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Study of Campustown Projects for the Sustainable Win-Win Growth of Universities and Communities

Donghyun Kim, Sanghoon Lee and Seiyong Kim *

Department of Architecture, Korea University, Seoul 02841, Republic of Korea; ssracks@korea.ac.kr (D.K.); sarhoor@gmail.com (S.L.)
* Correspondence: kksy@korea.ac.kr; Tel.: +82-2-3290-3914

Abstract: The Seoul Metropolitan Government has initiated projects to create campustowns to fully utilize university infrastructure. In this study, the first campustown project implemented in South Korea, Korea University-Anam Campustown Project, was evaluated to develop sustainable growth plans. Universities have useful infrastructure in terms of facilities, equipments, and human resources. There is a recent focus on breaking down boundaries between universities and communities to share this useful infrastructure. The methodology of this study is as follows. Primary indicators of win-win growth plans were identified by literature reviews and case studies. The indicators were applied to the target area by evaluations of the status of the area, SWOT analysis, collection of stakeholders' views, and in-depth interviews. A commercialization plan was verified, while focusing on the project budget, feasibility, and administrative procedure. In total, 34 projects spanning five sectors (i.e., start-up, residence, culture, sharing with communities, and sustainability) were identified. Finally, measures to secure project implementation capacities and a master plan to improve the sustainability of this project were suggested. The results of this study are expected to contribute to the creation/development of similar projects at other universities in Korea.

Keywords: campus town; universities; colleges; sustainability; local coexistence; start-up; urban regeneration

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1. Introduction

1.1. Background and Purpose of the Study

Universities possess useful infrastructure as educational and research institutions. In order to share these strengths with the local community, universities have long been contemplating the concept of 'campustown'. A campustown is an urban area formed around a university campus where the university and the local community interact, collaborate, and share resources. The concept of a campus town aims to establish a symbiotic relationship between the university and the surrounding community, contributing to local development in various aspects such as academia, culture, and economy. In this study, we have referred to this concept as "win-win growth of universities and communities". Natural integration of universities and communities has historically been found primarily in Europe, with notable examples such as the University of Oxford and the University of Cambridge in the UK, and the University of Leuven in Belgium. Intentional implementation of the 'campustown' concept can be observed most prominently in the United States, with examples including the University of Pennsylvania, Boston University, the University of Chicago, and Harvard University. In addition, in Asia, ongoing discussions about campustown can be found in China, Japan, and South Korea.

Korean universities have useful educational and research personnel, along with various educational, research, and cultural facilities [1,2]. However, sharing this infrastructure with local communities has been challenging. Universities have been completely isolated from their surroundings, irrespective of physical boundaries [1]. Residents occasionally take courses or use the open campus.

In recognition of this problem, the concept of 'campustowns' was introduced with the aim of sharing university infrastructure with communities [1,3–7]. A number of universities around the world have successfully applied the campustown concept. In Korea, the concept was first applied in Seoul in 2013. Seoul has 56 universities, accounting for a huge area of 11.45 km^2 [2]. The city has the highest density of universities in Korea [2]. The Seoul Metropolitan Government has attempted to solve youth problems and community issues through the linkage between universities and communities, with a focus on utilizing universities to create a vibrant city [1,2,8–12]. To this end, it established the 'Master Plan for Creating Campustown' in 2013, surveyed the status and conditions of universities, and prepared management plans for each of six zones. It suggested five basic strategies: support for start-ups, residential environment improvement, culture activation, sharing with communities (improved sustainability), and revitalization of commercial districts [1,2,8–13].

In this study, the 'Korea University-Anam Campustown Project' (KUACP), a pilot project for the 'Campustown Project of Seoul' initiated in 2016, was evaluated to explore sustainable win-win growth plans for universities and communities (Figure 1). KUACP (Anam-dong 5-ga, Seongbuk-gu, Seoul, Korea) was the first campustown project in Korea, and positive results would have broad implications for other universities.

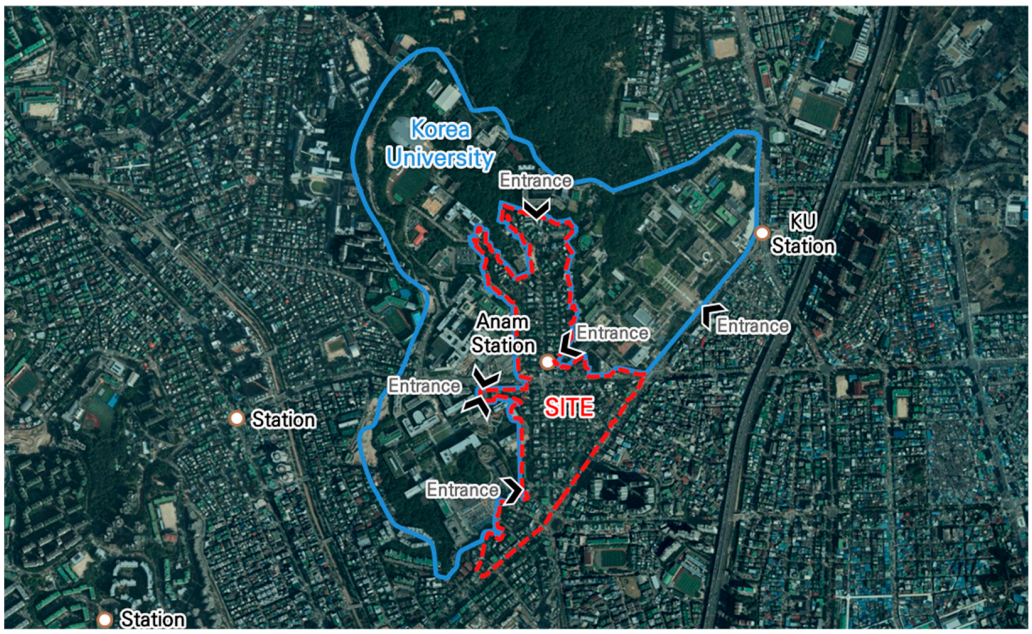


Figure 1. KUACP target site.

1.2. Related Research on Campustown

In accordance with the methodology of this study, a more detailed investigation of campustown-related research was conducted in Section 4.1. Therefore, in this section, we briefly introduce the characteristics of related research to emphasize the distinctiveness of this study.

The characteristics of the related research can be summarized into three main aspects.

Firstly, from a research methodology perspective, case studies were the most common approach. These studies focused on universities and cities that had naturally or intentionally formed a campustown. They primarily presented and discussed the programs implemented in campustowns and their effects.

Secondly, there were no comprehensive studies that specifically developed integrated plans or involved multiple stakeholders. Instead, research on specific types of projects was more prevalent. These studies focused on sharing university facilities with local residents, creating residential environments for university students, and introducing hardware programs to activate community spaces in the region. Regarding software programs, there was

significant research on governance, highlighting the importance of governance in addressing issues faced by universities and local communities and proposing alternative solutions. Most of the campustown projects primarily involved universities as the central stakeholders, with only a few cases involving collaborations between 'university-residents'. However, there were no projects found that involved the participation of 'public administration' and 'university students' simultaneously.

Lastly, although the opinions of residents were considered through surveys and analysis, the decision-making process for project implementation did not significantly emphasize resident participation. While resident perspectives were gathered during the situation analysis, the detailed process of their involvement was not extensively explored.

1.3. Distinctiveness of This Study

Based on the characteristics of the previously discussed campustown-related research, the distinctiveness of this study can be highlighted as follows.

Firstly, this study focuses on a comprehensive project supported by public funding. The KUACP is the first campustown project in Korea, fully funded by the Seoul Metropolitan Government. It is a comprehensive project that encompasses both hardware and software programs.

Secondly, this study examines a 'bottom-up' approach to citizen-participatory urban planning. It provides a detailed examination of how the opinions of stakeholders, including residents and students, were gathered throughout the process of initiating the public project of campustown. This approach includes not only the analysis of the current situation but also the involvement of stakeholders in the decision-making process. While there are examples of 'bottom-up' urban planning approaches in Japan's Machizukuri and Korea's Maeul-mandulgi, this study represents the first application of such an approach specifically to campustown project.

Lastly, this study presents alternative pathways to ensure sustainability. As public projects typically conclude with the disbandment of supporting organizations and the end of budgetary support, this study provides concrete alternative pathways to ensure the ongoing progress and sustainability of the campustown project. It suggests alternative organizational structures and operational systems to sustain the achievements of the project beyond its completion [Refer to Section 4.5].

By incorporating these distinct elements, this study aims to contribute to the field of campustown project and provide valuable insights for similar initiatives in the future.

2. Theoretical Research and Current Status of Campustown Projects in Seoul

2.1. Concept of Campustowns

The expansion of university campuses is no longer limited to planning within campuses but now includes urban spaces [14,15]. Since the creation of campustowns has diverse impacts on local communities, decisions on where to expand are imperative in terms of urban planning [15–18]. Universities continuously expand their campuses, whereas communities expect better environments and secure urban infrastructure, which is driven by the location patterns of university campuses [14–16,19,20]. In other words, when planning campustowns, there should be discussions with surrounding areas, with a focus on areas facing economic downturns [3,14,21].

A campustown is a master plan for improving university campuses, predicting the developmental trajectories of universities and communities and reflecting demands for spaces and facilities [4–7,19,21]. Considering that universities have the potential to become economic, cultural, and environmental assets to local communities, campustown plans can be connected to urban planning theories, such as community development, urban revitalization, urban regeneration, urban economy, and urban marketing. In other words, universities and communities within cities are not independent entities in pursuit of individual interests but are in complementary relations in pursuit of common interests [22].

Therefore, the campustown can be considered a symbiosis in which it is possible to establish a master plan considering the association with communities and to design various programs enabling communities to share research activities and university resources. In addition, it can contribute to vibrant, inclusive, more equitable and innovative communities.

2.2. Master Plan for Campustown Projects in Seoul

The Seoul Metropolitan Government established the Master Plan for Creating Campustowns in 2013, investigated the status of each university, and established management plans for six districts. Furthermore, it announced the 'Campustown Project for Seoul Metropolitan City for Youth, and Creative Economy' in 2016 to prepare win-win growth plans through local cooperation with universities (e.g., youth jobs, youth housing, sharing with communities, and revitalization of commercial districts) [13].

The aim of the Campustown Project of Seoul is to prepare a sustainable and feasible model for achieving win-win growth for universities and communities, in which universities independently suggest plans with support from administrative organizations (e.g., youth start-ups, youth housing, communications with local communities, and revitalization of commercial districts). In particularly, it aims to build governance between 'universities, students, residents, and administrative organizations' to induce job creation within communities and achieve sustainable urban regeneration [13,23–25].

The Campustown Project of Seoul has two plans, a strategic plan and an action plan. The Seoul Campustown Policy Council (consisting of the Mayor of Seoul and university presidents in Seoul) establishes a strategic plan, which is a basic plan, as well as specific action/implementation plans in line with the strategic plan [13].

The Campustown Project of Seoul can be divided into a unit project and comprehensive types. The unit project type refers to unit projects implemented to revitalize each sector (e.g., start-up, residence, culture, sharing with communities, and commercial districts), while the comprehensive type encompasses all sectors (e.g., housing, culture, sharing with communities, and commercial districts) with a focus on youth start-ups [13].

2.3. Basic Plan of the KUACP

KUACP, the target of this study, is a comprehensive project (Table 1). The aim of this study was to establish specific implementation plans. Furthermore, we set the following strategic plan in accordance with the strategic plan of the Campustown Project of Seoul, reflecting the characteristics of the target site [Refer to Section 4.3.1].

Table 1. Strategic plan of the campustown project.

Sector	Strategic Plan of the Seoul Metropolitan Government	Strategic Plan of KUACP
Support for start-ups	Create a job environment through a challenger center that helps people reach goals of initiating start-ups	Revitalization of the local economy through youth start-ups and job creation
Residential environment improvement	Housing support for the youth to reduce regional conflicts	Improvement of the residential environment in underdeveloped university districts and solutions to youth housing problems
Culture activation	Support for creating a youth cultural space where ideas and culture can be exchanged	Provision of spaces and programs to revitalize youth culture
Sharing with communities	Young people (university) support communities to create healthy college towns in the region	Ensuring sustainability by sharing university infrastructure and human resources
Revitalization of commercial districts	Revitalization of the local economy/promotion of the revitalization of commercial districts with universities and local merchandisers	Expansion of infrastructures for the revitalization of commercial districts within university districts

3. Materials and Methods

3.1. Definition of Terms

The term 'hardware programs' used in this study refers to programs that involve creating physical environments such as level-up studios, cultural streets, and pocket parks. On the other hand, 'software programs' encompasses non-physical programs such as start-up contests, education projects, and financial support.

The term 'infrastructure' used by the research team encompasses both hardware and software programs. As mentioned in the abstract and introduction, it is a concept that includes facilities, equipment, and human resources. However, among the instances of 'infrastructure' cited in this study, some specifically refer to hardware programs.

3.2. Scope and Methodology of the Study

The special scope of KUACP is indicated as shown in Figure 1 (Anam-dong 5-ga, Seongbuk-gu, Seoul, Korea). KUACP was initiated in August 2016, and the temporal scope of this study is limited from the same point in time until March 2023.

This study can be divided into the following phases (summarized in Table 2). (1) We reviewed theoretical studies of campustowns and the current status of campustown projects in Seoul, setting five sectors: start-up, residence, culture, sharing with communities, and commercial districts (Table 1). (2) We derived 44 primary indicators related to campustown win-win growth plans based on a detailed literature review of nine studies and three case studies. (3) The 44 primary indicators were applied to the target area. In particular, we analyzed population composition status, socioeconomic status, cultural characteristics, physical status, and the strengths of Korea University related to community separately at the target site. We performed a SWOT analysis, held three workshops with stakeholders (i.e., students, residents, and merchandisers), and conducted in-depth interviews with experts (28 interviewees in 14 groups through site visits). We verified the relationship between indicators and commercialization considering the project budget, feasibility of the project, and administrative procedure. Along with the 'Campustown Support Center', which is the implementing entity of the project consisting of Korea University, the Seoul Metropolitan Government, and the Seongbuk-gu Office, we eventually identified five sectors and 34 projects. (4) We proposed measures to improve the sustainability of this project and established systems and models of collaboration to continue relevant projects, even after the termination of public support for this project.

Table 2. Research methodology.

<table>
<tr><td colspan="6">1. Theoretical Research and Current Status of Campustown Projects in Seoul</td></tr>
<tr><td colspan="2">Concept of campustowns</td><td colspan="4">Setting five sectors of KUACP</td></tr>
<tr><td colspan="2">Master plan for campustown projects in Seoul
Strategic plan of KUACP</td><td>Start-ups</td><td>Residence</td><td>Culture</td><td>Sharing with communities</td><td>Commercial districts</td></tr>
<tr><td colspan="6">2. Primary indicators of win-win growth from campustown plans</td></tr>
<tr><td colspan="2">Literature review of studies in other countries (n = 4)</td><td colspan="2">Literature review of studies in Korea (n = 5)</td><td colspan="2">Case studies (n = 3)</td></tr>
<tr><td colspan="6">3. Application of the primary indicators to target areas and commercialization plans</td></tr>
<tr><td>Analysis of the target-area status</td><td>SWOT analysis</td><td colspan="2">Collection of stakeholders' opinions</td><td colspan="2">In-depth interviews with experts</td></tr>
</table>

Table 2. *Cont.*

• Population composition • Socioeconomic status • Culture characteristics • Physical status • The strengths of Korea University	• SO strategy • ST strategy • WO strategy • WT strategy	• Method: Three workshops • Period: 17 August–3 September 2022 • Location: SK future hall, liberal arts building, and start-up cafe • Target: 27 students/19 residents/ 11 merchandisers	• Method: In-depth interviews • Period: 19 September–10 October 2022 • Location: site-visit • Target: 14 groups—28 stakeholders
Commercialization review			
Project budget		Feasibility of the project	Administrative procedural matters
Selection of final projects			
Support for start-ups	Residential environment improvement	Culture activation	Sharing with communities	Sustainability
HW: 2 SW: 4	HW: 4 SW: 2	HW: 1 SW: 5	HW: 4 SW: 6	HW: 2 SW: 4
4. Security of project implementation capacity to improve sustainability				
Support for start-ups	• Establishment of systems for supporting start-ups			
Residential environment improvement	• Establishment of a collaborative model for improving residential environments			
Culture activation	• Creation of a cultural hub for better community relations			
Sharing with communities Sustainability	• Sharing with communities and improved sustainability			

4. Results

4.1. Literature Review

We conducted a literature review assuming that the characteristics of cities, universities, and campustowns differ among countries and cities (Table 3). The literature reviews and case studies evaluated in this study cover Korea and other countries equally.

4.1.1. Overseas Research

Zhang et al. [26] discussed the potential for the inter-campus exchange of hardware resources for the sustainability of university towns. As each university has different types and amounts of educational resources, measures were suggested to allow residents to efficiently utilize these resources by sharing related information. The sustainability of university towns was pursued by this approach [26].

Colding et al. [27] discussed campus plans as a means to connect humans to ecosystems. Although this study had no direct connection with the 'Campus Town' in our study, it considered the following indicators that connect universities and surrounding regions in its specific research: 'Community for Rejuvenating Town Planning', 'The University Governance Structure', and 'The Sustainable University' [27].

Ruoppila et al. [28] evaluated the role of universities in the development of a university city based on a case study of 'Songjiang University town in Shanghai'. They clarified that universities can contribute to securing a site for building a campus, financing, and building a partnership between the government and the university [28]. However, this previous study focused on a new campus, whereas our study targeted an existing campus; as it was difficult to find common features between the two studies, we excluded this study from the process of selecting keywords.

Brandt et al. [29] examined which factors influence the selection of universities by students. They surveyed university students in Liege, Belgium and derived six indicators.

For cross-validation, they separately surveyed Belgian and non-Belgian students [29]. As the purpose of this previous study (i.e., the revitalization of a university city) was consistent with that of our study, we utilized these indicators.

Mapes et al. [30] discussed the 'redevelopment and community indicators' that influenced university cities, with the premise that universities and cities were mutually related. They targeted Kent, Ohio, USA for a case study, and identified various influential indicators, including physical factors (i.e., place-making and investment in infrastructure) and non-physical factors (i.e., place marketing and community building). Job creation was utilized as an outcome for verification [30].

4.1.2. Domestic Research

Two types of studies related to campustown have been performed: (1) studies focused on the establishment of regional urban planning that encompass campus master plans and (2) studies focused on the establishment of governance for cooperation between universities and local communities.

Ahn [31] clarified issues with layout plans for Korean universities. Without physically separating campuses from local communities, Ahn suggested a development strategy based on mutual relationships through a campus layout plan [31]. Jeon [14] evaluated campus expansion processes of Korean and foreign universities through case studies and analyzed cooperation opportunities between the local community and universities. Jeon also established urban regeneration strategies through campustown expansion by separately considering hardware, software, and system improvements. In particular, Jeon suggested university specialization plans, community-industry connection plans, opening university facilities to the public, and regional exchange programs [14]. Baek [32] conducted a comparative analysis of urban regeneration projects and campustown projects to determine priorities related to job creation [32].

Yeo [22] studied the governance of universities and local communities and conducted a comparative analysis of campus expansion cases in South Korean and U.S. cities to emphasize the necessity of cooperative partnerships. As a solution, Yeo proposed diversified programs, upward and transparent planning processes, and the establishment of a partnership between universities and communities [22]. Han [23] suggested a town management technique in which universities, communities, and administrative organizations can participate in projects for the efficient promotion of urban regeneration. Han presented detailed plans, such as the creation of unique streets, the establishment of a community portal, and promotion of higher capabilities of small businesses [23].

Table 3. Literature review.

Category	Reference	Indicators Related to Campustown Win-Win Plans	
Overseas research	[26]	• Hardware educational resources	• Sustainability of University towns
	[27]	• Community for rejuvenating town planning • The University governance structure	• Sustainable University
	[29]	• Young population • Cafés • Vibrant nightlife	• Supermarkets • Public transportation • Arts and culture
	[30]	• Place making • Place marketing • Community building	• Investment in infrastructure • Job creation

Table 3. *Cont.*

Category	Reference	Indicators Related to Campustown Win-Win Plans	
Domestic research	[31]	• Improvement in residents' physical accessibility	
	[14]	• Cultural and art activities • Improvements in street environments in communities • Security of open spaces	• Sustainability of campustowns • Place making • Opening university facilities to the public
	[32]	• Training and mentoring for start-ups • Financial support for operating start-ups • Creation of spaces for start-ups • Support for local small businesses • Improvements in street environments in commercial districts	• Cultural festivals • Discover resident participation-based cultural content • Provide education for residents and job information • Improvement in the youth residential environment • Provide rental housing for the youth
	[22]	• Health support program • Opening facilities to the public • Learning support for adolescents/children • Support for cultural and art activities	• Support for lifelong learning • Improvements in street environments in communities • Support for start-ups • Local community revitalization
	[23]	• Creation of unique streets • Establishment of a community portal • Community festivals	• Higher capabilities of small businesses • Support for start-ups • Education programs for residents

4.2. Case Studies

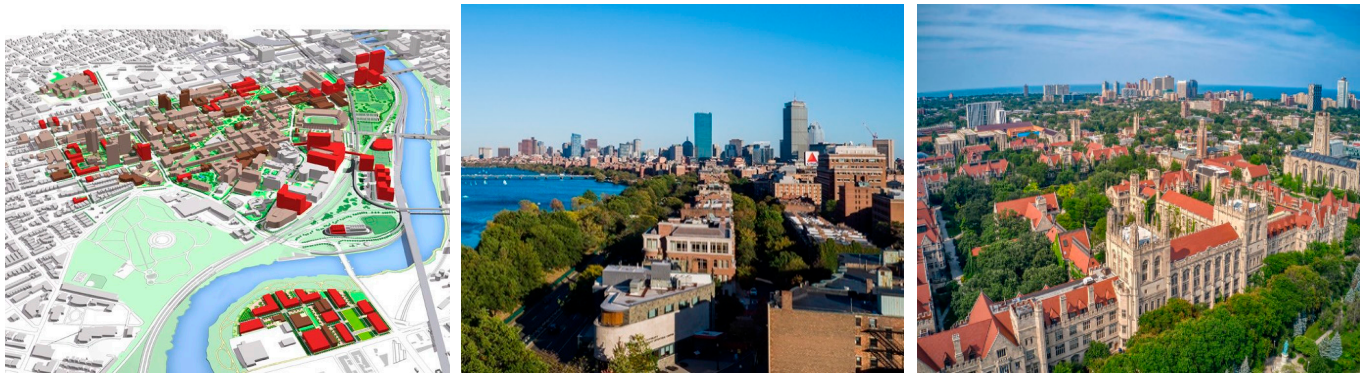
A number of cases have been reported; however, we consider only three cases after excluding overlapped target sites (Table 4). In Korea, since campustown projects are at an early stage, it was difficult to find relevant cases for reference; accordingly, we focused on U.S. cases with active campustown projects.

Table 4. Case studies.

City and University	Planning Year	Indicators Related to Campustown Win-Win Growth Plans	
The University of Pennsylvania, Philadelphia, USA	1940s ~	• Living Lab. • University City Brite (Street environment improvement project)	• Job creation • University City Green (Street environment improvement project)
Boston University, Boston, USA	1950s ~	• Opening university facilities to the public • Legal counseling	• University Student-Youth Connection Program • CityLab
University of Chicago, Chicago, USA	1950s ~	• Opening university facilities to the public • Securing dormitories	• Creation of green infrastructure networks • Prek-12 education

The University of Pennsylvania, Philadelphia, USA has expanded its campus to local communities since the 1940s (Figure 2a). Representative keywords related to 'Sustainability' included Living Lab., Job creation, University City Brite, and University City Green. The University of Pennsylvania has been interested in securing housing for faculty and students to account for the increasing size of the university. University warehouses were converted to dormitories and accommodations within the region were purchased or leased. In particular, the university provided students with spaces for research and lodging by introducing the concept of a 'Living Lab'. This attempt at providing spaces for lodging has created jobs in local communities, including jobs in construction, interior design, and real estate. The 'University City Brite' project was also initiated to prevent crime in university districts by

replacing street lights. The 'University City Green' project promoted improvements in the street environment by securing green spaces [24].



(**a**) (**b**) (**c**)

Figure 2. (**a**) Urban planning of University of Pennsylvania; (**b**) Boston University; (**c**) University of Chicago.

Boston University collaborated with the city of Boston and the local community to create a campustown through various social movement programs, opening university facilities to the public, and public service support (Figure 2b). Several remarkable programs are as follows. First, it opened cultural, art, and sports facilities to the public. Second, its law school provided local residents with free legal counseling services. Third, its university students provided local high school students with career counseling as after-school courses. Finally, Boston University CityLab uniquely enabled high school students in Massachusetts and neighboring states to use biotechnology laboratory facilities. It provides students with professional research equipment that cannot be found in middle and high schools, and students can visit related industries [33].

The University of Chicago developed three types of win-win growth plans (Figure 2c). First, from a hardware perspective, it purchased or leased buildings near the university to provide the faculty and students with accommodation. It also created green infrastructure networks to link disconnected campuses. Second, it opened university facilities to local residents, as observed in other cases. The residents can utilize cultural and sports facilities, facilities for supporting start-ups with 3D printers, and libraries. Finally, it conducted a project for supporting education, 'Prek-12 education'. It provided Chicago public school students with educational programs, such as mentoring, tutoring, academic support, and career counseling, for free [19,34,35].

4.3. Application of the Primary Indicators to Target Areas

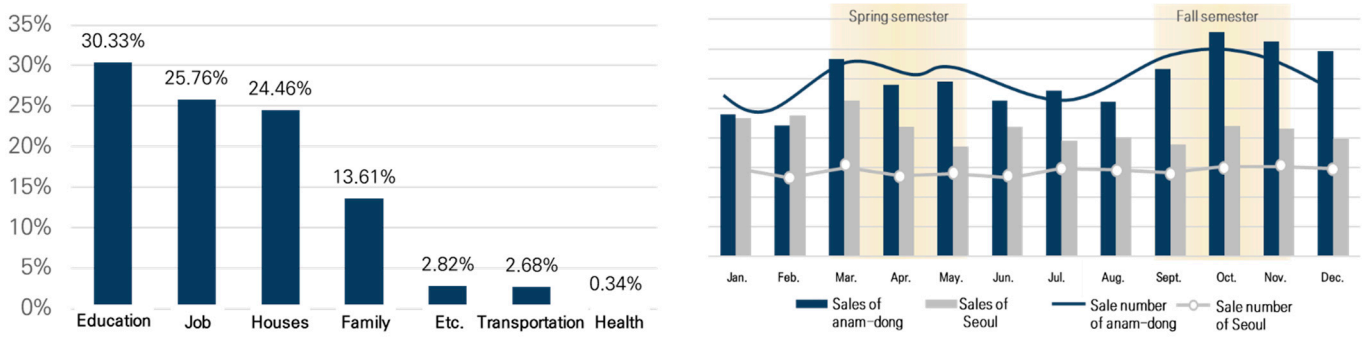
4.3.1. Status of the Target Site and SWOT Analysis

Since the target site of KUACP is surrounded by the Korea University campus, local connections with the university are very high. Such features exert clear impacts on the humanistic, socioeconomic, and physical conditions of the target site.

(1) Population composition status

'Anam-dong', which includes the target site (KUACP), shows the following demographic properties. The population of 15–29 year olds accounts for 36.0% of the total population, which is 1.8 times higher than the corresponding estimate in Seoul (19.5%). Single-person households account for 65.3% of the total, which is 1.6 times higher than that of Seoul (40.8%). Additionally, 83.2% of the lease on a deposit basis and monthly rent contracts in the area are provided for accommodations with floor areas of less than 40 m^2, explaining the high proportion of single-person households, such as small houses and studios [36]. Furthermore, the most frequent reason people move to Anam-dong is education (30.3%) (Figure 3a) [36]. This explains why Anam-dong shows high ratios

of young individuals and single-person households; in particular, Korea University has approximately 30,000 students [37].



(**a**) (**b**)

Figure 3. (**a**) Reason for Transfer to Anam-dong (2020); (**b**) status of monthly sales and sale number (2022).

(2) Socioeconomic status

From a socioeconomic perspective, consumption activities within the target site are concentrated in university semesters, March–May and September–December (Figure 3b) [36]. Since leases on a deposit basis and monthly rental contracts are initiated during the vacation period (December–February) before the semester starts, it can be assumed that this target site serves a role as a typical university hinterland. In South Korea, there has been a rapid shift from a lodging culture where one shares a house with others to a studio culture where housing is for individual use. However, at the target site, the rental rate of existing boarding houses is decreasing owing to an inability to adapt to these trends. The commercial district in Anam-dong does not have favorable characteristics, with extremely poor living conditions, particularly during weekends and vacation periods. However, as there are 30,000 students and a floating population of approximately 50,000, it is possible to devise strategies for revitalizing commercial districts.

(3) Cultural characteristics

From a cultural perspective, although there are regular festivals (e.g., the Daedongje spring festival in May and sports competitions between Korea University and Yonsei University in September), these are only for university students and exclude local residents. In addition, there are insufficient cultural spaces for local residents to use consistently as well as a lack of content with local characteristics.

(4) Physical status

From a physical perspective, the greater part of Anam-dong consists of residential areas. Residential buildings (44.6%) and neighborhood living facilities (43.1%) account for the majority of building types [36]. The ratio of old buildings (>20 years old) reached 70.0%, indicating that the general condition of the residential environment is not good [36]. Furthermore, the small amount of national and public lands at the target site limits the area available for public facilities.

(5) The strengths of Korea University related to community contribution

Korea University has facilities for supporting start-ups, such as X-Garage, π-Ville, Center for nurturing start-ups, and Crimson Start-up Support Foundation, as well as a number of cultural facilities, such as KU cinema trap and 4.18 Memorial Hall [37]. Furthermore, it holds approximately 1360 domestic and foreign patent rights and manages human and intellectual resources through an industry-academic cooperative foundation and a technology holding company. It has a unique research infrastructure, attracting graduate schools specializing in artificial intelligence, information protection, and energy and environment,

and plays a leading role in technology fields, such as medical treatment, energy, and 5G, indicating that it has an abundance of technology-intensive resources [38,39]. However, it has failed in sharing such infrastructure with the local community. First, it is not easy to rent facilities for events consisting only of local residents without sponsorship from university. Secondly, general residents, except for students at Korea University Institute for Continuing Education, face high restrictions in using university facilities including libraries. Lastly, Korea University has many start-up support facilities such as X-garage and Maker's space, and some of them are available for residents to use. However, the actual usage rate by residents is very low due to the lack of promotion.

Considering the strategic plan of the KUACP, as shown in Table 1, we conducted a SWOT analysis after the classification of 'start-up, housing, culture, sharing with communities, and commercial districts' by a survey on the current status of the target site (Table 5). We derived the Strength/opportunity strategy (SO), Strength/threats strategy (ST), Weaknesses/opportunities strategy (WO), and Weaknesses/threats strategy (WT) and then matched these with the primary indicators identified in the literature review. There were an excessive number of indicators assigned to 'Sharing with communities' (20), and these were therefore divided it into two sectors. As Stanton [40] mentioned, 'Sharing with communities' encompasses various concepts such as co-productive, co-creative, collaborative and reciprocal purposes. This is why there is a large number of related indicators [40]. The simple sharing of existing university resources (i.e., physical and human resources) was classified as 'Sharing with communities', and indicators that can be newly created through this project to improve sustainability were assigned to the category 'Sustainability'.

In this process, we judged only the consistency with the primary indicators. Among the 44 indicators derived in the first round, we excluded seven indicators inconsistent with the characteristics of this project and the conditions of the target site. The A1 indicator, the influx of the young population, could be considered a natural result of the project, rather than an adjustable variable. Furthermore, since the target site already has a large population of young individuals, it was not necessity to include this indicator. Additionally, as there were plans to invest in infrastructure through diverse hardware programs, the D4 indicator was considered too comprehensive. The D5 indicator would be not easy to implement in reality. The target site already has a community and a university as an existing urban district. Therefore, 'Improvement of physical accessibility', which requires securing lands and moving buildings, was more relevant to new campus creation projects. Finally, we excluded indicators F1 to F4 in the field of the revitalization of commercial districts. As cafés, nightlife, and supermarkets are created by the private sector, they are not within the scope of this project, which has a public nature. Public transportation was also excluded as it cannot be implemented within this project (Table 5).

4.3.2. Collection of Stakeholders' Opinions

We collected views of various stakeholders, such as students, residents, and merchandisers, through workshops [Table 6]. Based on six sectors and 37 indicators identified by the SWOT analysis and indicator matching, we held workshops. After classifying students, residents, and merchandisers into groups and explaining the purposes and details of the indicators, each group expressed its opinions (summarized in Table 6).

Table 5. SWOT analysis and indicator matching.

Category	Support for Start-Ups	Residential Environment Improvement	Culture Activation	Sharing with Communities (Sustainability)	Revitalization of Commercial Districts
Strategic plan			Refer to [Table 1]		
Strengths	• High level of start-up support in terms of human and intellectual resources, recognized domestically and internationally (Korea University)	-	• Regular university festivals, such as the Daedongje spring festival and sports competitions between Korea University and Yonsei University	• Creation of consensus on win-win growth in communities through university-community exchange programs	• Fixed demand from 30,000 enrolled students during the semester
Weaknesses	• Absence of an integrated support system related to start-ups • Support programs focused on incubation	• Lack of resident spaces for start-ups • Failure to adapt to changes in youth housing trends	• Lack of regionally specialized content • Lack of spaces for cultural exchange	• Insufficient linkage plans with university facilities	• Lack of motivation for participation by local residents and merchandisers • No features of the commercial district
Opportunities	• Foster high-tech industries such as AI, IoT, and BT (Korea University)	• Applicable to projects supported by a public organization such as Youth housing in the station area, and DO-JEON-SOOK	• University cultural facilities such as the KU cinema trap, and 4.18 Memorial Hall	• Excellent university facilities, such as X-Garage, and π-Ville	• Increase in a potential population to bring vitality (e.g., foreign students)
Threats	• Facilities for supporting start-ups in the university cannot be shared with local communities.	• Accelerated aging of residential buildings • Increase in rent for youth housing due to higher land prices	• Absence of university cultural facilities that can be shared with communities	• Lack of available national and public lands within the area	• Consumption patterns highly dependent on universities (slums during weekends and vacation periods) • Local slum economy due to the pandemic

Table 5. *Cont.*

Category	Support for Start-Ups	Residential Environment Improvement	Culture Activation	Sharing with Communities (Sustainability)	Revitalization of Commercial Districts
SO strategy	• Creation of start-up clusters centered on high-tech industries	-	• Sharing university festivals and university cultural facilities with communities	• Creation of a community to achieve sustainable campustowns	• Establishment of a commercial district model targeting fixed demands and foreign students
ST strategy	• Establishment of integrated support systems by introducing Level-up programs	• Support for residential remodeling			
WO strategy	• Establishment of cycles with continuous support for start-ups in the focus of high-tech industries	• Securing project implementation capacities and strengthening expertise through the participation of public enterprises	• Discovery of local cultural content in connection with university festivals	• Preparation of a plan to share excellent university facilities • Security of spaces for university-community exchange to achieve sustainable campustown	• Preparation of specialization plans for local commercial districts • Preparation of alternative commercial district programs for preventing slums during weekends and vacation periods
WT strategy	• Sharing facilities to support start-ups within the university with local communities	• Housing support for start-ups • Lodging consulting in line with changes in housing trends	• Security of spaces for cultural exchange		
Excluded indicators	A1			D4, D5	F1, F2, F3, F4

Table 6. Outline and main details of workshops.

Category		First Workshop	Second Workshop	Third Workshop
Period		17 August 2022	27 August 2022	3 September 2022
Location		KU SK Future Hall	KU Woodang Hall	KU start-up cafe
Targets		24 students/15 residents/ 8 merchandisers	19 students/7 residents/ 6 merchandisers	8 students/3 residents/ 2 merchandisers
Opinions about indicators	A4	• Creation of a 'Level-up Studio', an exclusive office for start-up teams, was suggested		
	B4	• Financial support for remodeling (e.g., wallpaper or papered floor) when moving to boarding houses or studios	• Consulting on information on residential environments	-
	C5	• 'Hug Anam' was suggested as a new festival	• Start-ups, employment, art, and plays were suggested as festival themes.	• 'Chamsari-gil' was suggested as the festival location due to the high floating population • Festivals on 'car-free streets'
	C6	• Programs that residents suggest and implement were suggested	• Expectation of renting spaces in the university for free	• Referred to as a 'Community contest'
	E1	• The necessity for spaces where the Community consisting of 'the university, students, and residents' can perform tasks was suggested (promoted as an anchor project)		
Picture				

As a result of the workshops, except for 26 leading indicators on which all three groups agreed, each group expressed its opinions on the indicators (i.e., being integrated, corrected, and specified). The indicators 'C3–C4', 'D12–D13', and 'E3–E4' have similar meanings, and the stakeholders suggested that they should be integrated.

In the start-up sector, most opinions were related to A4 (Creation of start-up spaces), and most of the opinions were from students. Korea University already provided support limited to finance for start-ups, Maker's space, and meeting rooms; however, stakeholders indicated that there was no office space, considered the most important form of support. This is because the university's support for start-ups was limited to the incubation level. Students indicated that offices were necessary for various purposes, such as business registration, preparation, and work. We referred to this office type as a 'Level-up Studio' in the workshops.

We also obtained numerous opinions on the B4 indicator (Residential environment improvement for the youth). Residents who run boarding houses and studios and students shared a common opinion on support for remodeling (e.g., wallpaper or papered floor) when moving. Furthermore, we suggested a consulting program in which information compiled on residential environments desired by students would be sent to residents who run boarding houses and studios.

Regarding the C5 indicator (Community festivals), new festivals that residents and university students can enjoy together were suggested. Festivals related to start-ups, employment, art, and play were suggested, and 'Chamsari-gil', which has the largest floating

population, was selected as a festival location. Furthermore, the stakeholders wanted to enjoy the festivals on 'car-free streets' in consultation with administrative organizations.

As for C6 (Resident participation-based cultural content), there were discussions on programs that residents propose and implement. In detail, residents suggest programs, such as plays, performances, and music, The Support Center (the implementing entity of KUACP) selects programs, and residents can rent the venue in the university for free. We named this format a 'Community contest', and decided to make a final decision after consulting with the university.

Finally, views were shared about E1 (Community building). Activities from other sectors such as support for start-ups, residential environment improvement, cultural activation and sharing with communities can take place within the E1 sector. However, we have included E1 in the Sustainability sector for the following reasons. The stakeholders agreed that there should be spaces for people to gather for long-term projects. During the project, the Support Center would provide space; after the project, there should be spaces for the Community consisting of 'the university, students, and residents' to perform ongoing tasks. We named this the 'Eoullim Center' and decided to promote it as an anchor project.

4.3.3. In-Depth Interviews with Experts

We conducted in-depth interviews with experts in each sector involved in the campus-town project. In particular, we performed interviews with 28 experts in 14 groups from 19 September to 10 October 2022. Based on 37 indicators in six sectors derived by the SWOT analysis and indicator matching, we asked questions related to the specialized fields of the experts. To assist experts' understanding, we provided explanatory materials on the purpose of KUACP and the objectives of this study. We provided detailed explanations of the meaning of the indicators and actively sought opinions from the experts. The results are as follows [see Table 7].

Table 7. Results of in-depth interviews with experts.

Sectors	Participant Groups	No. of Participants	Opinions about Indicators	
Support for start-ups	Center for nurturing start-ups, Korea University Technology Holding Company, Korea University LG Social Campus Start-up related clubs	8	A2–A3 Integrated	• 'Job Creation' and 'Support for start-ups' have similar contents and were integrated.
			A5 Corrected	• 'Training and mentoring for start-ups' were divided into the incubation program and Level-up program; specific 'programs for nurturing start-ups' should be suggested • Financial education and management consulting should be the focus so that ideas for prospective start-ups can become feasible.
Residential environment improvement	Minsnail Union Kojam Boarding house operators	5	B1–B2 Integrated	• 'Rental housing for the youth' and 'Security of dormitories' have similar contents and were integrated.
			B4 Specified	• 'Establishment of lodging management cooperative' was suggested to provide consumers with information on boarding houses and deliver the needs of consumers to suppliers.

Table 7. *Cont.*

Sectors	Participant Groups	No. of Participants	Opinions about Indicators	
Culture activation	Seongbuk Cultural Center KU cinema trap Student Club Union	5	C1–C2 Integrated	• 'Creation of unique streets' and 'Place making' have similar content, then they were integrated.
			C3–C4 Corrected	• The linkage with the 'Seongbuk cultural lecture' hosted by the Seongbuk Cultural Center was suggested. • It is possible to conduct various cultural performances by using the KU cinema trap.
Sharing with communities (Sustainability)	Institute for Continuing Education, Korea University Volunteer Corps	5	D1–D3 Integrated	• 'Hardware educational resources', 'Opening university facilities to the public', and 'CityLab' have similar contents and were integrated.
			D15 Corrected	• By utilizing the excellent educational resources of the university, it was suggested that the university could provide residents with lectures and run a 'campustown academy' that provides job information.
			E3–E4 Specified	• Even after the completion of public support for campustown projects, there should be organizations and spaces (offices) for the continued operation of relevant projects.
Revitalization of commercial districts	Association of Chamsari-gil merchandisers Co-op of shopkeepers in Anam-dong	5	F5–F8 Deleted	• Those who engage in commerce in the university district regard public support positively; however, projects involving one-time support are not desirable due to the small scale. • It is desirable to improve slum streets so that many students can visit shopping districts, rather than directly supporting merchandisers. • The floating population is expected to increase by creating 'car-free streets'. • Consumer-centered support, rather than supporting suppliers (merchandisers), will eventually create a virtuous cycle leading to the revitalization of commercial districts.






4.4. Commercialization Review of Indicators

We described 27 indicators in five sectors through the derivation of primary indicators (literature reviews and case studies) and evaluated the application of the primary indicators to the target site (by a SWOT analysis, workshops, and in-depth interviews) in the target site. We further reviewed commercialization, with a focus on budget, feasibility, and administrative procedure. We determined the final projects in consultation with the organizations supporting the budget of this project, such as the Campustown Revitalization Division of the Seoul Metropolitan Government, Seongbuk-gu Urban Planning Division

Seoul Housing and Communities Corporation (SH Corporation), and Korea University. We finally selected 34 projects in five sectors [see Table 8].

Table 8. Selection of final projects for the campustown project.

Strategic Plan	Primary Indicators		a			b			c	d	Final Projects	
			a-1	a-2	a-3	b-1	b-2	b-3	c-1			
A	A1	Young population	○			×				×		-
	A2	Job creation	○		○	○		●	▲	●▲	AH-1	Start-up base center
	A3	Support for start-ups		○		○		●			AS-1	Start-up contest
	A4	Creation of spaces for start-ups		○		○	△			△	AH-2	Level-up Studio
	A5	Training and mentoring for start-up		○		○		△	▲	△▲	AS-2	Program for nurturing start-ups
											AS-3	Smart ICT education project
	A6	Financial support for operating start-ups		○		○				○	AS-4	Financial support for operating start-ups
B	B1	Rental housing for youth		○	○	○		●	▲	●▲	BH-1	Youth housing in the station area
	B2	Security of dormitories			○	○		●			BH-2	DO-JEON-SOOK
	B3	Living Lab			○	○			△	△	BH-3	Smart Start-up Studio
	B4	Residential environment improvement for the youth		○		○	▲	▲		▲	BH-4	Win-win growth dormitory remodeling support
											BS-1	Win-win growth dormitory consulting
											BS-2	Establishment of a lodging management cooperative
C	C1	Creation of unique streets		○		○		●	△	●△	CH-1	Creation of cultural streets for the youth
	C2	Place making	○	○		○		●				
	C3	Arts and culture	○			○	●	△	▲	●△▲	CS-1	Seongbuk cultural lecture
	C4	Cultural and art activities		○		○	●				CS-2	Performance of a creative play
	C5	Community festivals		○		○	△		▲	△▲	CS-3	Hug Anam
											CS-4	Annual sports competition between KU and YU
	C6	Resident participation-based cultural content		○		○	△			△	CS-5	Community contest
D	D1	Hardware educational resources	○	○	○	○		●	▲	●▲	DH-1	X-garage
	D2	Opening university facilities to the public		○	○	○		●			DH-2	KU cinema trap
	D3	CityLab			○	○		●			DH-3	π-ville99
	D4	Investment in infrastructure	○			×				×		-
	D5	Improvement of physical accessibility		○		×				×		-

Table 8. *Cont.*

Strategic Plan	Primary Indicators		a			b			c	d	Final Projects	
			a-1	a-2	a-3	b-1	b-2	b-3	c-1			
	D6	Improvements in street environments in communities		○		○			•	•	Integrated into 'CH-1'	
	D7	University City Brite			○	○			•			
	D8	Security of open spaces		○		○			•	•△	DH-4	Pocket parks
	D9	Creation of green infrastructure networks			○	○			•			
	D10	University City Green			○	○			•			
	D11	Health support program		○		○				○	DS-1	Smart health care
	D12	Learning support for adolescents/children		○	○	○	•		△	•△	DS-2	After-school mentoring program
	D13	Prek-12 education			○	○	•					
	D14	Establishment of a community portal		○		○				○	DS-3	Campustown website
	D15	Education for residents and job information		○		○		△	▲	△▲	DS-4	Community-based learning
											DS-5	Campustown academy
	D16	Legal counseling			○	○				○	DS-6	Legal counseling
E	E1	Community building	○			○	△		▲	△▲	EH-1	Eoullim Center
											EH-2	Smart Start-up Cafe
	E2	University governance structure	○			○			△	△	ES-1	KU Campustown Promotion Team
	E3	Sustainability of University town	○			○	•	▲	▲	•▲	ES-2	Campustown support center
	E4	Sustainable University	○			○	•				ES-3	Campus Factory
											ES-4	KU supporters
F	F1	Cafés	○			×				×	-	
	F2	Vibrant nightlife	○									
	F3	Supermarkets	○									
	F4	Public transportation	○									
	F5	Place marketing	○			○						
	F6	Increased capabilities of small businesses		○		○						
	F7	Support for local small businesses		○		○		×				
	F8	Improvements in street environments in commercial districts		○		○						

A: Support for start-ups
B: Residential environment improvement
C: Culture activation
D: Sharing with communities
E: Sustainability
F: Revitalization of commercial districts

a: Derived primary indicators
a-1: literature review (overseas research) a-2: literature review (domestic research) a-3: Case studies

b: Application of primary indicators to target areas
b-1: SWOT analysis b-2: Workshops (Residents, students, and merchandisers) b-3: In-depth interviews with experts

c: Commercialization of indicators
c-1: Commercialization of indicators by authors (in consideration of budget and administration)

Table 8. *Cont.*

Strategic Plan	Primary Indicators	a			b			c	d	Final Projects
		a-1	a-2	a-3	b-1	b-2	b-3	c-1		
d: Selection types										
○: Selected ●: Integrated △: Corrected ▲: Specified ×: Deleted										
H: Hardware Program S: Software Program										

We re-specified the A2 and A3 indicators, which were earlier integrated during the in-depth interviews with experts. They were classified as the creation of a 'start-up base center' for managing support tasks and a 'start-up contest' in which preliminary start-up teams are determined. Based on the opinions of experts, the A5 indicator (Training and mentoring for start-up) was assigned to 'Program for nurturing start-ups' and 'Smart Information and Communication Technology education project (Smart ICT education project)'. We assumed that smart ICT was consistent with the strategies of this project and can attract interest from young entrepreneurs.

The details of the commercialization review in the residential environment improvement sector are as follows. The B1 and B2 indicators, which were integrated during the phase of in-depth interviews with experts, were re-classified into 'Youth housing in the station area', and 'DO-JEON-SOOK'. While weighing the issue of residential environment improvement for the youth and reflecting on the distinct characteristics (Residential environment improvement) of SH Corporation, the organization supporting this project, we identified two feasible projects. B3 (Living Lab.) was modified to 'Smart Start-up Studio' to better reflect the particular features of this project.

The measures for commercialization in the culture activation sector are as follows. The C1–C2 indicators, which were integrated at the stage of in-depth interviews with experts, were assigned to a specific project called 'Creation of cultural streets for the youth'. The themes of 'youth' and 'culture' and Chamsari-gil, with the largest floating population, were selected. By creating safe and clean streets, we induced a plan for the commercial district to become active in a natural way. The C3 and C4 indicators, which were integrated during the workshops and modified during the phase of in-depth interviews with experts, were re-specified in detail. In terms of the KU cinema trap, residents and students were allowed to directly 'perform creative plays'. As for C5 (Community festivals), in addition to 'Hug Anam' suggested by residents, the annual sports competition between Korea University and Yonsei University was included. The university festival is well-known and has a long history; however, it has been enjoyed by only students and is now attempting to expand its scope to local communities.

The results of the commercialization review for the sharing with community sector are as follows. D1–D3 indicators, for which experts suggested integration, were combined under the name "sharing university facilities", with attempts at further specification. After discussions with the university, the main actor providing university facilities, we derived facilities that can be shared. In terms of start-ups, 'X-garage', a maker's space, and 'π-ville99' can be used by start-up teams as offices and meeting rooms. With respect to cultural spaces, the 'KU cinema trap' is a small theater for performances, plays, and movie screenings. The D6 and D7 indicators were integrated because they had similar features, yielding CH-1 (Creation of cultural streets for the youth). The D8–D10 indicators were integrated into 'Pocket parks'. Open spaces or parks that can be secured are only available through national and public lands; however, the target areas in this project only include one site with a large scale and this was included in Pocket parks. We assigned the D12 and D13 indicators, which were integrated during the workshops, to the category 'After-school mentoring program'. We secured university students who can teach middle and high school students, assuming that after-school classes would help lower private education expenses for students. We also added 'Community-based learning' to D15 (Education for residents and job information).

It was opened as a regular course at Korea University and was designed for both Korea University students and local residents.

As mentioned in the introduction, in this study, 'sustainability' refers to establishing organizational and operational systems that enable the project to continue even after the cessation of public support. Prior to conducting interviews, we ensured that this concept was clearly understood by the experts. Based on this, the following are proposed strategies for commercialization. We added 'Smart Start-up Cafe' to E1 (Community building). By creating the Café in the center of the target site of this project, a base for the community is provided. It can be used as a space for start-up meetings, community meetings, and rest as well as for making presentations and providing courses and education. In terms of E2 (University governance structure), the 'KU Campustown Promotion Team' was organized within the university after discussions with the university and organizations supporting this project. As for the E3 and E4 indicators, we confirmed the necessity of organizations for sustainable projects through workshops and in-depth interviews with experts. To this end, the 'Campustown support center', 'Campus Factory', and 'KU supporters' were planned. The Campustown support center was identified as the main implementing entity of KUACP, and Campus Factory was a social enterprise that could operate various projects. KU supporters will be composed of enrolled Korea University students, and planning was aimed at inducing the active participation of students through PR.

4.5. Ensuring the Project Implementation Capacity to Improve Sustainability

4.5.1. Establishment of Systems for Supporting Start-Ups

We divided the life cycle of a start-up into three stages (i.e., initial, early, and growth stages) to build a sustainable start-up ecosystem and prepared systems for start-up teams to receive support for a maximum of 5 years. We also developed measures to provide exclusive spaces for preliminary start-up teams to gradually grow (Figure 4).

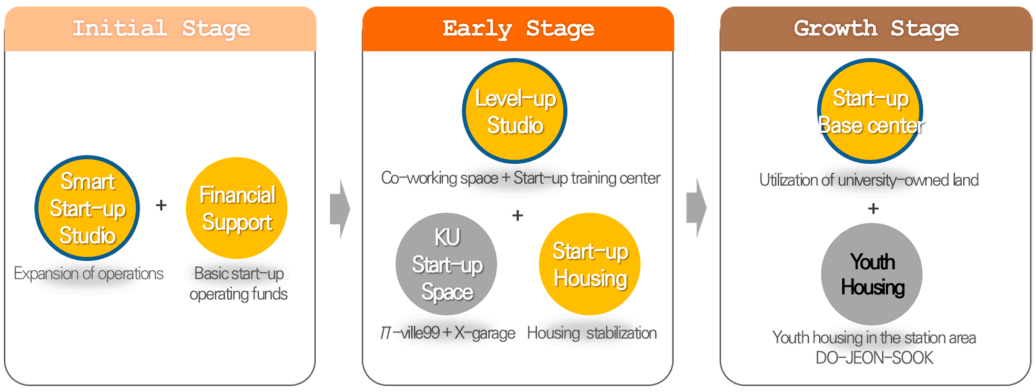


Figure 4. Creation of bases for each stage of start-up growth.

In the initial stage, preliminary start-up teams are selected through a start-up contest. They can receive support, such as Smart Start-up Studio and basic start-up operating funds. After completing the initial stage of approximately one year and passing simple performance tests, teams have the opportunity to move to the actual phase. During this stage, they can use the Level-up Studio, an exclusive space for start-ups that is superior to Smart Start-up Studio, as well as X-garage, a space for start-ups at Korea University. As in the initial stage, the start-up teams, which complete the early stage of approximately one year and succeed in administrative start-up, can enter into the growth stage. In the growth stage, the start-up teams can use exclusive offices within the start-up base center and receive support to achieve start-up performance goals, such as sales and job creation. Furthermore, there are opportunities for youth housing in the station area or DO-JEON-SOOK, enabling the operation of companies or businesses in stable residential environments.

Korea University has elite educational infrastructure, such as start-up-related human resources, technology, and patents. By actively utilizing such resources, we suggested

measures to strengthen the capabilities of start-up teams. In the initial stage, a start-up advisory group at Korea University (e.g., Center for nurturing start-ups and Technology Holding Company) is organized to provide preliminary start-up teams with mentoring and seminars. In the early stage, programs for nurturing start-ups are provided (e.g., enhanced capacities of start-uppers, financial consulting, management consulting, and smart ICT education). In particular, at this stage, based on demand, it is possible to provide relevant education by inviting external experts in each sector. In addition, early start-ups have the opportunity to utilize Korea University's start-up networks. In the final practical phase, a joint start-up fair with Korea University can be held to promote the growth of the start-up teams. Events with Korea University can provide public relations and funding opportunities.

4.5.2. Establishment of Cycles for Improved Sustainability

After Phase 1 (for one year) and Phase 2 (for one year), preliminary start-up teams enter Phase 3 (a maximum of three years), considered the early start-up stage. When entering this final stage, teams can conclude a three-year agreement with the Campustown Support Center, which is the main implementing entity of this project. The agreement aims to establish a virtuous cycle for supporting start-ups. First, the start-ups donate 10% of corporate net profits to the Campustown Support Center. Second, the start-ups make talent donations (e.g., consulting or mentoring) to preliminary start-up teams in Phases 1 and 2. Third, to achieve win-win growth with local communities, one of this project's purposes, the start-ups should be located in Seongbuk-gu. Such a three-year agreement can improve the sustainability of this project and establish a virtuous cycle by providing funding for preliminary start-ups.

4.5.3. Establishment of a Collaborative Model for Improving Residential Environments

In this study, we largely classified targets for the improvement of the residential environment into two categories: university students and prospective start-ups. Although students from regions other than Seoul account for approximately 60% of Korea University, only 11.9% of those students are accepted to stay in dormitories [41]. In other words, approximately 48% of those students live in facilities such as studios, boarding houses, or gosiwons (accommodations for examiners). This indicates the importance of improving the residential environment for university students. It is also necessary to improve the residential environment for creators of prospective start-ups to settle in the area.

For improvements in the residential environment, this study proposed projects such as win-win growth dormitory remodeling support, win-win growth dormitory consulting, and the establishment of a lodging management cooperative; however, these strategies have limitations, as they provide indirect support. In this sense, we suggest a collaborative model with SH Corporation to prepare direct and active support measures. For example, there are measures to provide youth housing in the station area and DO-JEON-SOOK conducted by SH Corporation can be implemented at the target site. We also devised measures that enable university students and prospective start-up developers to obtain direct benefits by selecting tenants in consultation with Korea University and the Campus Support Center.

4.5.4. Creation of a Cultural Hub for Better Community Relations

Culture activation can be largely classified into three categories (creation of streets, sharing university facilities, and cultural programs). First, in terms of the creation of streets, we considered spaces in which university students and local communities can socialize together. As a result, we targeted 'Chamsari-gil, and Gaeunsa-gil' with the largest floating population and planned the creation of cultural streets for the youth. With the expectation of the area becoming a local landmark, we planned smart facility improvements, such as a beacon service and traffic calming techniques, to highlight the particular characteristics of this project. To ensure the project implementation capacity, we discussed a plan with

Seongbuk-gu Office to match the budget for the 'Street Environment Maintenance Project'. Within the space, there will be festivals, such as Hug Anam, an annual sports competition between Korea University and Yonsei University, and the Daedongje spring festival. There will be discussions on the creation of car-free streets (on event days) after consulting with the Seongbuk Police Station.

After discussions with Korea University, it was decided that the KU cinema trap would be shared. Local residents and university students could perform creative plays in the venue. Regarding cultural events and creative plays, we suggested plans in which Seongbuk Cultural Center would support the events and plays.

4.5.5. Sharing with Communities and Improved Sustainability

Improved sustainability requires organization, space, budget, and participation. As public support will be completed at the end of 2024, we proposed a direction for how relevant projects should be managed after the completion of this project.

First, the organization to replace the Campustown Support Center, currently the main entity for planning and implementing the project, was named 'Campus Factory'. As a workspace for Campus Factory, we devised the Eoullim Center, which will become the center of the campustown project. There is also a university student organization, 'KU supporters'. It was devised to promote the project and to encourage university students and residents to participate. In addition to public relations, it aimed to give university students a sense of ownership of the project by encouraging them to perform tasks, such as planning and designing events and festivals.

Regarding the budget, the net profits of start-ups would be reinvested, and Korea University decided to support the remainder of the budget.

Finally, we suggested a solution to participation problems. Community contests, Community-based learning, Campustown academy, KU supporters and other programs will be continued after the completion of the public support. In addition, there are plans to support residents in the creation and operation of community businesses in diverse sectors (Figure 5).

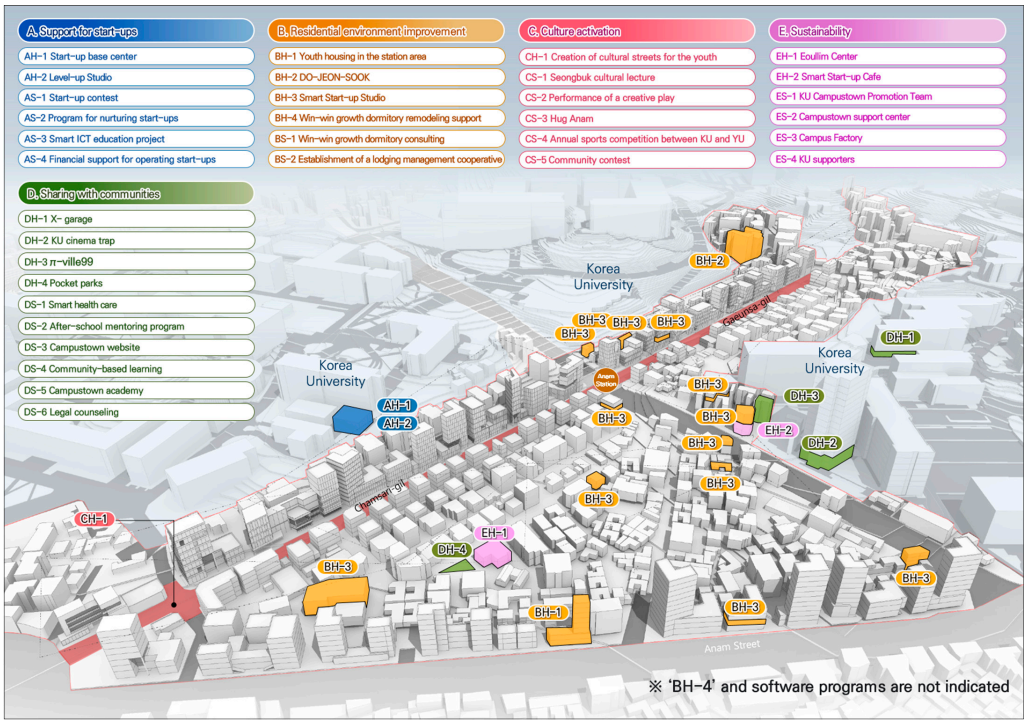


Figure 5. Master plan of the KUACP.

5. Discussion

The results of this study support the campustown project as a sustainable win-win growth model for universities and local communities and provide specific plans based on detailed analyses of KUACP. This study, which focuses on the study of participatory urban planning with a 'bottom-up' approach, provides a detailed examination of how the opinions of stakeholders such as residents and university students were collected and incorporated. Furthermore, strategies for sustainability were also presented to ensure that KUACP goes beyond a one-time effort and can be sustained.

To this end, we derived primary indicators for campustown projects based on a literature review and case studies. Applying the indicators to the target site, we conducted a SWOT analysis, collected stakeholders' opinions (via workshops), and performed in-depth interviews with experts. Based on these results, we suggested directions for the improvement of Korea University-Anam Campustown and tasks to be implemented. Finally, we derived final project plans by reviewing the project budget, the feasibility of the project, and the administrative procedure.

The following project goals were established before starting this study: support for start-ups, residential environment improvement, culture activation, sharing with communities, and revitalization of commercial districts. Applying those factors to the target site, we added Sustainability and removed the Revitalization of commercial districts. A summary of the revitalization plans per sector can be found in the following.

First, we found that start-ups should have spaces, education, financial support, networks, and information. Furthermore, we suggested a plan in which start-ups should partially re-invest their net profits to secure sustainable support for new start-ups. We assumed that creating such a start-up ecosystem would contribute to the investment by private capital in the future. Second, we proposed hardware programs, such as supplying new houses (e.g., youth housing in the station area and DO-JEON-SOOK) and remodeling dormitories to improve the residential environment. In addition, by suggesting software programs, such as dormitory consulting and the establishment of a lodging management cooperative, we intended to ensure a balance between demand and supply via information sharing. Third, we proposed opportunities to secure spaces and plan relevant programs for culture activation in local communities. First, we planned the development of youth cultural streets to create venues for festivals and cultural activities and suggested plans to share cultural spaces associated with the university. We attempted to help stakeholders have cultural activities (e.g., community festivals, university festivals, performances, and watching movies) in these places, while encouraging more cultural activities through collaborations with the Seongbuk Cultural Center, a local cultural institution. Fourth, sharing with communities required the active cooperation of Korea University; this cooperation was feasible as the university was involved in the project.

Finally, we emphasized the sustainability of the project. Projects conducted by both the public and private sectors, such as urban regeneration and the creation of communities, lack momentum to be continued after the projects are completed (completion of public support) [3–7,18,20,42]. We attempted to devise plans for sustainable win-win growth for the university and local communities, as opposed to one-time projects. In particular, we suggested plans for composing organizations, preparing spaces, and establishing operating systems. Although it is difficult to validate long-term sustainability, the proposed plans exceed those of other similar projects.

6. Conclusions

Analyses of previous studies related to campustown projects provided physical and non-physical improvement plans related to the expansion of university campuses and emphasized the necessity of cooperative partnerships between universities, local communities, and administrative organizations. Some previous studies are limited to general system improvements, such as general policy directions for campustown projects. In this targeting KUACP, we derived indicators, applied these indicators to the target site, reviewed com-

mercialization plans, and proposed specific projects and action plans. As such, this study is differentiated from previous studies in that it provides specific win-win growth plans for each sector of the campustown project through detailed design studies. Furthermore, the comprehensive review of indicators related to campustown projects is a key benefit of this study.

The implications of this study are as follows. Firstly, in terms of presenting a methodology for local residents to share university facilities, an increase in the utilization rate of university facilities can be expected. Over the past three years, the COVID-19 pandemic has brought significant changes to the way universities deliver education. Remote learning has become prevalent and continues to be conducted even now during the pandemic. This can lead to a decrease in the utilization rate of university facilities. It is hoped that the findings of this study can be adopted to address this issue. Secondly, this study can provide insights into the sustainability of public projects such as urban regeneration and community development, in addition to the campustown project. The study presents specific alternatives for the organizations and operational systems to lead and sustain the projects. It is expected that the alternatives proposed in this study can be applied to similar projects as well. If the sustainability of this project is confirmed by future monitoring, as expected, we plan to conduct follow-up studies.

The limitations of this study include the following. The findings and implications of this study may be specific to the context of KUACP and may not be directly applicable to other universities or communities. Different universities and communities may have unique characteristics and challenges that require tailored approaches. Although efforts were made to incorporate the perspectives of various stakeholders, including residents and university students, the number of participants was relatively small. It is important to note that this study is a design-oriented research rather than quantitative research based on data analysis.

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Institutional Review Board Statement: The study was conducted in accordance with the Declaration of Helsinki. Ethical review and approval were waived for this study due to the following reasons. This study is research on resident-participatory urban planning and is not a study directly focused on human beings or their behavior. During the process of collecting opinions in urban planning, we only listened to the opinions of residents, and they have no connection with this study. We obtained patient consent forms from all research participants (workshops, interviews). In Korea, this is called the 'bottom-up approach' for urban planning. According to Article 10 (Establishment and Functions of Institutional Review Board) of the Korean law on 'Bioethics and Safety', it can be inferred that the content of this study is not subject to review by the Institutional Review Board (related link: https://www.law.go.kr (accessed on 20 April 2023)). Furthermore, according to Article 23 (Exemption from KUIRB approval for human subjects research) of the standard operation procedure of the KUIRB, this study clearly qualifies for exemption from KUIRB approval (related link: irb.korea.ac.kr (accessed on 20 April 2023)).

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