

# Chapter 2

## Understanding Education Hubs Within the Context of Crossborder Education

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### Introduction

Internationalization is one of the major forces impacting and shaping higher education as it changes to meet the challenges of the twenty-first century. Overall, the picture of internationalization that is emerging is one of complexity, diversity and differentiation. One aspect of internationalization which is particularly important and controversial is crossborder education. It is no longer just students who are moving to other countries for education opportunities. Academic programmes, education institutions and new providers are moving across borders to deliver education and training programmes in foreign countries. Furthermore, countries, cities and zones are seeing the usefulness of developing themselves as education hubs where different types of crossborder education, training and research are linked and bring added value. The changes in crossborder education are dramatic. These new developments are full of potential benefits, but many of the consequences, intended and unintended, are still unknown.

International education hubs are the latest development in crossborder education. They represent a third generation of crossborder education where mobility, critical mass and collaboration between international/local universities, students, research institutes and private industry are key elements. The concept of an education hub rests on the motivation to be perceived and act as a reputed centre for higher education, training and research within the region and beyond. Therefore, an education hub is not an individual branch campus, or only a large number of international students, or just a science and technology park. It is more than a single initiative or institution. An education hub involves a coordinated and

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strategic effort to build a critical mass of local and foreign actors – including students, education institutions, training companies, knowledge industries and science and technology centres (Knight 2011a). Through interaction, networks and in some cases co-location, actors engage in education, training, knowledge production and innovation initiatives.

It is understood that education hubs have different objectives and characteristics which distinguish them from one another. In general, the term education hub is used by countries which are trying to position themselves as centres for student recruitment, education and training and in some cases research and innovation. A variety of factors are driving these efforts and include income generation, modernization of domestic tertiary education sector, economic competitiveness, need for trained workforce, regional profile, soft power and a desire to move to a knowledge- and service-based economy (Knight and Morshidi 2011). But are education hubs just a fad? Are they more rhetoric than reality? A common perception is that being recognized as an education hub will increase a country's reputation, competitiveness and geopolitical status within the region and beyond. Are education hubs nothing more than a branding exercise designed to increase status and a sense of soft power (Knight 2010)? Or are they a remarkable new development and an innovation in crossborder education which is worthy of serious consideration? The next section puts international education hubs into context by examining key precedents such as the movement of students, programmes, higher education institutions and private companies across borders.

### **Three Generations of Crossborder Education**

Any study of higher education shows that academic mobility has been happening for a very long time. Scholars and knowledge have been moving around the world for centuries. But, by the early 1990s, the movement of programmes and higher education institutions between countries increased substantially due to increasing demand for higher education and the quest by some countries and higher education institutions to strengthen international academic relations and find new education markets. No longer were there isolated incidences of foreign programmes and providers resident in a few countries around the world, the numbers started to grow exponentially. By early 2000, some nations began to develop a critical mass of foreign providers, programmes and students, and the third generation of crossborder education – education hubs, cities and zones – began to appear. The purpose of Table 2.1 is to summarize the highlights of each of the three generations. Worth noting is that these generations are not mutually exclusive. In fact, education hubs build on and extend first- and second-generation activities. In the following section, each generation is examined so as to understand the differences and similarities among them and to raise some of the related issues and challenges.

**Table 2.1** Three generations of crossborder education

Crossborder education	Primary focus	Description
First generation	Student/people mobility Movement of students, faculty and scholars to a foreign country for education and research purposes	<i>Students</i> : full degree or short-term study, research, fieldwork, internships and exchange programmes <i>Faculty</i> : for teaching, professional development and research purposes <i>Scholars</i> : to strengthen international research collaboration and networks
Second generation	Programme and provider mobility Movement of programmes or institutions/companies across jurisdictional borders for delivery of education and training in a foreign country	<i>Programme mobility</i> Twinning Franchised Articulated/validated Joint/double award Online/distance <i>Provider mobility</i> Branch campus Virtual university MOOCS Merger/acquisition Independent institutions
Third generation	Education hubs Countries attract foreign students, researchers, workers, programmes, providers and R&D companies for education, training, knowledge production and innovation purposes	<i>Student hub</i> – students, programme and providers move to foreign country for education purposes <i>Talent hub</i> – students and worker move to foreign country for education and training and stay for employment purposes <i>Knowledge/innovation hub</i> – education researchers, scholars, HEIs and R&D centres move to foreign country to produce knowledge and innovation

Source: Knight (2014)

### ***First Generation: Student Mobility***

Nobody could have predicted the meteoric rise in all forms of student mobility in the last 50 years. The increase in mobile students from about 238,000 in the 1960s (Chen and Barnett 2000) to 4.1 million in 2010 (OECD 2012) is staggering. If forecasts are correct, this number will double in another 10–15 years. In the past four decades, the numbers of students, the types of mobility experiences, the driving rationales and the destination countries have changed dramatically.

When the term student mobility is used in a comprehensive sense, it usually refers to international students who are taking a full degree abroad or, secondly, students who are participating in a semester or year abroad programme as part of their academic programme at their home university. More recently, it also involves students who are enrolled in collaborative degree programmes such as double/joint, franchise, twinning or sandwich programmes. In a strict sense, student mobility may not be required in these collaborative programmes, but it is strongly encouraged and usual practice. However, student mobility involves more than course/programme work for it can include research, fieldwork, internships or practicums as part of the programme. Given the importance of understanding foreign cultures and languages, students especially those who cannot afford the time or costs of semester abroad are participating in short-term cultural workshops, tours and activities. New forms of virtual mobility are emerging and merit further attention and research. Virtual mobility involves the use of ICT technologies to encourage crossborder collaboration for teaching and learning and replaces the necessity of international physical travel. The benefits of working together virtually with counterpart teachers and students to enrich the learning experience and enhance intercultural understanding and the exchange of knowledge are many. Virtual mobility should not be confused with online or distance education as it involves direct collaboration and exchange in a virtual learning environment and not merely access to learning opportunities or programmes through electronic means.

Three key issues related to the different forms of physical or virtual mobility are earning credits for course work taken outside of the home institution, determining which institution awards the programme qualification and assuring that the credential is recognized in the home, host or other countries where the student may want to take further education or seek employment. The granting and recognition of degrees is becoming more complex and troublesome. This is especially true for collaborative programmes such as double or multiple degree programmes. Chapter 12 discusses this issue in more detail.

Regionalization now plays a significant role in choice of foreign study location. It is predicted that about 70 % of student mobility will occur within Asia (UNESCO 2010) in the future. Why Asia? The successful recruitment efforts of Japan, Malaysia, Singapore and China are bearing fruit, and, secondly, India, Indonesia and China represent three countries with huge numbers of secondary students wanting to proceed to tertiary education at home and abroad. Table 2.2 lists the top ten destination countries in the world.

Just as no one anticipated the growth in student mobility, no one could have predicted that international student recruitment would be directly linked to national innovation, science and technology strategies as well as trade and immigration policies in the quest for human talent to serve the service and knowledge economy. The brain train or circulation concept is the current term used to describe the trek of students and young professionals from country to country for study and employment reasons. But the notion of circulation masks the fact that there is net brain drain for some countries, usually smaller developing countries, and there is net brain gain for more economically advanced countries. By 2025, it is estimated that

**Table 2.2** Foreign student top destination countries in 2009

Countries	Standing	Total number in 2009
United States	1	660,581
United Kingdom	2	368,968
Australia	3	257,637
France	4	249,143
Germany	5	197,895
Japan	6	131,599
Russian Federal	7	129,690
Canada	8	93,479 (2008)
Malaysia	9	57,824
South Korea	10	50,030
Spain	11	48,517
Singapore	12	40,401

Source: UNESCO (2012)

7.8 million students will be enrolled in foreign countries for their tertiary education (Bohm et al. 2002) indicating that the first-generation crossborder education activities will continue to expand in scope and scale. The rationales and impact of student mobility will change however, as countries look to attract and retain students to fulfil their need for knowledge workers and skilled labour.

### ***Second Generation: Programme and Provider Mobility***

In the early 1990s, the movement of programmes and providers across borders began to increase substantially and have an impact on the number of students who could access foreign higher education programmes and qualifications without leaving home. Examples of crossborder *programme* mobility include twinning and franchise programmes, articulation arrangements, joint/double degrees and the latest development – massive open online courses (MOOCs) (OBHE 2012a, b). Branch campuses, embedded teaching centres and virtual universities are examples of crossborder *institution/provider* mobility (Knight 2007). Both have become more popular and absorbed large numbers of students wanting a foreign academic programme and qualification.

Unfortunately, there is no comprehensive and reliable database on programme and provider mobility. Many countries do not collect this data at the national level. More challenging is the reality that countries do not use the same definition or set of criteria to identify twinning, franchise and double/joint degree programmes. While this problem already exists for international student statistics, it is even more problematic to capture reliable data for programme mobility. Singapore, Malaysia and Hong Kong are hosts to the largest concentration of twinning and franchise programmes in the world. They monitor and maintain data on the types and enrolments of imported academic programmes by applying a quality assurance or accreditation

**Table 2.3** Increase in number of branch campus 2002–2011

	2002	2006	2009	2011	Planned
Total number of branch campus	24	82	162	200	37
Number of source/sending countries		17	22	24	
Number of host/receiving countries		36	51	67	
Number of branch campus hosted by region					
Africa			5	18	1
Asia Pacific			44	69	31
Europe			32	48	3
Latin America			18	10	0
Middle East			55	55	1
North America			8	10	1
Branch closures		6	5	12	

Source: Knight (2014) taken from OBHE (2009, 2012a, b) data

system for all foreign programmes coming into the country or offered in collaboration with a local institution. Lessons learned from these experiences could inform other countries importing a large number of foreign programmes.

Provider mobility presents a different scenario. Universities have been setting up campuses in foreign countries for decades albeit in very small numbers and often without accreditation or licensing from the host country. A more recent development includes new or alternate providers, such as multinational corporations and non-governmental bodies, providing education programmes in foreign countries. Factors driving this growth include the increased demand for tertiary education arising from larger secondary school cohorts and the knowledge economy's need for a skilled labour force. Many countries found it more attractive to host branch campuses of foreign public and private universities than to invest in the physical and human infrastructure needed for an expanded higher education sector (Verbik and Merkley 2006). At the same time, regional and world trade agreements now include education as a tradable service spurring private and public education providers to seek new commercial possibilities in crossborder education. It became clear that large numbers of students found it more attractive and economical to study at home at international branch campuses than to go abroad.

An international branch campus is defined as 'a satellite operation of a recognized higher education institution or provider which offers academic programs and credentials in a different country than the home institution' (Knight 2008, p. 122). According to the OBHE data (2012a, b), there were just 24 branch campuses in 2002. But one decade later, there are more than 200 operating in all regions of the world. It is revealing to see the distribution and growth of these new initiatives by region. Table 2.3 shows that as of 2011, Asia is home to 69 of the 200 branch campuses around the world. This is an increase of 25 since 2009. This represents the largest number in a single region, and the forecast for increased growth suggests that there will be an additional 31 by 2014. This brings the total to 100 branch campuses in Asia. The growth of branch campuses in the Middle East has remained

stable at 55 since 2009 with only one is in the planning stages as of 2011. Of particular interest is that the number of receiving or host countries of branch campuses has almost doubled from 36 in 2006 to 67 in 2011. At the same time, there are some branch campus closings, 5 from 2006 to 2009 and 12 between 2009 and 2011 (OBHE 2012b).

The regional distribution of branch campus source countries looks very different. North America is the leading exporter of branch campuses at 82 (primarily from the United States), Europe is second at 68 and then Asia Pacific at 38 (OBHE 2012a, b). Asia is in a particularly dynamic situation as it is the top region in terms of hosting or receiving the largest number of branch campuses and is third place in terms of establishing them abroad.

Overall, this unanticipated increase in branch campuses during the last decade highlights the second generation of crossborder education and strongly influences the emergence of the third generation.

### ***Third Generation: Education Hubs***

Education hubs are the most recent development and constitute the third wave of crossborder education initiatives. Education hubs build on and can include first- and second-generation crossborder activities, but they represent a wider and more strategic configuration of actors and activities. An education hub is a concerted and planned effort by a country (or zone, city) to build a critical mass of local and international actors to strengthen the higher education sector, expand the talent pool and/or contribute to the knowledge economy.

In 2012, there are only a handful of countries around the world which are seriously trying to develop themselves as an education hub. These include Hong Kong, Singapore, Malaysia, the United Arab Emirates, Qatar and Botswana (Knight 2011b). Others such as Bahrain, Mauritius, Korea and Sri Lanka are still in initial or perhaps 'stalled' stages. Some countries such as Bhutan seem to be using the term education hub only as a branding label to attract more international students and providers. In addition, there are cities around the world, for instance, Panama City, Bangalore in India and Monterrey in Mexico, that are trying to position themselves as education or knowledge cities. Several city-level initiatives, Panama being a prime example, are trying to be international in scale, while others are local-level initiatives. The diversity of approaches and motives to developing an education hub begs the question as to what, exactly, does an education hub mean and involve.

There is no single model or 'one-size-fits-all approach' to establishing an international education hub. Each country or jurisdiction has its own set of drivers, approaches and expectations. A new feature of the third generation of crossborder education is the emphasis on knowledge production and innovation. Education and training initiatives have been traditionally associated with the first two generations of crossborder education, and the addition of knowledge generation and application is a noteworthy development and feature of education hubs.

## Characteristics and Meaning of an Education Hub

The term hub is being used by many sectors – transportation, finance, communication and fashion. For instance, from the economic sector, there are ‘hub-and-spoke’ free trade agreements (Alba et al. 2010) just as there are transportation node and hub networks. The concept of ‘cluster’, conceived as a network of connected actors working in a specific field and located in the same area, is becoming more popular in the world of business, science, health and manufacturing. These terms, when used in an applied sense, denote a group, gathering, centre, nucleus, core, critical mass or collection. Thus, the idea of hub is an elastic concept used to denote some kind of relationship or interconnectedness at different levels with a diversity of actors and activities.

### *Definition and Key Concepts of Education Hub<sup>1</sup>*

Given the diversity of education hub models plus the lack of any systematic study of the phenomenon to date, an analysis of the common characteristics of education hubs is warranted. Working on the assumption that the number and types of education hubs will increase, any working definition needs to be generic enough to apply to all levels of education hubs as well as the scope of engagement and impact. A proposed working definition, regardless of what level it is (country, zone or city) or in what region of the world it is located, is as follows:

an education hub is a planned effort to build a critical mass of local and international actors strategically engaged in crossborder education, training, knowledge production and innovation initiatives. (Knight 2011a, p. 227)

The identification of driving rationales, expected outcomes, sponsors, major actors and specific types of activities is intentionally omitted to allow the definition to apply to the emerging diversity of hubs. To fully understand the meaning and dimensions of the proposed definition, it is helpful to examine each core concept.

The concept of *planned effort* indicates that a hub is an intentional or deliberate project and would normally involve a strategy, policy framework and some public and private investment. In other words, a hub is more than a coincidental interaction or co-location of actors working in the education and knowledge sectors. The notion of being planned helps to decrease the chances that it is merely a fad or branding exercise or a serendipitous set of temporary interactions among key players.

The notion of *critical mass* suggests that there is more than one actor and set of activities involved. This means that a single branch campus, or franchise programme, or science and technology park, or internationally engaged institution does not constitute a hub. A hub is different from individual first- and second-generation crossborder activities as it brings these kinds of initiatives together into some kind

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<sup>1</sup>The section is adapted from Knight (2011a).

of planned or coordinated project. The concept of critical mass intentionally goes beyond a random collection of crossborder activities as it denotes that there is a key combination of actors. The term co-location was considered and deliberately not included in the definition even though it is significant to the meaning of a hub. The use of the term co-location at city, zone and national levels means different things. Actors can be co-located in a single or multiple locations because of complementarities of services, but it does not imply that all actors must be co-located in one designated area. Larger countries like Malaysia and the United Arab Emirates are good examples of multiple activities and multiple co-location sites, while Hong Kong Special Administrative Region and Singapore, essentially city states, are small enough that the notion of one co-location site can apply.

The inclusion of *local and international actors* indicates that an education hub involves both domestic and foreign players. Given that international actors and activities are involved, the nature of the hub is international by definition. Nevertheless, it still may be necessary to use the term international education hub to distinguish it from a city/zone level hub which involves local actors only and no crossborder education. Actors can include local, regional and international students, scholars, institutions, companies, organizations, research centres and knowledge industries. The term actor is used in an inclusive manner so as to cover providers, producers and users of the education, training and knowledge services and products. The diversity of actors will vary from hub to hub depending on the rationales and functions of the hub, and thus types of actors are intentionally not specified in the definition. Chapter 3 examines the different sectors and types of actors as part of the analytical framework, and Chap. 11 provides an analysis of the various key players active in the country-level education hub case studies.

The idea of *strategically engaged* is central to the definition as it emphasizes a deliberate connection, interaction or relationship among the actors. While the nature of the engagement will differ from hub to hub, a fundamental principle is that there is added value when the actors are connected, collaborate or share common facilities and resources. This does not deny that there will be competition among actors who offer similar services, but the pros of being part of a strategic and interactive initiative appear to outweigh the cons. The nature and numbers of the interactions are unlimited given the diversity of local and international actors and users. Secondly, given that an education hub is planned, a master plan or overall strategy, along with the aligned policies and regulations, helps lead to success and sustainability. This supports the important concept of 'strategic' in the definition.

*Crossborder education, training, knowledge and innovation initiatives* depict the broad categories of activities and outputs of hubs. There is a wide selection of initiatives or services that are available depending on the type of hub, priorities of the individual actors and the sponsor's strategic plan.

Worth noting is that the level of hub is not included in the definition because the level (zone, city, country) is determined by the sponsors of the hub as is the reach or engagement of actors and the spread of impact and influence. For example, a zone-, city-, and country-level education hub can aim to attract actors from their immediate vicinity or beyond, and the impact can be local, national, regional or global.

Therefore, level and scope of activities is not a part of the generic definition but would normally be part of the description of a specific education hub.

Finally, an education hub has not been defined in physical or spatial terms such as a designated area as this may be too limiting. Rather the central concept is one of connectedness or a network of interactions among engaged local and international actors undertaking crossborder education activities to achieve their individual objectives as well as the collective goals.

### ***Education Hubs: Level, Engagement and Impact***

A scan of the existing education hubs indicates that it is important to note three critical aspects: level, engagement and impact. The first is the 'level' or magnitude of the hub such as city, zone and country. This indicates whether it is located in a specific geographical area like a city or zone or whether it is more widespread as in country level where interconnectedness among actors and initiatives is more important than co-location in a common geographical area. The second aspect involves the '*engagement*' or *reach* for attracting actors to be part of the activities, services of a hub. For example, an education hub can include local, regional and international actors such as foreign higher education institutions, R&D companies and students. The third aspect is the *impact* or spread of influence and benefit of the education hub. For instance, the impact of the education hub, such as the supply of education and skilled workers or generation of new knowledge/innovation, can benefit a specific zone, state, country, region or beyond.

Thus, the three concepts of level, engagement and impact are central to studying education hubs. For the purposes of this book, the *level* is primarily country level, meaning that national-level planning and policies are normally involved. Secondly, the connections among the actors and initiatives are important, but co-location is not mandatory. An example of a country-level hub is Malaysia as it has a number of different crossborder education initiatives. They include seven different international branch campuses located in different states, a national-level international student recruitment strategy which involves local and foreign universities all over the country, a special economic zone called Iskandar which includes an education city, and multiple international partnerships and joint academic programmes between domestic and foreign higher educations. In other cases, such as the United Arab Emirates, there is no national-level hub strategy, but there are multiple international education activities located in different sites or zones across the country. Singapore is an interesting example, as it is considered to be a country-level hub because it involves a large number of interconnected policies and initiatives but geographically it is a small city state.

In terms of *engagement*, all education hub case studies in this book are international in character as they include education providers, students and companies which are both local and foreign. Some hubs can be more regional in their international focus. The term international is used to make a distinction between a

domestic-level hub that only involves local actors. In fact, it is the interaction and collaboration between local and international actors which is fundamental to the concept of an international education hub. Finally, the concept of impact or spread is also geographical but is more complex and difficult to articulate and measure. A key question is whether the motives and results of a hub strategy are directed to domestic benefits and impact, or is the hub intended to have influence and effects beyond national borders to the region and the rest of the world.

Qatar is an interesting example, as it clearly states in its planning documents that as an education hub, the benefits are for Qatar and the rest of the region while at the same time asserting its position and influence in the international scene of higher education. In fact, most countries that are investing funds and efforts to being an education hub have aspirations to be recognized as a centre of education excellence and economic activities. The differences between level, engagement and impact may seem murky at this point, but the in-depth hub case studies in this book will illustrate that most hubs aim to have a regional or global geopolitical impact while ensuring that there are concrete national-level benefits.

## Rationales

As previously discussed, crossborder education is one of the two fundamental pillars of internationalization, and, secondly, education hubs represent the third generation of crossborder education. Thus, it makes sense that the rationales driving education hubs have a direct relationship to why institutions and countries are engaged in the internationalization process in general and crossborder education in particular. A review of the most important internationalization rationales reveals five major categories: academic, economic, political, social-cultural and status (Knight 2008). These five types of rationales include both ‘international at home’ and ‘crossborder education activities’. Chapter 11 provides an in-depth look at crossborder rationales and illustrates a close link with these five major types.

Any analysis of crossborder education requires a 360-degree analysis to accommodate the perspectives of local and foreign actors and stakeholders. Table 2.4 illustrates the perspective of three different stakeholders involved in crossborder education: the host or receiving country, the students from the host country enrolled in foreign academic programmes and the foreign institution or provider from the sending country. It is clear that the diversity of rationales driving crossborder programme and provider mobility differ by stakeholder. But all are related to academic issues such as increased access, diversity of programme offer and foreign qualifications.

In terms of economic rationales, institutions/providers from the sending country may have income generation in mind, while the students believe that taking a foreign programme in their home country decreases the travel, accommodation and cost of living in a foreign country. Reputation and profile seem to apply to all stakeholders as the host country wants to increase its profile in the region and

**Table 2.4** Stakeholder perspectives on crossborder education

Rationales	Government education departments (host/receiving country)	Students (in host country)	Institution/provider (from sending country)
Increased access to higher education	Increased opportunities for education training of local, expatriate and international students	Ability to gain foreign qualification without leaving home. Can continue to meet family and work commitments	Attracted to unmet need for higher education and training and or invitation to establish presence in foreign country
Cost/income	Students do not require funding to go abroad for education therefore decrease in foreign currency costs	Less expensive to take foreign programme at home as no travel or accommodation costs. But tuition fees of quality foreign providers may be higher than local HEIs	Strong imperative to generate a profit for crossborder operations as well as increased profile
Selection of courses and programmes	Foreign providers can offer modern courses with international content relevant to needs of industry and employers	Increased access to courses/programmes in high demand by labour market	Tendency to offer high demand courses which require little infrastructure or investment unless provided by host country
Language/cultural and safety aspects	Relevance of teaching practices, course curriculum and new skills to culture and values. Impact of foreign providers on the selection of academic programmes offered by domestic institutions	Can have access to courses in foreign and/or indigenous language. Remain in familiar cultural and linguistic environment	Language of instruction and relevance of curriculum to host country. Additional academic and linguistic support may be needed
Quality	International branch campuses and foreign programmes can demonstrate new pedagogical and management approaches	Can be exposed to higher- or lower-quality course provision	Depending on delivery mode, quality may be at risk. Assurance of relevant and high quality courses may require significant investment
Recognition of qualification	Local and foreign employers and high education institutions need to recognize foreign credential for employment or further study purposes	Foreign qualification has to be recognized for academic and employment purposes	May be difficult for academic award and for institution to be recognized in foreign country
Reputation and profile	Country can be seen as centre of education excellence if reputable foreign programmes and branch campuses are available. Increase attractiveness/competitiveness of country	Due to massive marketing campaigns, international profile can be mistakenly equated with quality of provider/programme	Profile and visibility are key factors for high enrolments and strategic alliances

Knight (2014, updated)

beyond, the students want to study with reputable foreign institutions and the sending institutions or providers are trying to enhance their brand and status as an international institution.

### ***Overview of Education Hub Rationales***

The major reasons driving education hubs have a slightly different emphasis than the ones described above for internationalization in general and crossborder mobility of programme and providers. However, the link is clear. The importance of well-thought-out and clearly articulated rationales cannot be overstated as they are the first step in a sequence of related actions. Well-defined rationales are translated into specific objectives for planning an education hub, objectives are then turned into action through the articulation and implementation of strategies, and strategies directly contribute to the identification of anticipated outcomes and the eventual impact. In short, explicit rationales form the foundation for a hub master plan. The following section describes five groups of rationales that appear to be the most prevalent among the case study hubs included in this book. The individual case study chapters delve more deeply into these driving forces, while the following section provides an overview.

*Economic reasons* constitute the first category. They are dominant and take many forms. For instance, strengthening the ‘education industry’ (a term more often used than ‘education sector’ in hub discussions) is a common principal economic rationale. Attracting foreign investment is a second, and lastly, economic diversification to build a successful knowledge and service economy is the third economic motivation.

The second category consists of *education and training reasons*. It is necessary to use the more precise term of education and training than the generic term ‘academic rationales’ which is used to delineate internationalization because education hubs differentiate between academic activities such as teaching and training and those projects related to research and knowledge production. The three core motives in this category include (1) aligning education and training with industry needs, (2) improving access to learning opportunities for local, expatriate and international students and (3) enhancing the overall quality of higher education in the host country.

*Knowledge generation and innovation* is the third category. It focuses on (1) creating or enhancing the research culture, capacity and outputs and (2) supporting applied research for innovation purposes. In addition, the importance of blue-sky or more theoretical research is also cited as a rationale of some education hubs.

The fourth category emphasizes *human resource development*. The need for trained skilled workers for the transformation to a knowledge- and service-based economy is a leading rationale. A second is the need to prevent brain drain by retaining local and foreign talent in the country. Human resource development can

move beyond the country's borders to supplying the region with a trained talent pool.

The fifth group is harder to label because it involves using the education hub for *status*, *soft power* or geopolitical influence in the region and beyond. The three motives included in this category are to (1) promote or brand the country (jurisdiction) as a regional centre of excellence, (2) use education to increase attractiveness, competitiveness and status within the region and beyond and (3) create international partnerships for education and research.

### Three Models of Education Hubs: Student, Talent and Knowledge/Innovation

As discussed, different rationales, actors and activities characterize education hubs. Some countries see hubs as a means to build a critical mass of foreign students and providers to generate income as well as modernize and internationalize their domestic higher. Others want to be a hub in order to train foreign and local students and employees to be part of a skilled labour force. And other countries focus on attracting foreign students and workers, institutions and companies to build a vibrant research, knowledge and innovation sector to lead them towards a knowledge-based economy.

In order to capture the differences among hub approaches and allow for a more nuanced understanding and exploration of education hubs, a typology of three categories of hubs is suggested. The three models of education hubs are student hub, talent or skilled workforce hub and the knowledge/innovation hub (Knight 2011a). The typology is based on the rationales driving hub development as discussed in the previous section not on the location or level of hubs.

Chapter 3 will further develop this typology into an analytical framework which delves deeper into specific objectives, key actors, major policy sectors and relevant strategies for each of the three types of education hubs.

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