 2014).

Improved Teaching and Learning

Technology may have direct impact on self-directed learning by facilitating on-demand access to both information resources and online expertise (Candy, 2004).

Teachers can leverage lesson planning, instruction and assessment tools to improve their efficiency while students can use tools to organize assignments, create study groups and take notes. Collaboration tools facilitate effective communication and management of group activities and resources. Information is the key to improved performance - technology solutions efficiently collect and analyze students' skill mastery and provide timely feedback to advance their learning and to drive differentiated instruction.

Among examples of education technology used by teachers, there is some evidence that education technology contributes to changes in classroom practice: improved lesson delivery, classroom management, and adoption of active learning strategies. Systematic quantitative improvements in classroom practice were most notably reported through programs that combine media for classroom practice, with teacher professional development (Grant & Winters, 2014).

In a study of the educational impacts of the Berkshire Wireless Learning Initiative (BWLII), a 1:1 pilot program, teachers overwhelmingly reported improvements in

student engagement and motivation (Bebell & Kay, 2010). Todos Los Chicos En La Red, a 1:1 program in San Luis in rural Argentina found that having the technology in the classroom provided increased access to educational resources, increased efficiency in classroom management by placing personalized learning materials directly onto the device, and, the technology served as a portfolio of work so parents and teachers can monitor each student's progress more effectively (Light & Pierson, 2012). BridgeIT and EIA programs in India and Bangladesh respectively are some examples of teachers using education technology that provide statistically significant evidence of improvements in student learning outcomes (Grant & Winters, 2014).

The Shift from 'One Size Fits All' to Personalization

Blended learning enables a personalized experience that allows each student to work at his or her own pace, supplementing the school curriculum. By leveraging technology, blended-learning programs can let students learn at their own pace, use preferred learning modalities, and receive frequent and timely feedback on their performance for a far higher quality learning experience.

Online programs can capture student performance data in real-time across the school, allowing teachers more time to help students who need it (Horn & Staker, 2011).

For example, in Kenya, Team4Tech partnered with the NGO Orphans Overseas to implement an adaptive learning early literacy program (Waterford Early Learning) for preschoolers through second graders. After six months of using the software 20 minutes per day, first graders' reading scores on the DIBELS assessment of basic English literacy increased 114%.

*"ICTs are changing both
what gets learned
and how learning
takes place."*

- Professor Dan Wagner

Personalized learning environments that meet students where they are, determine where they need to be, and find and scaffold the right zone of proximal development to get them there (Patrick, et al., 2013) is the kind of education that 21st century teachers, parents and students seek.

Target Beneficiaries

Team4Tech focuses on education technology projects for underserved learners from pre-primary school through secondary school and vocational training including entrepreneurship education.

Early grades are important to target because, according to Dan Wagner, UNESCO Chair and Director of the International Literacy Institute at the University of Pennsylvania, “In most countries, inadequate reading ability in primary school is a strong determinant of future disadvantage in terms of educational, social and economic outcomes.”¹

Additionally, a focus on science, technology, engineering, mathematics (STEM), English, social science, digital literacy, and/or entrepreneurship enables students to gain access to valuable skills they will need for employment and other economic opportunities.

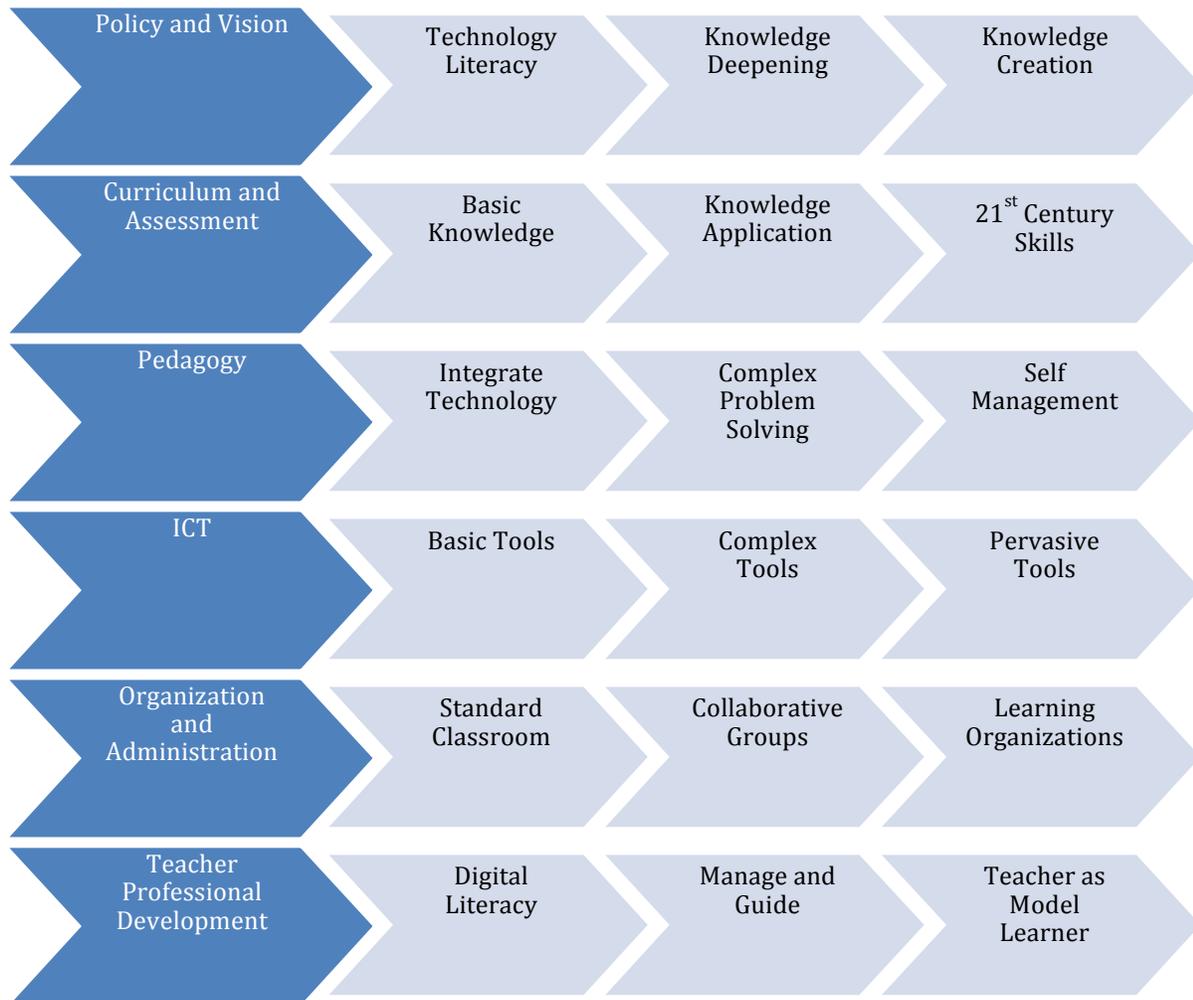
The Team4Tech Approach

Team4Tech partners with NGOs already dedicated to improving education and committed to ensuring long-term program sustainability. Team4Tech looks for strong local leadership engagement, a long-standing NGO presence in the selected communities, and specific, measurable goals around improving teaching and learning through integrating technology and 21st century skills into the curriculum.

¹ Investing in ICT4E: A Review and Recommendation for Post-2015 by Dan Wagner, September 30, 2014

Project Context

Team4Tech seeks to ensure that NGO partners have considered the full educational context, with plans for engaging all required stakeholders. As demonstrated in this UNESCO graphic,² all elements must work together to advance 21st century learning.

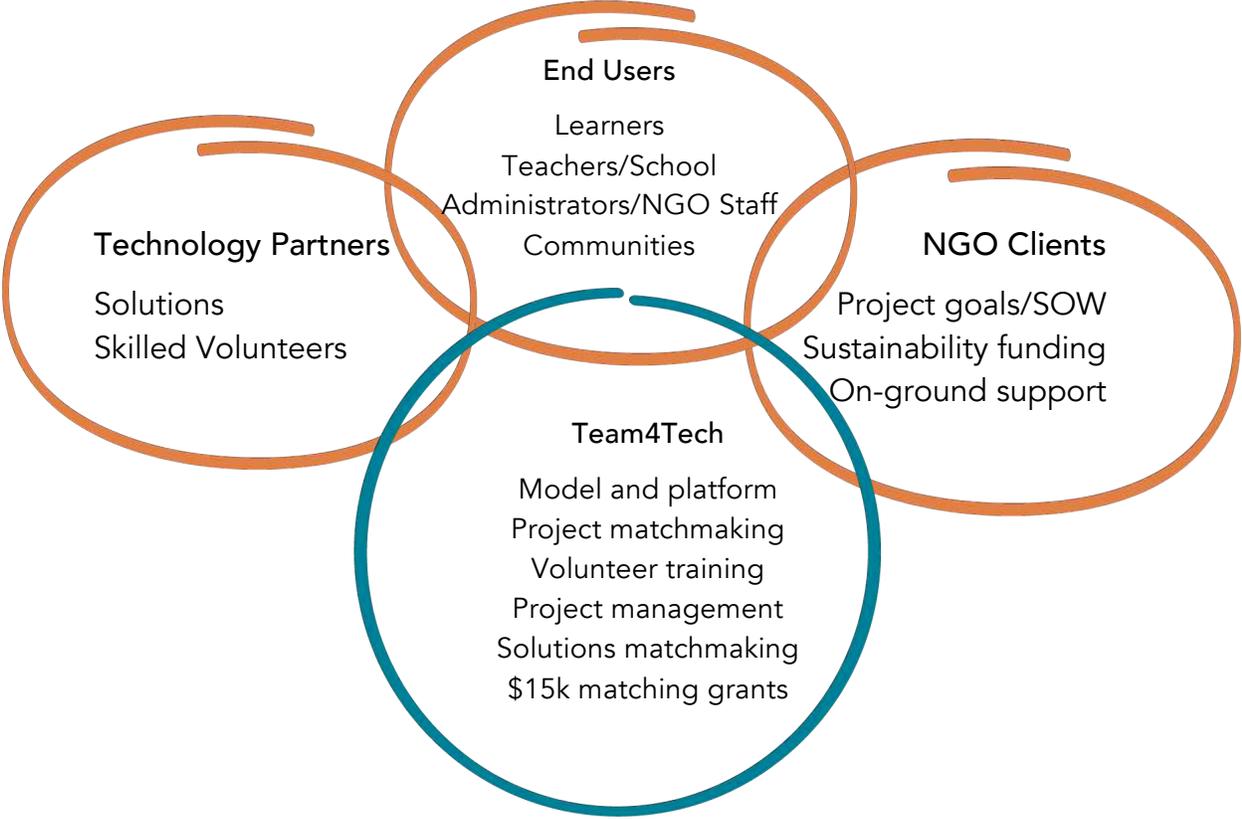


Team4Tech seeks out projects that will reach a significant number of beneficiaries and favors master trainer approaches that contribute to a cascade effect in neighboring schools and communities. NGOs commit to sustain the program for a minimum of three years. Working with NGO partners to understand their objectives, Team4Tech reviews the budgetary and infrastructure constraints to help craft an approach and solution that is sustainable. Through long-term relationships, successive teams can build upon the initial project and expand program scope, reach, and impact.

² "Competency Standards Modules," ICT Competency Standards for Teachers, UNESCO, 2008.

Project Matching with High Tech Expertise

Team4Tech matches an NGO projects with professional technology volunteers and corporate partners based on the skills and/or related solutions required by the project goals. Team4Tech helps select and train the team, guide the project in the field, and manage logistics and evaluation.



Ensuring close alignment between the NGO objectives and the corporate social responsibility goals, business goals (including immersing volunteers in emerging markets of interest), and specific technology expertise and solutions of the technology partner, results in the win-win-win where NGO partners, corporate partners, and education clients in country all see significant benefits.

Because Team4Tech has a variety of NGO and technology partners, the model provides the opportunity for an NGO to partner with multiple companies, and corporate clients with the opportunity to experience various projects and markets that align with their interests and goals. Team4Tech is platform agnostic when it comes to the technology solutions implemented on projects – volunteers can provide

information and make recommendations, but all technology selection and implementation decisions ultimately rest with the NGO clients.

Project Methodology and Incorporation of 21st Century Skills

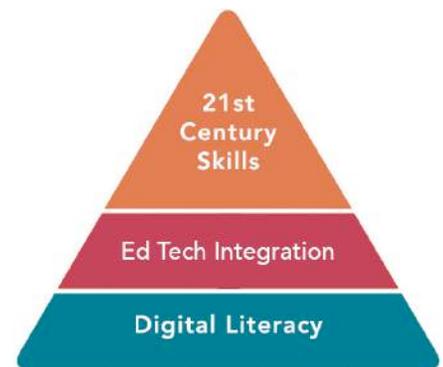
Team4Tech's approach builds from equipping teachers and students with a foundation in digital literacy skills, to providing access to relevant subject-specific digital content, and improving the 21st century skills of both teachers and students.

By fostering hands-on and inquiry-based learning, the goal is to encourage students to use higher-order thinking skills. It also helps teachers to see ways of adapting more traditional rote teaching methods into new learning techniques that engage students in solving problems and analyzing ideas, both of which are critical 21st century skills.

To ensure sustainability, a three-stage model is used to empower local educators:

Three-Stage Model:

1. Deliver lesson content while demonstrating 21st century education techniques to master teachers.
2. Master teachers develop lesson plans and practice with their peers.
3. Teachers deliver lesson plans to students.



Project Scoping

The process to launch a Team4Tech project begins when an NGO initiates a conversation with Team4Tech by completing the online NGO application. Team4Tech then works with each NGO to determine if there is a good project fit and to refine the scope of work. Once a project has been approved, Team4Tech will identify a corporate partner or team of individual high tech professionals to implement the project. A typical project timeline will include volunteer recruitment, team selection and training, in-country implementation, and post project evaluation.

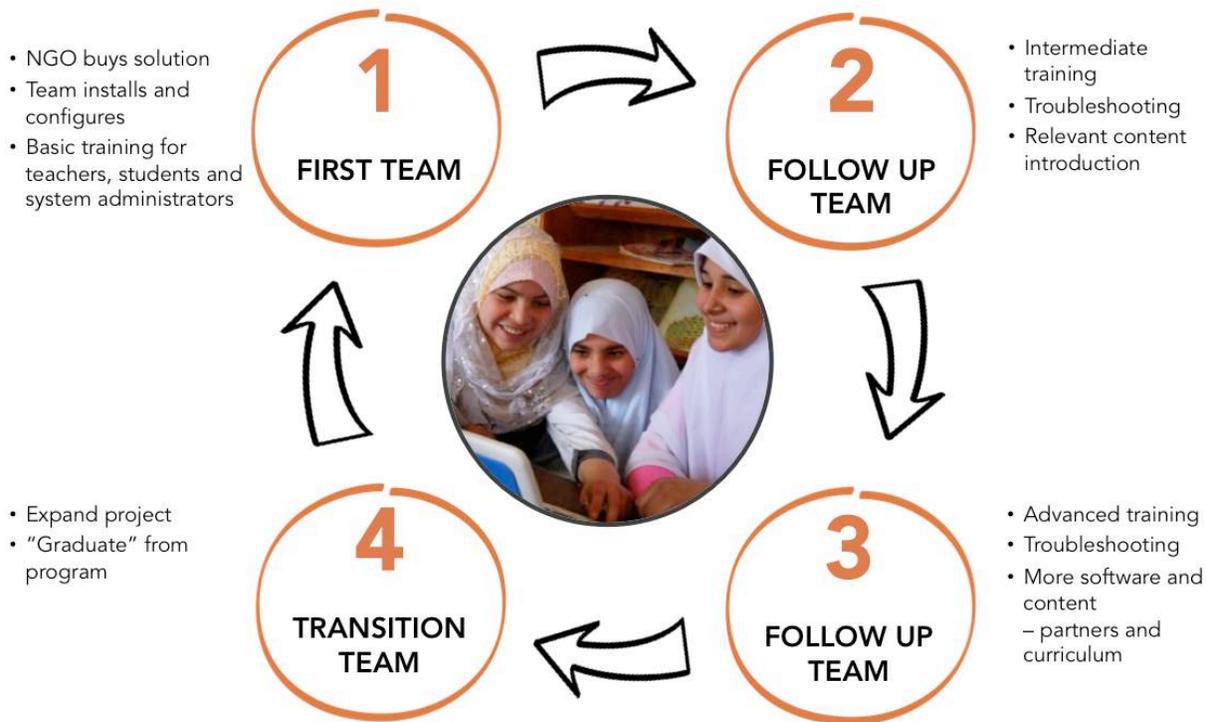
Project Timeline



Project Impact and Scaling

Team4Tech's goal is to achieve scale and replicate successful programs from the initial technology installation and master teacher training through follow-up teams who enhance educational offerings and expand teacher training. Prior experience suggests projects typically require 3-5 years before technology can move from a sideline focus on digital literacy to an integrated element of core subject teaching.

With each successive team, Team4Tech seeks to advance teacher skill and confidence so that digital content and educational software can be used to improve the quality of core instruction. Team4Tech also seeks to develop collaborative problem solving skills in students through role modeling 21st century teaching. A typical project life cycle is 3-5 years, with multiple teams supporting the initiative every six months to a year.



Team4Tech’s volunteer alumni community is available to teachers and administrators before, during and after projects to support planning, provide ongoing support and answer questions, and build a knowledge base of exercises, lesson plans and programs to support future efforts. Team4Tech also strives to connect partner NGO staff and their teachers with relevant online training to continually enhance their skills.

Impact Measurement and Evaluation

A key part of Team4Tech projects is monitoring and evaluation to determine if project goals are being met and if there is a measurable impact on educational outcomes. Team4Tech works closely with NGO clients to measure the impact of projects for learners (pre-primary to secondary, vocational and entrepreneurs), teachers/school administrators/NGO staff across five possible outcome categories:

- 1) **Improved learning outcomes** (scholastic knowledge for pre-primary to secondary learners, vocational skills for vocational learners, and business knowledge for entrepreneurs. Professional development activities and recognition for teachers/school administrators/NGO staff)

- 2) **21st Century skill development** (collaborative problem solving and ICT skills for learners, and collaborative problem solving, ICT skills, and skills integrated into practice for teachers/school administrators/NGO staff)
- 3) **Increased engagement** (enthusiasm, motivation, and empowerment for learners, and enthusiasm and motivation for teachers/school administrators/NGO staff)
- 4) **Improved efficiency** (productivity for entrepreneurs. Investment, ICT in school management, and productivity for teachers/school administrators/NGO staff)
- 5) **Community development** (business performance for entrepreneurs and community support for teachers/school administrators/NGO staff).

For each project, the non-profit client chooses two or more outcome categories to measure per target beneficiary group, and then decides one or more specific metric to use in each category. To assist NGO clients, Team4Tech provides a menu of sample metrics associated with each outcome category that could be used to assess impact. Data is collected by the NGOs prior to the project, just after implementation, and at the end of each year as long as the collaboration persists (typically three to five years).

Better Education

	 LEARNING OUTCOMES	 21 ST CENTURY SKILLS	 ENGAGEMENT	 EFFICIENCY	 COMMUNITY DEVELOPMENT
LEARNERS (PRE-PRIMARY TO SECONDARY, VOCATIONAL, ENTREPRENEUR)	Scholastic Performance Vocational Skill Knowledge Business Knowledge	Collaborative Problem Solving ICT Skills	Enthusiasm & Motivation Empowerment	Productivity	Business Performance
TEACHERS/ SCHOOL ADMIN/ NGO STAFF	Professional Development Activities Recognition	Collaborative Problem Solving ICT Skills Skills Integrated into Practice	Enthusiasm & Motivation	Investment ICT in School Management Productivity	Community Support

Conclusion

Team4Tech partners with passionate, innovative NGO clients and tech partners who are dedicated to improving education in developing countries. By crafting well-developed project scopes of work and working with NGO clients on comprehensive monitoring and evaluation, Team4Tech is able to provide tech volunteers with meaningful opportunities to make a significant impact on education around the world.

The desired result is a “triple win” - students gain access to technology and expanded opportunities, volunteers gain leadership and team-building skills, and companies gain a better understanding of emerging markets and user-centric design.

In other words, the hope is that Team4Tech projects will result in better educational outcomes, better employees, and better technology solutions for developing countries.

Appendix

Summary of Team4Tech Projects, 2013-2014

Country	Date(s)	Client NGO	Tech Volunteers	Impact
Cambodia	November 2014	Journeys Within Our Communities	VMware	<ul style="list-style-type: none"> Deployed lab of 26 PCs, server, network Trained 30 teachers to integrate technology for ELL, STEAM
India	April 2014, November 2014	Connecting Dreams Foundation	Intuit	<ul style="list-style-type: none"> Trained 110 entrepreneurs in product innovation, marketing, business planning, financial literacy
Kenya	May 2013, October 2014	Orphans Overseas	Intel, VMware, Facebook, Coursera, Google	<ul style="list-style-type: none"> Deployed adaptive learning software in 4 schools, benefitting 2,000 children Reading scores on DIBELS assessment doubled in first six months
South Africa	August 2014	Teach With Africa	Box, Intel	<ul style="list-style-type: none"> Deployed 25 PCs in converted shipping container Trained 22 middle school tutors in STEM content
Tanzania	November 2013, April 2014	World Vision	Intel, Intuit, Facebook, Coursera, CSC	<ul style="list-style-type: none"> Trained 75 master teachers from 14 schools Deployed 180 PCs in 9 schools
Vietnam	February 2014,	Orphans Overseas	VMware, Box, Facebook, Visa	<ul style="list-style-type: none"> Expanded ICT training program to 15 new

	March 2015			orphanages (500 children) <ul style="list-style-type: none"> • Enabled coding lessons and design thinking curriculum for 800 children
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References

Bebell, D. & Kay, R., 2010. One to One Computing: A Summary of the Quantitative Results from the Berkshire Wireless Learning Initiative. *Journal of Technology, Learning, and Assessment*, 9(2).

Candy, P. C., 2004. *Linking thinking: Self-directed learning in the digital age*, Canberra: Department of Education, Science and Training; DEST Fellowship Scheme.

Grant, C. & Winters, N., 2014. *Educational Technology Topic Guide*, s.l.: s.n.

Helve, H. et al., 2014. *Matching skills and labour market needs: building social partnerships for better skills and better jobs*, s.l.: World Economic Forum.

Innosight Institute, 2011. *The Rise of K–12 Blended Learning*, Mountain View, CA: Innosight Institute.

Light, D. & Pierson, E., 2012. *Highlighting Changes in the Classrooms of a Successful 1-to-1 Program in Rural Argentina: Case Studies of Todos Los Chicos En La Red in San Luis*, s.l.: Intel Education.

Patrick, S., Kennedy, K. & Powell, A., 2013. *Mean What You Say: Defining and Integrating Personalized, Blended and Competency Education*, Vienna, VA: iNACOL.

UNICEF, 2011. *THE STATE OF THE WORLD’S CHILDREN 2011-Executive Summary: Adolescence an Age of Opportunity*. s.l.:UNICEF.