The need for STEM skills is growing every day. In the US alone, 75 per cent of occupations will require middle- or high-level STEM education by 2018.

Meanwhile, there is what we have termed a ‘global STEM paradox,’ as outlined in a 2014 white paper [http://bit.ly/STEMpaper]. While there are more STEM graduates than ever before, employers report that they can’t fill many STEM-related jobs. Why is this? We learned that would-be employees aren’t in the right places, aren’t work ready, and don’t represent the diversity necessary for global innovation. Additionally, there are too few work-ready STEM graduates in emerging nations, where innovation is needed the most.

Nations and industries are at a critical juncture: we need to better align STEM skills with workforce needs, so that we can seed the STEM pipeline with the next generation of innovators. Today’s students are the ones who will be tasked with solving the major global challenges facing humanity – challenges related to energy use, water scarcity, chronic and infectious diseases, and urbanisation, to name a few – and we want them to be prepared to take up that charge.

Celina Morgan-Standard, Senior Vice President of Global Business Development, offers an enlightening account on the status of STEM education and the activities being conducted to address the ‘global STEM paradox’

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PREMIER PROGRAMMES
The Global STEM Alliance (GSA)’s mission is to increase the number and diversity of students in the STEM pipeline. We do this by preparing students for 21st Century careers via comprehensive, technology-based learning programmes.

The GSA virtual learning platform enables us to scale The New York Academy of Sciences’ successful on-the-ground education programmes to students around the world. The programmes we run identify, inspire and empower STEM learners by connecting them to each other, as well as to cutting-edge research, mentors, resources and coursework.

Proud Partners
GSA is an international initiative of more than 100 partners in 50 countries and regions. This includes governments, corporations, educational institutions and non-governmental organisations – working together to assure the next generation of STEM innovators. The Alliance’s founding partners are ARM, CISCO and the Global Sustainability Foundation.
“Science and technology alone cannot solve the manifold crises that threaten our world, but neither can we face the future without them. Addressing climate change, feeding a burgeoning world population, creating jobs, and growing the world economy all depend on a global population well-educated in science, technology, engineering, and math (STEM).” *The Global STEM Paradox*

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Students will engage in exciting hands-on research projects and competitions with leading STEM experts and will receive opportunities to work on real-world challenges with networks of their peers.

These strategies will increase STEM literacy across the school-aged population, reducing the skills gap between schools and the workforce, and assuring that under-served groups have equal access to the world’s premier STEM programming.

**EDUCATING THE NEXT GENERATION**

The first major initiative of GSA is The Junior Academy, launching this fall. The Academy is a virtual learning and research tool that will prepare and enable gifted students to take on real-world STEM challenges, learning projects and rigorous curriculum led by expert STEM professionals from industry and academia.

A complementary programme of The Junior Academy is 1,000 Girls, 1,000 Futures – a three-year project aiming to accelerate the STEM workforce of tomorrow by developing one of the world’s most valuable resources: women. Through mentor-led coursework on critical thinking, communication, leadership and college preparedness, 1,000 young women will have an opportunity to build a one-on-one relationship with a successful female STEM professional. Both of these programmes were created as a response to the global STEM paradox.

**MINORITY REPORT**

Lack of diversity in STEM is a major issue. Women represent less than 30 per cent of the world’s science researchers and, in the US, minority groups represent only 10 per cent of STEM jobs. This means that not only are these groups missing out on well-paid jobs in growing fields, industry is also missing out on the talents and perspectives of entire segments of the population who could contribute greatly to STEM innovation.

**MENTORING MINDS**

The New York Academy of Sciences has for many years based its education programmes on the premise that mentorship is an effective means to engage and retain students in STEM subjects. We have involved students in the design of GSA programmes and they have very clearly told us they care about solving real-world problems and want to engage not just in STEM learning for the sake of learning, but to create solutions. So, with that knowledge, we set out to design programmes that connect students to their peers and STEM professionals in realistic settings.

GSA has set an aggressive goal of reaching 1 million students in 100 countries by 2020 with the right tools, mentoring and support to allow them to succeed and thrive in the STEM fields. We will be working hard to reach that goal through our programming, and will continually bring on new members of the Alliance who are aligned with our mission and will work with us to meet or exceed our goal.

http://globalstemalliance.org

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**STEM SYSTEMS THINKING**

The New York Academy of Sciences has a strategy for creating a strong system in STEM education

1. Align educational curricula and skill development with local employer needs
2. Reinforce strong vocational and technical training career pathways across skill levels
3. Provide a network of internship, apprenticeship and mentoring opportunities
4. Encourage unconventional educational methods to accelerate school curricula
5. Ensure students and teachers have access to effective educational technology

**BIO**

Celina Morgan-Standard is the Senior Vice President of Global Business Development focusing on key initiatives, including the Global STEM Alliance and global STEM education programmes at The New York Academy of Sciences. She joined the Academy in 2014 from Tucker Capital, where she spent six years advising leading education organisations in publishing and media on strategy, acquisitions, technology integration and partnerships. She has supported ambitious growth initiatives with clients, including National Geographic’s JASON Project and Battelle Memorial Institute.