

Digital Human Resources Development in the Asia Pacific: The Digital Talent Demand & Lesson Learned

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1 Introduction

Digital and telecommunication technology is increasing rapidly in the last three decades. In the telecommunication sector. The 5G technology has been actively launched in the last 3 years. The report from the Global mobile Suppliers Association (GSA) in August 2022 mentioned that 496 operators in 150 countries and territories are investing in 5G fixed wireless access, 5G mobile, and home broadband networks [1]. Currently, the research on beyond-5G/6G networks is ongoing. The 6G network is predicted to be launched commercially in 2030 [2]. It is expected to achieve very high performance, for example, a wireless system must all at once deliver a high data rate, low latency, and high reliability to guarantee that users can obtain a high-quality experience anytime and anywhere. Individual users can expect data rates of at least 10Gbps and up to 100Gbps [3].

Significant advancements have been made not only in telecommunications technology but also in computing power and storage technology. In comparison to processor and storage technology 20-30 years ago, processors and storage are becoming smaller in size while achieving much faster computing speed and much larger storing capacity. The significant advancement in processor, storage, battery, and telecommunication technology welcomes the emergence of mobile technology and cloud computing.

The significant advancement in digital infrastructure
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encourages the development of new digital applications. Email and search engines were among the first Internet applications to appear between 1990 and 2000. Social media started to emerge in mid of 2000 with the emergence of Facebook, Friendster, etc. Currently, video and live streaming applications such as YouTube, Instagram, or even TikTok are dominating the most widely used application in the world. From now, some new applications are predicted to emerge such as artificial intelligence (AI), big data, blockchain, Internet-of-Things (IoT), Metaverse, Robotic Process Automation (RPA), etc.

The significant advancement in digital technology and applications has led to a major shift in the employment world. A study from Global Mckinsey Institute in 2018 mentioned that automation and AI will speed up the transition in required workforce skills over the last 15 years [4]. Their research found that technological skills, such as programming will be the most in-demand skills in 2030. According to their research, technological skills such as programming will be the most in-demand skills in 2030. In comparison to 2016, demand has increased by 55%. Work that requires physical and manual ability, as well as basic cognitive ability, will decline by 15% in 2030 compared to 2016 [4].

In this paper, we discuss about digital and technological talent development in the Asia Pacific. Digital and technological skills are still in high demand throughout the Asia Pacific. The COVID-19 pandemic has magnified the need for tech talent across APAC, forcing many organizations to prioritize digital transformation. We perform the study by using literature review and

observation.



Fig. 1 Global Talent Competitiveness vs ICT Development Score [5]



Fig. 2 Digital Talent Demand vs Supply Matrix [6]

This paper discusses specifically about

1. The digital talent demand in the Asia Pacific recently.
2. Lesson learned of digital talent development from some countries in Asia
3. Summary of Digital Talent Development Strategy

The rest of the paper is organized as follow. The second section discusses the digital talent demand in Asia recently. The third section discusses the lesson learned in digital talent development from some countries in the Asia Pacific. Finally, we conclude and discuss the summary of the digital talent strategy.

2 Digital Talent Demand in Asia Pacific

In this section, we discuss about the digital talent demand in Asia Pacific. Jaewon, et al. mentioned in their study that talent development is one of the most fundamental bases that lead to the advancement in the

technology [5]. Fig. 1 shows that there is a clear correlation between talent competitiveness and the level of ICT development in a country. Therefore, they strongly suggest that both the educational system and labor policy should be integrated to produce competitive digital talent.

In another paper, Huawei researchers conducted to some research to understand the digital talent demand and supply in the Asia Pacific [6]. Fig. 2 shows the relation between digital talent demand vs supply matrix according to Global Connectivity Index (GCI) categories [6]. Since 2015, Huawei has released an annual GCI that tracks the deployment of digital infrastructure and capabilities in 79 countries by analyzing four core technologies known as "enabler categories", which are AI, IoT, cloud, and broadband. Then, they measured them using 40 GCI indicators. Among the 40 indicators are investments in ICT, ICT legislation, E-Government services, smartphone penetration, e-commerce, and cybersecurity.

Huawei researchers' report identifies three GCI Country Clusters, which are Starters, Adopters, and Frontrunners. The classification is done to differentiate between various connectivity levels. The specification of each class is shown in Table 1. Results indicate that countries that achieve higher GCI scores have a greater level of Digital Readiness, as a result of the development and growth of infrastructures such as cloud capabilities and high-speed broadband, which indirectly mitigate the pandemic's effects. Fig. 2 shows that Singapore, Malaysia, and Indonesia are the countries with the most talent demand and supply among the frontrunners, adopters, and starter countries, respectively. In section 3, we discuss more lessons learned from these 3 countries along with other countries.

3 Lesson Learned

In this section, we discuss lessons learned of digital talent development from some countries in Asia

3.1 Singapore

Investments in digital initiatives and capabilities in

a regular basis have made Singapore the APAC leader in terms of demand for digital talent. With companies such as SEA Group and Grab establishing headquarters in this country, digital technology employment has increased. Nevertheless, local talent has never been adequate to meet the needs of the expanding tech scene. Moreover, as the government toughens its employment policies for skilled foreign workers, this country will struggle to fill roughly 60,000 of tech vacancies within the next two to three years. [7]

To fulfill this high demand, Singapore has made enhancing its tech talent supply a top priority. The government has invested heavily in the development of robust technology curricula for both public and private schools. One well known initiative is the SkillsFuture program. This program is a national program designed to provide Singaporeans with opportunities to realize their full potential throughout their lives, regardless of their starting point. Through this action, Singaporeans can adapt to the shift in required workforce skills by strengthening their knowledge or skill or even learning a new skill for mid-career transition.

3.2 Indonesia

In recent years, the demand for digital talent has skyrocketed, propelling Indonesia up the regional tech powerhouses ranking, surpassing Vietnam in the process (an adopter country). The local digital economy is expanding and will demand more than 17 million tech professionals by the year 2030 [8]. This is primarily due to the growth of local tech startups like Gojek and Tokopedia, as well as the government's strategy to transform Indonesia into a digitally dominant nation.

Digital talent is one of the most prominent pillars of Indonesia's digital roadmap. The Indonesian Ministry of Communication and Informatics recently announced digital talent scholarships (DTS) and digital leadership academy (DLA) in an effort to accelerate the growth of highly skilled digital talent. DTS is a practical program designed for millennials. In addition to increasing participants' competence through a quality curriculum, the program aims to equip participants with the necessary skills for future employment. These competencies encompass artificial intelligence (AI), Big

Data, cyber security, virtual reality, augmented reality, and the Internet of Things (IoT). The minister noted that for the DTS program, the ministry is collaborating with 154 universities and polytechnics in Indonesia [9].

Meanwhile, The Digital Leadership Academy program will be offered to 550 stakeholders in the digital sector, including government and private sector representatives. The ministry has partnered with eight foreign universities for this program, including Tsinghua University, Harvard Kennedy School, Oxford University, and the National University of Singapore [9].

On the other hand, other initiatives such as the development of a curriculum focused on startups and huge online upskilling programs, the demand for digital talent has never been greater. Since the appointment of Gojek's founder as minister of education, culture, research, and technology, the nation has also relied on this ministry to lead all digital initiatives, including talent development. This ministry initiated a program named Kampus Merdeka. The Kampus Merdeka is a form of learning in higher education that is autonomous and adaptable, allowing for the creation of an innovative, non-limiting, and student-centered learning culture. For example, in order to graduate from university, the students can fulfill the credit requirement not only from university courses but also by internship activity, student exchange, or by conducting a research project. For this program, the minister provided some institutional grants for universities that proposed their initiatives.

From the private sector, Tokopedia who just merged in 2021 with Gojek to form GoTo group also offers a learning center for Indonesian technology professionals through the Tokopedia Academy [10], which includes the START Summit technology conference among its offerings. Tokopedia has launched the AI Center of Excellence with the University of Indonesia (UI) and is collaborating with Atma Jaya University on an e-commerce course [10].

The good collaboration between government and industry forces Indonesia's tech ecosystem continues to develop, it is anticipated that the brain drain will diminish significantly.

3.3 Malaysia

Malaysia has demonstrated significant potential as a Southeast Asia technology leader. Malaysia's expanding startup scene has also contributed to the increase in demand. As SMEs make up the vast majority of Malaysian businesses, the shift towards digitalizing workloads will increase the demand for local tech talent.

Malaysia's government have one initiative to transform their nation into a digitally driven and regional leader in digital economy which is called as MyDigital [11]. One of the strategic pillars of the MyDigital blueprint is the development of a pool of competent digital talent. From student learning enhancement programs to reskilling, upskilling, and digital employment portals, the Malaysian Digital Economy Corporation (MDEC) has concrete plans in place to address Malaysia's digital talent shortage.

Some of the digital talent development programs are:

1. "My Device" program to ensure all students can access digital learning in Malaysia
2. Adopt digital technology in partnership with the private sector to provide a platform for managing online teaching and learning in elementary schools.
3. Increase public and private collaboration through the Malaysia Board of Technologies (MBOT) to

equip graduates with industry-required skills

4. Launch the "Social Entrepreneurs Circle" program to provide social entrepreneurs with digital skills and a networking venue.
5. Introduce professional upskilling programs related to the digital economy in areas including data analytics, cyber security, content creation, artificial intelligence, system integration, and other pertinent professional skills.
6. Introduce the "GigUp" program to equip gig workers with adaptable skills that will increase their employability and reduce their job insecurity.

3.4 Other Countries

Other countries in Asia Pacific also developed some initiatives to build their digital talent [6], such as :

1. South Korea Invests more than US\$ 3 billion to support AI education. It is intended to support private enterprises in the industry such as semiconductors to upgrade their skills and be future-ready.
2. The Australian Government Department of Education, Skills, and Employment provides funding for The Digital Skills Organisation's Delivering Skills for Today and Tomorrow program.

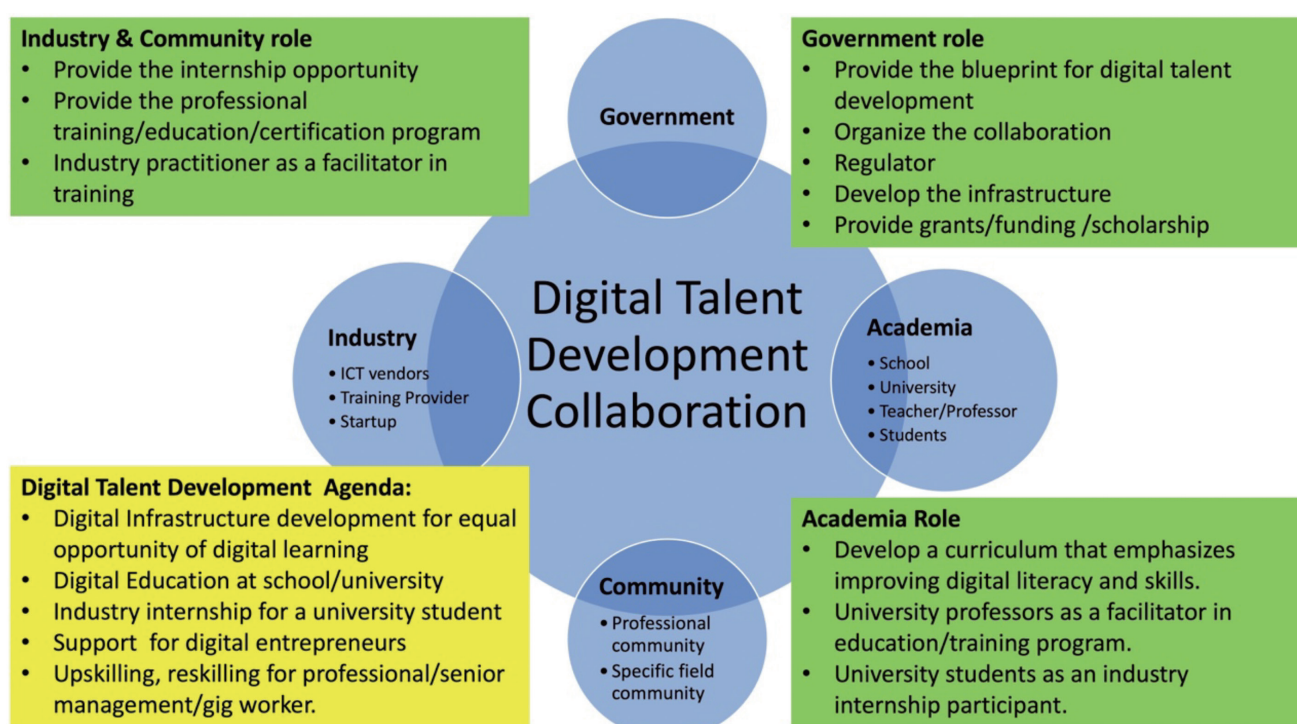


Fig. 3 Summary of Digital Talent Development Strategy

3. New Zealand holds GovTech Talent Graduate Program.
4. India's non-profit NASSCOM has formed a partnership with the government and IT industry to offer free/subsidized programs, namely "National Skills Prime," which cover ten emerging technologies and include certifications.
5. Youth in Pakistan has been receiving free training in freelancing and other marketable skills through the National Level Training Program (DigiSkills.pk) launched by the Ministry of Information Technology and Telecommunications via the Ignite National Technology Fund. Search Engine Optimization, Digital Marketing, Graphic Design, Digital Literacy, e-Commerce Management, AutoCAD, QuickBooks, and WordPress are among the 10 courses included in the program.

4 Conclusion

The significant advancement in digital technology and applications has led to a major shift in the employment world. The COVID-19 pandemic has magnified the need for tech talent across APAC, forcing many organizations to prioritize digital transformation. In this paper, we study the initiatives of some Asia Pacific Countries to fulfill digital talent demand in their countries. Our study shows that collaboration between government, industry, academia, and community is required for successful digital talent development. Government acts as an organizer who provides the program's blueprint, infrastructure, and funding. Industry and community can provide internship opportunities and professional education and training programs. At the same time, academia's role is to develop a curriculum that emphasizes improving digital literacy and skills. Some agendas exist for digital talent development, targeted at school/university students, professionals, and the senior management level. The summary of the digital talent development strategy is shown by Fig. 3.

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