

## Utilization of information technology: An effective means of public investment management at autonomous universities in Vietnam considering the Covid-19 pandemic

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ABSTRACT

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Covid-19 has been causing a large-scale pandemic, along with the rapid development of information technology. Information technology means such as digital applications will be one of the effective tools to help manage public investment and investment in general in Vietnam. Public investment management at autonomous universities in Vietnam is in the final stage of completion in terms of procedures, legal documents, and implementation. This study was designed to shed light on the factors that affect the management of public investments at Vietnamese autonomous universities. The study's data was gathered from a survey of 126 public investment managers at autonomous universities in Vietnam. Factor analysis and multivariate regression methods were used to analyze the influence of factors on public investment management at autonomous universities in Vietnam. According to research findings, the capacity of public investment management agencies at autonomous universities; Distribution of funds for the implementation of public investment projects; administrative procedures, legal provisions, and the actual context affect public investment management at autonomous universities in Vietnam. With Standardized Coefficients = 0.482, distribution of funds for implementation of public investment projects at schools at autonomous universities were the most influential factors. The research results are the foundation for proposing solutions to improve the efficiency of public investment management at these universities in Vietnam such as promulgating legal documents, building public investment management processes suitable to the characteristics of universities, developing, and proactively implementing works in investment management and operating results of public investment in autonomous University.

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## 1. Introduction

Developments and changes in information technology have brought modern applications to support the processes of management in the economy, as well as investment activities. The advent of digital-based platforms will contribute to supporting the management of public investments in Vietnam. The model of autonomous universities has been developing in countries worldwide, which has become an inevitable trend of universities. Learning from the experiences of developed countries, Vietnam is taking the first steps of experimentation, implementation, and change when building a model of autonomy in universities. Vietnam's higher education system currently has 237 universities and institutes (including 172 public schools, 60 private and people-founded schools, five schools with 100% foreign capital), 37 research institutes science tasked to train doctoral degree, 31 pedagogical colleges, and two pedagogical secondary schools. Vietnamese higher education institutions have 23 universities piloting autonomous models. In addition to the opportunities that will come with autonomy, universities

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will also face various challenges. They will be able to control their finances, their enrollments, and their training programs. Currently, Vietnam is implementing and piloting a model of university autonomy under the supervision of the Ministry of Education and Training. In Vietnam, education and training are top priorities for investment, reflected in the scale of public investment capital for the education sector consistently over time. Government funds distributed to the education sector are always prioritized and guaranteed, including higher education. According to the announcement of the Ministry of Finance, the scale of budget distribution on education has always tended to increase, specifically in 2013, the budget expenditure for this field was 155,604 billion VND and increased to 248,118 billion VND in 2017. Public investment in educational institutions in Vietnam plays a significant role, especially in public training institutions.

Although the Government of Vietnam's public investment capital for education and training institutions is quite substantial, it is distributed to the whole education sector. Additionally, international economic integration requires large investments and strong commitments from both state capital and universities themselves. It is apparent in Vietnam that public investment capital is inefficiently used, resulting in a situation where the resource is lost or wasted. Therefore, autonomous higher education institutions should consider ways of allocating public investment funds, finding ways to make the best use of public investment, at the same time, autonomous universities in Vietnam can contribute their advantages in managing public investment effectively. Furthermore, the university autonomy model in Vietnam is gradually taking shape, with changes and adaptations in line with the actual conditions of Vietnam based on learning experiences from countries around the world. Autonomy in universities is taking place, but autonomous universities still use government-funded public investment. This source of public investment mainly focuses on the school's facilities and items for construction investment at the school. How can this public investment capital be most effective in assisting autonomous higher education institutions in Vietnam as they progress toward transformation and evolution? The effective management of public investments in autonomous universities in Vietnam is crucial for the efficiency of public investment in universities. For public investment management activities to be efficient, meeting public investment items, promoting efficiency, and avoiding loss and waste, the factors affecting public investment managers need to be researched. By studying the factors influencing public investment management, the positive ones can be enhanced, and the negative ones can be limited, therefore ensuring the best promotion of public investment management at universities in Vietnam that operate autonomously.

Based on such premises, this study aimed to analyze public investment management at autonomous universities in Vietnam, focusing on analyzing the aspects of factors affecting public investment management at schools. Based on the analysis of these influencing factors, the study will show the influence of the factors to propose solutions to promote the factors that positively influence and limit factors that negatively impact public investment management at autonomous universities in Vietnam. The goal is to ensure efficient public investment management at autonomous universities in Vietnam, avoiding losses and waste when making investments. From that research finding, the study will propose recommendations to apply information technology in public investment management at autonomous universities in Vietnam, especially in the context of the current outbreak of the Covid-19 pandemic, when carrying out investment management directly becomes difficult. Using information technology platforms will ensure smooth and effective management of public investment activities at autonomous universities in Vietnam.

## 2. Literature Review

Public investment has proved its important position and role in the socio-economic development of countries in general and Vietnam in particular, which makes up a large percentage of the total social investment capital, contributing significantly to economic growth in Vietnam (World Bank, 2005; World Bank, 2018; Cullison, 1993), however, studies have also shown limitations in public investment management in Vietnam public investment efficiency in Vietnam is still low. The author's research has illustrated specifically through the analytical criteria system, using the ICOR coefficient to consider the limitations in the efficiency of public investment in Vietnam. Public investment affects economic growth and development in countries (Milbourne, Otto & Voss, 2003), as a driving force combined with public investment, private investment plays a vital role in the economic development of nations when it serves as a source of capital to facilitate the development (Akitoby, Schwartz, & Hemming, 2007; Erden & Holcombe, 2005; Hatano, 2010). However, the actual effects of public investment and private investment are not the same, the degree of influence is very different when one resource plays a key role and the other plays a decisive role (Erenburg, 1993; Arrow, & Lind, 1978). In fact, when researching in Mexico, Lachler and Aschauer (1998) pointed out the position of public investment in economic growth and development, the reduction in public investment in the early stages caused a sharp decline in economic growth in Mexico. Meanwhile, Gang and Khan (1990) affirmed the position of aid as public investment in India if these funds will encourage the growth of development projects in the country. For developing countries, public investment is even more meaningful in terms of expanding and improving the infrastructure system, creating favorable conditions for private investment to develop (Cruz & Teixeira, 1999; Cavallo & Daude, 2011; Ramirez, 2000; Zhang & Fan, 2004; Ghani & Din, 2006). So, which indicators are used to evaluate public investment and public investment efficiency? In the study of Dabla-Norris et al. (2012); Chakraborty and Dabla-Norris (2011); Rajaram, Le and Biletska et al. (2010) proposed a set of new indicators to assess the effectiveness of public investment management through four stages of the public investment management process, including: project appraisal, project selection, project implementation, and project evaluation based on survey data in 71 countries including 40 low-income and 31 middle-income countries, research

findings show that these indicators can be applied to evaluate public investment policy and comparison between countries with similar conditions and is very suitable for countries interested in reforming and improving the efficiency of public investment.

Similar to the studies of Dabla-Norris et al. (2012) in the study of Rajaram et al. (2010); World Bank (2018) utilized the same methods and indicator system as the study Dabla-Norris et al. (2012), to evaluate the effectiveness of investment management tools specific to the case of Vietnam. However, the World Bank (2018) research is more specific when it wants to find out weaknesses in comparison with good practices and issues that need to be prioritized for innovation in public investment management in Vietnam. The World Bank's report also made specific recommendations on actions to take in the short, medium, and long term. This study is based on the analysis framework of public investment management of the World Bank (2004), which examines the presence and quality of the eight key features and the mechanisms and institutions that ensure the smooth performance of each inside the budgeting cycle for both projects and investments. Thus, creating conditions for assessment based on international practices. Specifically, the elements of the World Bank's public investment management system framework: The eight must-have functions include: Alignment with development strategy, consistency in project preparation, the key to selecting a project, screening and rejection authority based on projects, efficient procurement, and budgeting processes to support deployment and use, maintain an asset registration system, operate and maintain assets, and evaluate for improvement, direction, and guidance. For the analytical framework of World Bank (2018) and World Bank (2014), the functions required in public investment management are eight functions while that of Dabla-Norris et al. (2012) using four features. However, the evaluation criteria are the same when also from project selection to operation and re-evaluation of the investment project implementation process. Additionally, to examine the factors that affect the results and efficiency of public investment, researchers are also interested in the factors that affect the management of public funds. Haque and Kneller (2008) have demonstrated that institutional factors have a significant effect on the efficiency of public investment; the authors also say that: unlike career capital, the use of resources for capital construction and the selection of development investment projects are affected by the capricious and corrupt attitudes of politicians and government officials. In many cases, investment decisions can be influenced by the amount of cash the investor gives to the officials, rather than who will offer the best price and the best service; a variety of public programs and projects are chosen because they can generate illicit income for more people than improve the quality of life for everyone. Thus, the institutional system's influence on total investment can be distorted, leading to low efficiency, waste, or corruption (Dabla-Norris et al., 2012). Public investments are also viewed in many countries as reflecting the interests of various groups, including politicians in parliamentary bodies, government ministries, specialized ministries, and localities. These are also challenges for all countries, especially for developing nations like Vietnam, when reforming public investment management systems (World Bank, 2018). As for the research on autonomous universities, the paper of Woodfield, Middlehurst, Fielden and Forland (2009); Bjarnason et al. (2009) has raised the question of what level of autonomy should higher education institutions have? A fundamental principle of institutional autonomy is that institutions function better when their destiny is in their hands. They have an incentive to change if they can directly benefit from their actions; they can be entrepreneurs and reap the rewards. Or they may shy away and see their rival organizations surpass them. If a group of institutions within the university system have the autonomy to meet national policy objectives as they see fit, they'll likely come up with better, more creative ways to do them. Centralized control of schools would make diversity unlikely. Meanwhile, research by Estermann, Nokkala and Steinel (2011) indicates that since the 1970s, university autonomy has made public tertiary institutions more efficient, business-like, results-oriented and accountable (through giving them more autonomy in strategic action, increased contractual relations and performance evaluation).

The purpose of this study is to develop the foundation for a comprehensive European-wide comparability database by examining several aspects of autonomy. It also aims to bring an institutional perspective (i.e., what autonomy means in practice) to the debate about autonomy and governance reform at the policy level. Research selection for countries in Asia, research by Varghese and Martin (2013) focused on selecting five countries: Cambodia, China, Indonesia, Japan, and Viet Nam as the research space has shown that autonomy is considered an effective way to improve the education systems of countries. The typical case of Vietnam features the characteristics of a decentralized government, characterized by a lack of coordination between the national and regional levels when it comes to regulations on financial management. These factors create uncertainty and inconsistency in higher education management. Research suggests that there is no universal model for the extension of autonomy for universities, however, to extend autonomy, policy coordination was necessary, should be carried out sequentially in institutions of higher education, increased autonomy requires strong leadership to ensure effectiveness as well as policies to prevent undesirable effects.

A review of the research literature related to the topic has shown that the documents have agreed that public investment plays an essential role in the socio-economic development of countries as regions. The value of the public investment is reflected in both education and training. Public investment management and factors affecting public investment management are also studied and exploited to show the extent of the influence of factors on public investment management, from that, can best promote the effects that public investment brings to the socio-economic development of regions, countries, fields, ensure effective implementation of public investment activities. For autonomous universities, current research focuses more on the exploitation and operation of the institutions themselves than on the management and exploitation of public investments in the institutions. For a developing country like Vietnam, public investment plays an important role in fields including education, especially at autonomous universities. University autonomy does not mean that the government in Vietnam stops investing in these universities; rather, it means that the government invests in capital construction investments at the universities

but the universities will be autonomous in other areas; however, autonomous universities in Vietnam still comply with the provisions of Vietnamese law. So, the question of how to efficiently manage public investments at autonomous universities in Vietnam remains to be answered. Based on previous studies, this study will analyze the factors affecting public investment management at autonomous universities in Vietnam to determine which factors have a positive influence, which factors have a negative impact on public investment management in these schools. This is the hypothesis that the author proposes to research: First, public investment management at autonomous universities in Vietnam is influenced by four factors: the capacity of public investment management agencies, the funding for implementation of public investment projects at autonomous universities, and administrative procedures, and the provisions of law and the actual context. Second, if administrative procedures and legal regulations in Vietnam are clear and strict, it will help public investment management at autonomous universities in Vietnam be more effective. Third, if the distribution of funds for implementing public investment projects at autonomous universities in Vietnam is fully available and on time, it will positively affect public investment management at these universities. Fourth, in Vietnam, the competence of a good investment management agency will positively impact the implementation of public investment programs by autonomous universities.

### 3. Method

Researchers collected data from a survey of 362 officials working in public investment management at autonomous universities in Vietnam. These data help the research team have an assessment perspective from the public investment units themselves on the management of public investment in these facilities. About sample size in the study: For factor analysis: Based on the research of Hair et al. (1998) for reference on expected sample size. Accordingly, the minimum sample size is five times the total number of observed variables; for multivariable regression analysis: The minimum sample size is determined by the formula:  $50 + 8 * m$  ( $m$ : number of independent variables) (Tabachnick & Fidell, 1996). Hence, the minimum number of observations required for this research is 120 observations. To ensure there were enough observations for statistical operations, the research team sent 362 questionnaires to representatives of universities in Vietnam who worked in investment management-related fields. Due to the impact of the Covid 19 pandemic, the research team chose to send the survey form online. Those who are selected for the survey will complete a questionnaire and return it to the research team.

Survey period: From December 2020 to March 2021.

From 362 survey questionnaires sent out, 289 questionnaires were sent back during the research team's survey period. However, when performing survey data entry, the team had to remove 63 survey questionnaires that did not meet the requirements due to a lack of survey information. With 126 questionnaires to meet the data requirements, the author entered data and performed statistical operations. With an observation scale of 126, it met the minimum requirement for performing statistical operations.

The survey is designed based on the research overview; the survey is divided into three parts:

Part 1: General information of individuals selected for the survey

Part 2: Assessment of survey respondents on the status of public investment management at autonomous universities in Vietnam.

Part 3: Assessment of respondents on factors affecting public investment management at autonomous universities in Vietnam.

Using the data collected, the research team analyzed the factors affecting public investment management at autonomous universities in Vietnam using multivariate regression and factor analysis (OLS). After collecting the data, the author will process, clean, enter data and encrypt data into an excel file, then the author uses quantitative models and calculations to process the data. The study was carried out with the help of SPSS 20.0 software. This study will use exploratory factor analysis (EFA) and multivariate regression methods to analyze the data. The proposed research model along with questions is given in Appendix.

### 4. Results

Public investment management at autonomous universities in Vietnam still complies with the regulations of the state management agencies as the individual regulations of the universities. The reality is that public investment management occurs at Vietnam's autonomous universities:

First, schools have specific processes to ensure that public investment proposals are compatible with the overall strategic directions of the industry and the school. Second, schools have guidelines that are directional and widely published through decisions. Third, when implementing public investment activities as well as public investment management, the implementation of public investment projects always has external appraisal activities as the basis for public investment implementation at the University. Fourth, public investment projects at schools, when included in the budget estimates, must be based on the same selection rule and receive the highest score. Fifth, the operation of public investment projects at autonomous universities in Vietnam is carried out by regulations. The school has regulations on the operation of specific and widely publicized projects;

the bidding for public investment projects at schools is carried out based on competitive bidding; Public investment projects at the school are assigned to private contractors to operate. Sixth, when implementing public investment projects at universities, there are problems such as increased investment, project implementation progress, public investment management regulations, and issues that arise from procurement or bidding activities. Therefore, it will be necessary to adjust the public investment project by the rules on time and requirements of the relevant management agencies. Vietnam's autonomous universities face problems arising in public investment management, which needs thorough solutions to get resolved. Determining the level of influence of factors on public investment management at autonomous universities is the basis for making appropriate recommendations to improve the effectiveness of public investment management. To assess the influence of factors on public investment management at autonomous universities in Vietnam, the research team used multivariate regression to quantify the relationship between variables based on data collected from surveys. To be able to perform that multivariable regression, the research team performed factor analysis for the group of independent factors and the group of dependent factors, the results of testing the scales met the requirements to perform statistical operations. First, carry out factor analysis for independent variables that are factors affecting public investment management at autonomous universities in Vietnam, specific results of KMO and Bartlett's coefficient = 0.729, Sig coefficient = 0.000; the use of factor analysis with the data is required.

**Table 2**  
Factor rotation matrix

	Component			
	1	2	3	4
NL1	.961			
NL5	.915			
NL2	.902			
NL4	.891			
NL3	.884			
BC4		.885		
BC2		.882		
BC3		.862		
BC1		.827		
BC5		.682		
TTHC2			.846	
TTHC4			.815	
TTHC1			.814	
TTHC3			.777	
KP1				.940
KP2				.938

From the data table shows, there are four groups of factors created, the groups of factors are named in turn as follows:

The group of factors on the capacity of the investment management agency (NL) is composed of 5 scales from NL1 to NL5 where the largest influence score belongs to the NL5 scale (experienced public investment managers) with an influence score of 0.961. The group of factors about the actual context (BC) is composed of 5 scales from BC1 to BC5, of which the most influential scale is BC4 (application of science and technology) which has an influence score of 0.885. The group of factors on administrative procedures and legal regulations is composed of four scales from TTHC1 to TTHC4. Scale of TTHC2 (public and transparent system of policies and laws) has the largest influence score of 0.846. The group of factor scales about distribution of funds for implementation of public investment projects at schools (KP) is composed of 2 scales KP1 and KP2; The influence coefficient of KP2 (Funds are provided on schedule) have the greatest influence. For the dependent variable, the research team also performed factor analysis to find out the representative factor for this variable to perform multivariable regression when analyzing the influence of the elements on public investment management at autonomous universities in Vietnam.

**Table 3**  
Component Matrix

	Component
	1
QLC4	.870
QLC1	.852
QLC5	.849
QLC6	.829
QLC2	.813
QLC3	.742
QLC7	.730
QLC8	.616

The research team performed the necessary test, the results showed that the coefficient KMO = 0.854; coefficient Sig = 0.000; There is one group of factors extracted with an explanation level of about 62.696%. There is a group of factors created that is the public investment management (QLC) factor which made up of 8 small scales including: QLC1 (Investment orientation,

project development, and initial screening); QLC2 (Appraisal of official public investment projects at schools); QLC3 (Independent assessment of public investment project appraisal at schools); QLC4 (Selection and budgeting of public investment projects); QLC5 (Project Implementation); QLC6 (Project Adjustment); QLC7 (project operation); QLC8 (assessment and audit after project completion). The study carried out multivariate regression to analyze the influence of factors on public investment management at autonomous universities in Vietnam. The research model chosen by the author is suitable, the coefficient R square = 0.706 indicates that the independent variable explains about 70.6% of the dependent variable; Sig coefficient = 0.000. Following is a table of statistical parameters:

**Table 4**  
Regression results

Model	Unstandardized Coefficients		Standardized Coefficients		Collinearity Statistics			
	B	Std. Error	Beta	t	Sig.	Tolerance	VIF	
1	(Constant)	-1.201	.326		-3.683	.000		
	BC	.286	.048	.295	5.910	.000	.973	1.027
	KP	.338	.035	.482	9.760	.000	.994	1.006
	NL	.301	.037	.409	8.135	.000	.959	1.043
	TTHC	.384	.043	.445	8.960	.000	.987	1.014

a. Dependent Variable: QLC

Based on the results, the independent variables have a positive influence on the dependent variable, all variables show statistical significance (Sig < 0.05). However, the degree of influence of these factors is different, specifically as follows:

The adjusted beta coefficient of the variable BC = 0.295 shows the positive relationship between the independent variable and the dependent variable, if the actual context is favorable, the management of public investment at the autonomous universities in Vietnam will also be better. The adjusted beta coefficient of the variable distribution of funds for implementation of public investment projects at autonomous University (KP) = 0.482 indicates a positive relationship between the independent and dependent variables. When the funding source for carrying out public investment projects at the schools is guaranteed to be allocated on schedule and fully, it will also ensure better management of public investment projects. The adjusted beta coefficient of the variable NL = 0.409, indicating that if the management capacity of the public investment management agency is good, the number and quality of public investment managers are good, ensuring quality. If there is an interest in public investment management at universities, the management process will be favorable, and the results and effectiveness of public investment management will be better. The adjusted beta of the variable TTHC = 0.445 shows that administrative procedures also have a major influence on school investment management. Public investment provides better results when regulatory conditions are favorable. Public investment management will be better when the management base, accuracy, transparency, and publicity are better.

## 5. Discussion and conclusion

From the results of quantification of the relationship between factors affecting public investment management at autonomous universities in Vietnam, it can be seen that, in addition to the results achieved in public investment management at autonomous universities in Vietnam, such as complying with government regulations, guidelines of the Ministry of Finance, the Ministry of Planning and Investment, laws on public investment management at universities, autonomous universities in Vietnam still have limitations institutions in the management of public investment in schools. Research findings show that the factors affecting public investment management at autonomous universities in Vietnam include the capacity of the public investment management agency, the cost of implementing public projects at the universities; administrative procedures and the provisions of the law, and the actual context at the school. To improve the efficiency of public investment management at autonomous universities in Vietnam, some recommendations proposed by the research team are as follows:

Autonomous universities need to set up and build an online management system, from there can reduce the pressure of accumulated jobs due to the impact of the Covid 19 pandemic that cannot be solved directly. It would be helpful if digital platforms were used to support the work of related units: Submitting digital signatures, submitting work via an application system (mobile app or specialized software) would help to simplify workflow. Additionally, a variety of other solutions are proposed to ensure more effective management of public investment in schools, such as:

The schools have specialized departments and professionals trained in handling public investment management issues. These officials advise management leaders about these activities directly and are responsible for analyzing the units' public investment plans; therefore, having expertise and a sense of responsibility at work will help them manage school investments more effectively. State management agencies need to have mechanisms and policies to allocate public investment capital to autonomous universities, which: Distribution of public investment capital to schools must ensure the schedule according to the plan and ensure the correct distribution of the approved capital scale. Autonomous universities need to have rules for allocating public investment funds distributed by the government properly for their investment portfolios. There should be specific and transparent regulations and sanctions related to public investment management activities at schools. Public investment management regulations need to be developed in schools that are in line with reality. The implementation projects need to ensure

the right investment policy of the state, the industry and the universities. Ensure periodic inspections related to the management of public investment activities at schools. University autonomous systems need to develop plans for appraisal of investment projects and be proactive in public investment management activities from the universities' perspective. Implementing public investment projects that require independent consulting and appraisal units is an option that schools can choose to use to improve the efficiency of public investment management at universities. University autonomous systems need to develop plans for appraisal of investment projects and be proactive in public investment management activities from the universities' perspective.

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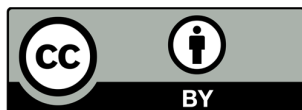
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## Appendix

**Table A1**

Description of the scales of the research model

Symbol	Scale / Variables	The basis for variable selection
The dependent variable		
QLC	Public investment management at autonomous universities	Rajaram et al. (2010); Vu Thanh Tu An (2016); World Bank (2018); Nguyen The Trung (2018), Pham Minh Hoa (2017), Dabla-Norris et al. (2012),
QLC1	Investment orientation, project construction and initial screening	
QLC2	Appraisal of official public investment projects at universities	
QLC3	Independent assessment of appraisal of public investment projects at universities	
QLC4	Selection and budgeting of public investment projects	
QLC5	Project Deployment	
QLC6	Project Adjustment	
QLC7	Project Operation	
QLC8	Evaluation and audit after project completion	
The independent variable		
NL	Capacity of public investment management agencies	Rajaram et al. (2010); Vu Thanh Tu An (2016); World Bank (2018); Nguyen The Trung (2018), Pham Minh Hoa (2017); Tu Quang Phuong and Pham Van Hung (2012).
NL1	Qualifications of staff working in public investment management	
NL2	The number of staff engaged in public investment management is guaranteed	
NL3	Staff in public investment management are well-trained and professional	
NL4	Unit leaders are interested in public investment management	
NL5	Public investment managers with experience	
KP	Distribution of funds for implementation of public investment projects at autonomous university	Rajaram et al. (2010); Vu Thanh Tu An (2016); World Bank (2018); Nguyen The Trung (2018), Pham Minh Hoa (2017); Dabla-Norris et al. (2012); Esfahani and Ramirez (2003); Haque and Kneller (2008), Tu Quang Phuong and Pham Van Hung (2012)
KP1	Funds are provided to ensure the implementation of the project	
KP2	Funds are provided on schedule	
TTHC	Administrative procedures and provisions of law	Rajaram et al. (2010); Vu Thanh Tu An (2016); World Bank (2018); Nguyen The Trung (2018); Pham Minh Hoa (2017); Dabla-Norris et al. (2012).
TTHC1	The regulations on public investment management are clear and transparent	
TTHC2	The system of policies and laws is open and transparent	
TTHC3	Accuracy in investment policy	
TTHC4	Transparency and publicity in public investment at universities	
BC	4. Factual Context	Rajaram et al. (2010); Vu Thanh Tu An (2016); World Bank (2018); Nguyen The Trung (2018); Pham Minh Hoa (2017); Chidlow and Young (2008); Tu Quang Phuong and Pham Van Hung (2012); Cu Thanh Thuy and Tran Tho Dat (2018); Cu Thanh Thuy and Nguyen Van Phuc (2018); Cu Thanh Thuy (2018)
BC1	Favorable natural conditions	
BC2	Political and economic stability	
BC3	Scientific and technical progress	
BC4	Applied science and technology	
BC5	Public investment management inspection	



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