

## Case Study

# The Higher Engineering Education Alliance Program

Authors: Mianmian Fei and Georgia Thorne

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### Introduction

The Higher Engineering Education Alliance Program (HEEAP) is a collaboration between academia, government, and the private sector which aims to transform engineering Higher Education (HE) in Vietnam using a blended financing mechanism. Born out of a difficulty to recruit qualified engineering graduates in the country, HEEAP was founded in 2010 by the United States Agency of International Development (USAID) and the Intel Corporation. The programme, which is currently in its third phase of operation, first began with Arizona State University (ASU) as the primary implementation partner (Intel, 2013). Since then, it has received increasing support, including from the Vietnamese government since phase two. Currently, in phase three, HEEAP is working with 13 international corporations, and 15 universities and vocational colleges in the country (HEEAP, n.d.-b).

### The problem

Since the Doi Moi Reform in 1986, Vietnam has experienced rapid economic growth and witnessed rising numbers of technical and manufacturing jobs. Consequently, engineering emerged as a crucial field for supporting the country's development (EducationLinks, 2019). However, according to the "Global Competitive Report 2017-2018" (Schwab, 2017), an inadequately educated workforce is one of the most problematic factors hindering businesses in Vietnam. Despite the expansion of Vietnam's HE system over the past 30 years, the quality of this education has failed to keep up (Sheridan, 2010). Out of 137 countries, Vietnam ranks 85<sup>th</sup> for its (low) quality of maths and science in HE (Schwab, 2017). Engineering education specifically is characterised by teacher-centred, theory-only instruction and is accompanied by an outdated curriculum and unqualified staff (Intel, 2013). This academic environment is inconducive to nurturing next-generation engineers able to fulfil the needs of the market and society.

### The solution

HEEAP aims to transform engineering HE in Vietnam into one that is student-centred and based on applied instruction and active learning. HEEAP is one of USAID's Global Development Alliances (GDA), which entails a partnership between USAID and the private sector to solve development challenges using blended-financing and market-based approaches (EducationLinks, 2019; USAID, 2020). Generally, GDAs have four common characteristics (USAID, 2020):

- **Complementary objectives:** USAID and the private sector work together to address business challenges and opportunities at the intersection of both parties' interests.
- **Market-based approaches:** enterprise-led development which leads to short, medium, and longer-term results.
- **Co-creation and shared responsibility:** applying respective expertise to jointly identify challenges and solutions. Sharing risks and responsibilities to mobilise and more effectively deploy resources.

- **Private sector contribution:** mobilising private sector contributions (expertise, resources, and capabilities), preferably in excess of the value of USAID's resources, to foster strong development impacts and results.

In the case of HEEAP, USAID has been able to attract financial resources and in-kind support from academic institutions<sup>1</sup> and the private sector (including Pearson, Siemens and Cadence) to fund a development project targeting engineering HE in Vietnam (HEEAP, n.d.-b). Additional support was drawn from the Vietnamese government, which further strengthened the programme's capacity.

## The three phases of HEEAP

- 1) **HEEAP 1.0 (2010-2013):** The first phase kicked off with US\$ 2.4 million of funding from Intel, US\$ 2 million from USAID, and US\$ 0.5 million from ASU (Intel, 2013). With a focus on improving pedagogy and reforming the curriculum, the main activities of HEEAP 1.0 were **short-term training courses** at ASU and in-country **workshops** for Vietnamese faculty members in engineering. One hundred and twenty faculty members travelled to ASU for a six-week training program, and 200 attended in-country workshops (Intel, 2013; EducationLinks, 2019). In addition, HEEAP 1.0 promoted **female participation** in engineering through conferences for female engineers and intervention programmes for gender stereotypes in the field (EducationLinks, 2019).
- 2) **HEEAP 2.0 or Vocational and University Leadership and Innovation Institute (VULII) (2013-2018):** In its second phase, the programme expanded significantly with the involvement of the Vietnamese government and more international corporation partners (HEEAP, n.d.-c). A **vocational arm** was also created to include seven universities and vocational colleges in the country. Additionally, HEEAP 2.0 provided **strategic planning** and **capacity building** at multiple levels of the Vietnamese education system, including government officials, university administrators, and academic staff. Over 2,000 participants benefited from such training programmes. The second phase also saw the implementation of the internationally recognised **Accreditation Board for Engineering and Technology** (ABET) at partner universities (HEEAP, n.d.-c).
- 3) **HEEAP 3.0 or Building University-Industry Learning and Development through Innovation and Technology (BUILD-IT) (2018-2023):** The third phase is a continuation of the former two phases, now working with 15 Vietnamese universities to target six areas of innovation: **institutional policy**, **student learning platforms**, **innovation spaces**, **faculty instructional methods**, **experiential and applied curricula**, and **gender inclusion** (BUILD-IT, 2021a). Over US\$ 6 million private-sector dollars have been invested in the programme, which has brought training and activities to 45,800 participants from academia, government, and industry (BUILD-IT, 2021b).

## Stakeholder analysis

### Intel

HEEAP was born out of Intel's difficulty to recruit qualified engineering graduates in Vietnam (Intel, 2013). To overcome this challenge, Intel adopted a visionary approach of investing in the country's engineering education in order to produce a reliable workforce supply and thus, a sustainable market with long-term profitability. It was clear that a thorough transformation would be challenging without proactiveness at the policy level, and it was the subsequent partnership with the Vietnamese government that made great institutional-level changes in the system possible (Intel, 2013). Originating from Intel's initiative, a further 12 international corporations have taken part in HEEAP in the past eleven years (BUILD-IT, 2021a).

<sup>1</sup> Including: HCMC University of Technology and Education; Industrial University of Ho Chi Minh City; The University of Danang - University of Science and Technology; Cao Thang Technical College; Ho Chi Minh City University of Technology; Hanoi University of Science and Technology; Ho Chi Minh Vocational College of Technology; Can Tho University.

### *ASU*

Intel's vision of revolutionising engineering education in Vietnam resonated with ASU, whose New American University model strives to increase access to educational resources and grow global impacts (Intel, 2013). Together, they submitted a proposal to USAID which brought the blended financing mechanism on the scene. The initial partnership among the three, and thus the shared responsibility, undoubtedly decreased investment risks (USAID, 2020).

### *Government*

The Vietnamese government had long been seeking ways to transition the country from an agricultural to a knowledge-based economy. Joining the HEEAP has fuelled this endeavour in which both financial resources and expertise were channelled.

### *Vietnamese HE institutions*

For Vietnamese HE institutions, participating in HEEAP has led to not only short-term support for their staff but also long-term benefits as HEEAP aspires to integrate these leading institutions into the international accreditation system (EducationLinks, 2019).

### **Mechanism limitations**

One argued limitation of HEEAP is the lack of involvement of local businesses (EducationLinks, 2019). While the number of industry partners has grown significantly since the launch of HEEAP 1.0, all but one of them are foreign multinational corporations. The only Vietnamese corporation in HEEAP is Viettel, one of the country's largest corporations (BUILD-IT, 2021a). However, since 97% of Vietnamese enterprises are small and medium enterprises, not many of them have the capacity to participate in the programme, either through monetary or in-kind support (Nguyen, Uong, & Nguyen, 2020).

Furthermore, although several initiatives in HEEAP promote women's participation in engineering, some partner universities reported less optimism about the impact this shall have in the engineering field. This is because the gender disparity in engineering is not only due to cultural barriers but also to a lack of on-campus support and adequate resources for women. Therefore, promoting change requires addressing both deep-rooted cultural practices and norms of resource allocation on campus (EducationLinks, 2019).

Nevertheless, HEEAP presents a great opportunity for academia, government, and industry alike to strengthen the engineering HE system through a blend of USAID capital and private sector investments.

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