Higher Education in a Changing Landscape:
Possibilities for Learners, Opportunities for Our Industry

Remarks Delivered at the Presidents Forum Celebrating the 90th Anniversary of Xidian University
by Nariman Farvardin
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Stevens Institute of Technology President Nariman Farvardin discusses the ways in which higher education could be impacted — or disrupted — by technology in the future. Technology sets the pace of society's forward-momentum. It has the power to revolutionize industries, including the education industry. In order to increase the impact of education on society, technology must be harnessed and applied, yielding enhanced quality of life, accelerated economic growth, and empowered people.

President YANG Zongkai, colleagues from around the world and friends at Xidian University, I offer you my warmest greetings from Stevens Institute of Technology in Hoboken, New Jersey, just across the river from New York City.

Wanshang Hao; Jiushi Zhounian Kuaile

I am honored to address you today at this special University Presidents' Forum commemorating the 90th anniversary of Xidian University. Congratulations on this remarkable achievement!

Stevens Institute of Technology is proud to collaborate with Xidian University on a few coordinated academic programs in the areas of electrical engineering, computer engineering, applied artificial intelligence and mechanical engineering.

The partnership is a natural fit: our institutions share a common focus on technology-based education and research.

And it is an apt foundation for our gathering today, where we exchange ideas about the impact of technology on the future of education — and therefore, our society.

This notion is woven into the very mission of Stevens Institute of Technology.

For more than 150 years, technological innovation has been the hallmark of a Stevens education and the distinguishing feature of its research and scholarly activities.

More recently, Stevens has made extraordinary advancements across all areas of the university during the last decade—record enrollment growth, unparalleled academic profile of students, significant growth in faculty size and expertise, unprecedented increases in research funding, and significantly improved access, diversity and student outcomes.

Just as it is for every educational institution around the world, our landscape changes as technology advances.

To keep moving forward, we continue to innovate. The pace of that forward-momentum is set by technology.

Technology is a driver of human progress; it disrupts our realities.

Take three examples:

Amazon (or the Chinese equivalent, Alibaba) — among the largest, most successful corporations in the world — disrupted the retail industry by injecting technology into the paradigm. Until recently, Amazon had no brick-and-mortar stores. As a result, it has changed the way we think about retail.

Take another example: Didi — or for those of us in the U.S., Uber — utilized the power of technology to change the taxi business. These companies do not have cars or drivers, and yet Uber is the largest taxi company in the U.S.

How about Air B&B or Tujia? These are, in essence, some of the biggest hotel chains in the world, and yet they have no real estate.

The retail, taxi, and hoteling industries have been deeply impacted, disrupted, even revolutionized by technology.

Sooner or later, technology will do to higher education what these businesses have done to their industries: it will dramatically disrupt our industry.

Education is society's most effective tool for empowering people, enhancing quality of life, and accelerating economic growth.

So how do we use the power of technology to increase the impact of education? To address some of the urgent challenges facing higher education — accessibility, affordability, effectiveness, and accommodation of differing learning styles and abilities?

Specifically:

Can we make high-quality education available to more people — to underserved communities, in all corners of the globe — by upending the traditional mode of educational delivery? And using the power of technology, can we scale up, to keep the quality high while keeping costs low?

As educators who have had to carry on in the face of a global pandemic, we know we can deliver education remotely. We can progress from there, expanding what is possible to provide a high-quality education with a blend of synchronous and asynchronous learning — online and in person — all around the world. This requires a smart technology intermediary to complement the traditional instructor.

Advances in technology — specifically in artificial intelligence and machine learning — have significant potential to facilitate more efficacious, more accessible, more scalable — and therefore more cost-effective educational delivery. An example is a tool created at Stevens, Gradarius, which has significantly improved student success in the gateway subject of Calculus. This tool uses large data sets to understand individual students' learning patterns and obstacles and then makes customized recommendations, or "hints," to help the student get to the right answer—but more importantly, to master the concept.

Programs like this — applied to all types of subjects — provide real-time awareness and feedback that exponentially expands the feedback that a human teacher could provide. It enables customization to students' learning styles and allows students to proceed at their own pace. As you can appreciate, this one example demonstrates the powerful potential of technology to new possibilities for learners and new opportunities for higher education.

In short, I have no doubt that technology already has and will continue to disrupt the higher education model. It may happen gradually or suddenly. Distance learning — a combination of synchronous and asynchronous — decreases the typical constraints of the

classroom, allowing for greater access to education for learners and more cost-effective modes of delivery for colleges and universities.

Will higher education be the Uber or the taxi driver in this new frontier?

Ten years ago, it would not have been so easy for me to join you today. I am grateful for the technological disruption of Zoom!

On behalf of the faculty and students of Stevens Institute of Technology, thank you again for this invitation, President YANG Zongkai.

May Xidian University continue to thrive for another 90 years and beyond.