

GRADUAL DEVELOPMENT OF HIGHER EDUCATION INSTITUTIONS: MODERN UNIVERSITIES AND THEIR CORE REQUIREMENTS

Azamat Usmanov Juraboyevich,

Senior Lecturer, Department of School Management,

Jizzakh State Pedagogical University

ANNOTATION: This article examines the evolutionary stages in the development of higher education institutions around the world. It provides information about educational establishments that functioned as higher education institutions in ancient Uzbekistan. It also outlines the distinctive features of modern universities.

Keywords: university; higher education institutions; madrasas; economic functions; technopark; innovation.

Higher education institutions (universities) play a critical role in the development of science, the cultural advancement of human society, the comprehensive education of the younger generation, the preparation of professional personnel for the labor market, the progress of various sectors and industries, and the implementation of innovative technologies.

The gradual development of higher education institutions on a global scale has spanned a long evolutionary process. In this context, countries such as Italy, the United Kingdom, France, and Germany in Western Europe; Arab, Turkish, and Persian nations in the Middle East; as well as China, Japan, and India in Southeast Asia have played significant roles. Equally important is the contribution of Central Asian countries—particularly the territories of present-day Uzbekistan.

Historical sources confirm that in Central Asia, madrasas served as the universities of their time. These institutions not only taught religious subjects but also provided in-depth instruction in secular sciences such as mathematics, astronomy, medicine, history, and geography. For example, the Kalabod (also known as Gulobod) madrasa, which operated from the 9th to the 20th centuries, educated many renowned figures including Imam al-Bukhari. Similarly, scholars such as Qazizoda al-Rumi, Giyasuddin al-Kashi, and Ali Qushchi were active at the Ulugh Beg Madrasa¹. Among the current higher education institutions in Uzbekistan, the oldest is the **National University of Uzbekistan named after Mirzo Ulugh Beg** (NUUz), which was originally established in 1918 in Tashkent as the *People's University of Turkestan*. It is recognized as not only the first university in Uzbekistan but also one of the earliest in Central Asia.

The term *university* (from the Latin *universitas*, meaning “whole” or “total”) refers to a higher education and research institution that confers academic degrees in various scientific fields.

¹History of development of Uzbek science. https://www.academy.uz/en/page/ozbekistonda-ilm-fan-taraqqiyoti?utm_source=chatgpt.com

Universities typically offer undergraduate and graduate degree programs. In the United States, the term is often used specifically for colleges that offer graduate-level education².

The word *university* is derived from the Latin phrase *universitas magistrorum et scholarium*, which roughly translates to “a community of teachers and scholars.”

Since the second half of the 20th century, developed countries around the world have been gradually implementing systematic measures to introduce the **University 3.0** model. But what does this term actually mean?

In general, the word *university*, derived from the Latin phrase *universitas magistrorum et scholarium*—meaning “a community of teachers and scholars”—refers to a higher education and scientific research institution that awards academic degrees across various fields. Over time, universities have evolved through several developmental models.

Initially, there was the “**University 1.0**” model, where the sole and primary focus was on education. In this early stage, higher education institutions were characterized by traditional functions: the teacher would deliver lectures, and students would take notes. From this, we can infer that the “first-generation university” was purely a center for learning, whose main objective was to transmit knowledge³.

The next stage of development is the “**University 2.0**” model, which added scientific research to its educational mission. Starting in the 20th century, advanced higher education institutions became known as “research universities.” A “University 2.0” creates new knowledge through scientific research; serves as a consulting center for market participants; conducts research commissioned by industry; and lays the foundation for new technologies.

The “**third-generation university**”, or “**University 3.0**”, goes a step further: in addition to education and research, it actively engages in **innovation and the commercialization of research results**.

A “University 3.0” fosters an entrepreneurial culture and establishes effective collaboration with business communities. In this stage of development, universities become hubs for technological startups, regularly register patents, and contribute directly to economic innovation. A vivid example of this model is **Silicon Valley** in California, United States. The origins of Silicon Valley date back to the 1930s, when **Frederick Emmons Terman**, a professor in Stanford University’s Department of Electrical Engineering, initiated a project within the Stanford campus. This initiative laid the foundation for what would become the globally renowned innovation hub known as Silicon Valley⁴.

The name *Silicon Valley* originates from *silicon*, one of the most widely used elements in the production of electronic devices. The term became popular in the 1980s due to the rapid growth of

²“Universities”. Encyclopedia Britannica (11th ed.). 1911

³“Universities”. Encyclopedia Britannica (11th ed.). 1911

⁴https://www.netvalley.com/silicon_valley/Fred_Terman_Father_of_Silicon_Valley.html

companies in the area focused on computers, technology, and electricity. Silicon Valley, located in the San Francisco Bay Area, is now an internationally recognized innovation hub, home to world-renowned companies such as **Google, Apple, HP, and Facebook**⁵.

The transformation of **Stanford University** into a catalyst for Silicon Valley's development stands as a leading example of how higher education institutions can evolve into centers of production and business activity.

Since the second half of the 20th century, the establishment of **technology parks (technoparks)** within university campuses has become increasingly common worldwide. This movement began in **France and Belgium** in 1970, then expanded to **Canada, Singapore, Australia, Brazil, India, Malaysia, China, and Japan** in the 1980s, followed by **Germany** in 1983. After the 1990s, countries like **Russia and Belarus** joined in, and by the 2000s, **Ukraine** had also started creating technoparks.

For example, in **1990**, the **Tomsk Scientific and Technological Park** was established on the basis of the **Tomsk State University of Control Systems and Radioelectronics** in Russia. After that, many Russian universities began founding their own technoparks. Notable examples include:

- **MIET Technopark** at the Moscow Institute of Electronic Technology (1991),
- **The Science Park of Moscow State University** (1992),
- **Moskvorechye Technopark** at MPhI (1993),
- And initiatives at the **Kurchatov Institute** (1998), among others.

According to research, only **0.3% of universities worldwide** currently meet the criteria of the **University 3.0** model.

In Uzbekistan, universities are now expected to develop **economic functionality** and **commercialize scientific research results** by **2030**. Achieving these goals would allow our institutions to earn higher rankings in internationally recognized university rating systems.

The emerging “**University 4.0**” model builds upon all previous stages. It is characterized by **digitalization** and **automation of business processes**, positioning itself as a **leader in high-tech industry development**. Rather than mass production, it focuses on delivering services tailored to **individual consumer demands**.

In this regard, University 4.0 designs **customized curricula and programs** based on the individual needs of students. It emphasizes not only academic knowledge but also the **development of social competencies**. In today's information-saturated world, third- and fourth-generation universities have the capacity to **adapt educational processes** to fast-changing realities.

In conclusion, transitioning step-by-step to new-generation universities enables deeper integration into global educational processes. Traditional university models are increasingly out of sync with the demands of modern times. Education is important, but it is no longer sufficient on its own. While

⁵<https://www.actualidadviajes.com/uz/silicon-valley/>

theoretical research remains vital, if disconnected from real-world applications, it risks becoming purely academic.

Today's universities must learn to **commercialize research outcomes**, **expand financial resources**, and fully realize their **economic potential**. This will enhance their **reputation and credibility** both locally and internationally. Ultimately, only **flexible institutions** will be able to withstand growing competition in the global education landscape