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Specifics and potentials of Public Private Partnerships for universities and research facilities in Germany

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ABSTRACT

Public universities and research facilities in Germany are very much transforming due to political, legal and organizational changes. Additionally, the number of students will increase in the next eight years by 35 percent. The requirements of users in terms of rooms and services are changing very fast too. A lack of necessary maintenance and intended building projects are already obviously.

These future challenges are just solvable by appropriate actions and new concepts in public real estate management. It is stated in this paper, that addressing life cycle issues in project development helps to satisfy the present and future needs of the academies. As a step along the road Public Private Partnerships (PPP) function as a new procurement route in order to deliver public buildings in an efficient manner under life cycle aspects.

The aim of this paper is to investigate factors which are important for the application of PPP in the university sector. A set of 51 questions was developed based on literature review and experts opinion. The questionnaire is used in semi-structured interviews with real estate professionals at different types of German academies such as universities, colleges, research institutions and student facilities. The data collected during the interviews is analysed concerning life cycle optimisations and risk transfer potential within a PPP procurement route. The results of the investigation show that PPP as a procurement route is equally applicable for university and research facilities. Furthermore, the application of the life cycle concept affords focusing on real estate related benchmarking data.

KEYWORDS

Public Private Partnership, life cycle costs, procurement process, university, research facilities

INTRODUCTION

The Education sector is of great importance for the development of a country. In recent years there has been an increasing investment need in the higher education sector in Germany. This is due to the increasing number of students from today 1,97 Mio. students (Statistisches Bundesamt, 2007) up to 2,7 Mio. in 2012/14 (Kultusministerkonferenz, 2005). Moreover, research and education becomes a competitive advantage. Many European countries have set up new research activities, including Germany calling out a new research excellence initiative last year.

The investment in the higher education sector need is not restricted to human resources but includes infrastructure investments. Other reasons for investing in university premises are to be found in a maintenance backlog which can be traced back to the fact, that rebuilding higher education premises follows certain cycles. Many university buildings have been built between 1965 and 1975. The building lifecycle of these premises comes to the phase of rebuilding. Moreover, the rehabilitation of higher education premises has been systematically neglected due to economic restrictions. Some of Germany's bigger universities have an investment need of each up to 500 Mio. €.

The provision of higher education in Germany is mainly done by the public sector on federal state level. As a result, laws and regulations for this sector are diversified, because every federal state has its own regulation. Even within one federal state, special laws for single universities can exist. Besides, organisational models and responsibilities in public real estate management differ widely. Only in very few universities the property is managed by the university itself. In most cases the federal state or a public property company have the main responsibilities including construction and financing of new premises or sale of property. Only the facility management is generally done by the universities.

Property Management	Building design & Construction	Maintenance	Operations
public property company	public property company	public property company	university
Federal State	public property company	public property company	university
university	public property company	public property company	university
university	university	university	university

Figure 1: Organisational models for higher education property management

Figure 1 shows that property management responsibilities are allocated to different institutions having diverse aims.

Universities at the moment aim at more autonomy. They want to take more decisions by themselves concerning personal, distribution and allocation of financial capital. The university property management is affected as well, because it plays a significant role in providing the necessary infrastructure for attracting more students or doing better research.
University premises are very special in terms of their usage. Facilities for higher education usually consist of a broad variety of building types such as auditoriums, seminar rooms, cafeterias, dormitories, but also laboratories or halls.

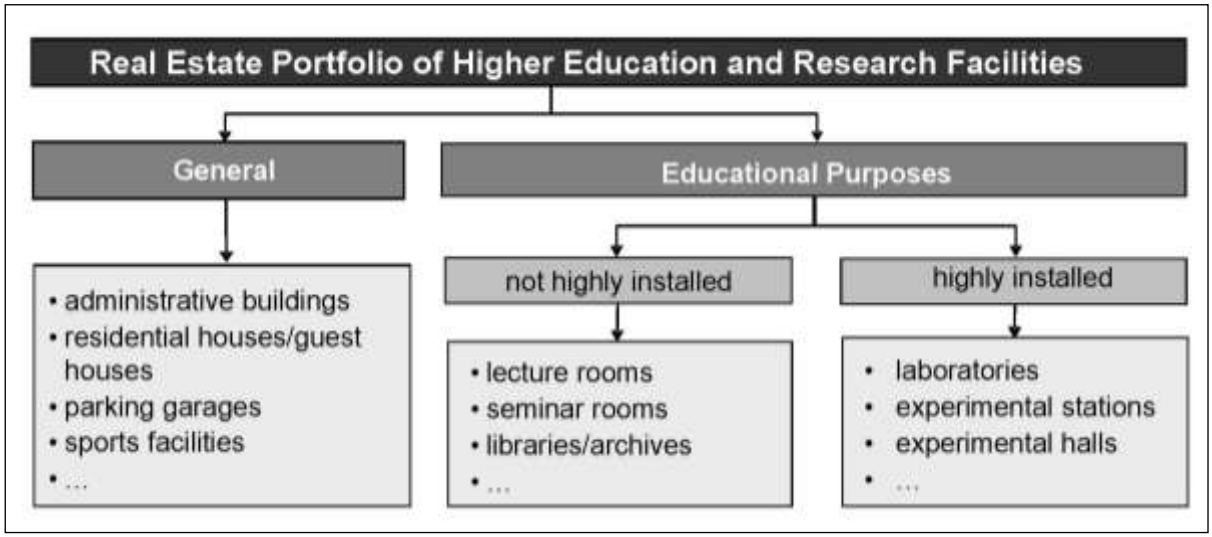

Figure 2: Real Estate Portfolio of Higher Education and Research Facilities

The premises can be located in one campus, but are in other cases they are distributes over the whole city. In most cases, it is not possible to rent or buy suitable buildings on the markets.

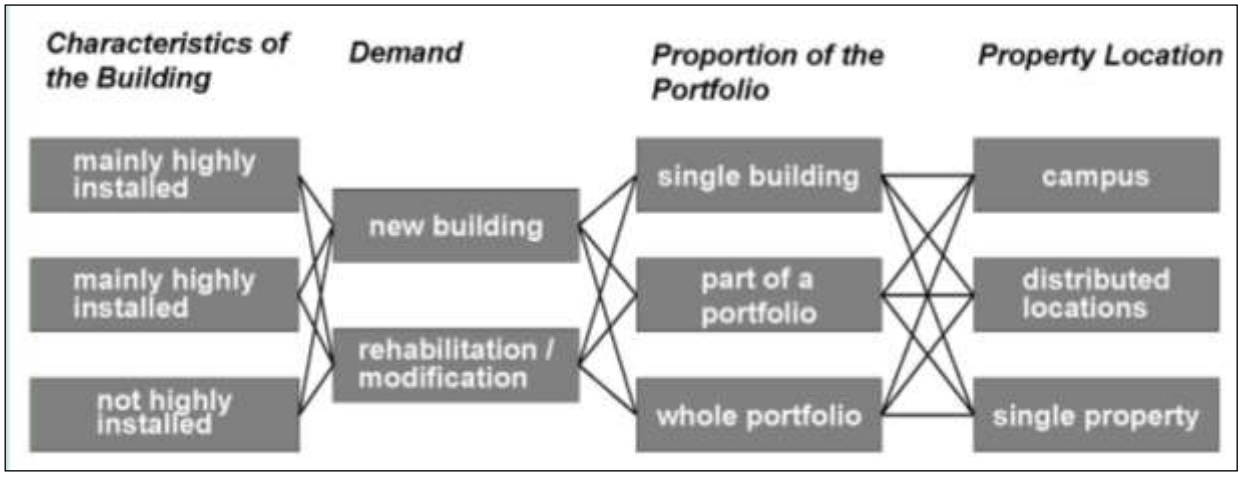

Figure 3: Clustering of portfolio of universities and research facilities

For that reason, the state has provided this infrastructure. In recent years, the new procurement route PPP has been established. PPP is a hybrid model which includes the integration of the value chain, but uses also the effects of market competition. In accordance with literature (Akintola and Beck, 2003; Alfen and Fischer, 2006) Public Private Partnership (PPP) are generally promoted to synergize public and private strengths in a partnership agreement to achieve benefits for both partners. Characteristics of such PPP are sharing of tasks and responsibilities, risk sharing and incentive structures, private investment, life cycle optimisations, innovation through output specifications, and a long-term contractual partnership.

This paper reviews the restrictions and potentials of using the PPP life cycle approach in the higher education and science sector in Germany. The structure of the paper is as follows. First, the research methodology based on explorative project study is explained. At the beginning, international PPP projects in the higher education sector have been analysed to get a thorough understanding about the sector specifics. A questionnaire was developed to do a qualitative value for money assessment in these projects. All information was gathered from interviews with persons involved in the planning process and planning documentation. The projects have been selected by their interest in procuring a PPP model. Secondly, the findings from the project study analysis are presented and summarised. As a result, the specifics of the higher education and science sector compared to other sectors are formulated and discussed. Finally, conclusions are drawn from this investigation.

RESEARCH METHODOLOGY

First, a desk top research has been undertaken to get an overview about PPP project internationally procured in the higher education sector. Next, regulation in Germany has been analysed in order to identify reasons why PPP as a procurement route has not been applied in this sector by now.

Following, the research has focused on the analysis of project ideas. At the beginning of the project an information workshop for the universities has been conducted. A number of 38 universities, 7 student services and 7 research centres have been asked for their interest to take part in the research project. From that a number of 13 institutions have been selected.

In order to assess the applicability of PPP for different kinds o project a set of 51 questions was developed based on literature review and experts opinion. Project characteristics will differ by their legal, financial and organisational environment, which can be very different. Moreover, every project type is different in its risk structure, needed services, project volume

or priority. The questions have been developed in accordance to these facts. The questionnaire is used in semi-structured interviews with real estate professionals at different types of German academies such as universities, colleges, research institutions and student facilities. After the interviews the questionnaire will be modified and improved to be better understandable und usable. After the research project the questionnaire should be used by the decision makers in higher education to easily assess the possible advantage or disadvantages of PPP for their projects.

number	institution	federal state	projects	description
1	student services	Thuringia	canteen	rehabilitation / modification of a single building
2	university	Baden-Wuerttemberg	building for an institute	new single building
3	university	Berlin	1. building for institutes 2. building for institutes and lecture rooms	1. rehabilitation / modification 2. rehabilitation / modification both are single buildings
4	university	Brandenburg	canteen	new single building
5	university	Lower Saxony	computer centre	rehabilitation / modification and extension
6	university	Niedersachsen	building for an institute	new single building
7	university	Nordrhein-Westfalen	centre with seminar rooms, stores and childcare	new single building
8	university	Nordrhein-Westfalen	experimental stations	complex of buildings; new buildings and rehabilitation / modification of buildings
9	university	North Rhine-Westphalia	experimental stations	complex of new buildings
10	university	Thuringia	building for institutes, administration, laboratories, lecture, rooms, seminar rooms and a cafeteria	complex of buildings; new building and rehabilitation / modification of buildings
11	university of a applied sciences	Hesse	main part of the whole portfolio	complex of buildings; new building and rehabilitation / modification of buildings
12	university of a applied sciences	Mecklenburg-Western Pomerania	canteen	new single building
13	university of a applied sciences	Thuringia	building with seminar rooms, for administration, laboratories, accommodations	rehabilitation of a single building

Figure 4: Analysis of project ideas in the higher education sector in Germany

Most interviews have been done by now, so that preliminary results can already be presented from this investigation.

FINDINGS

Internationally, the PPP in the sector of higher education has been applied already in many countries. The following tables show projects with contracts already signed. Many of these projects have been procured in the UK, but other countries such as Australia have a very fast developing PPP market.

country	city, region	name of the project	size of the project / amount of actions	part of the contract	con-tract period [years]	volume of the project	commis-sioning date
Australia	Brisbane, Queensland	Southbank EPIcentre (Education Precinct International)	whole campus, new buildings / rehabilitations and modifications	design, build, finance, operate	30	$ 550 Mio.	as of 2005 (part of the campus), whole project not finished yet
Austria	Vienna	Vienna Biocenter 2	single building for laboratories and offices, part of the portfolio	design, build, finance, operate		11,63 Mio. €	2004
Ireland	Ringaskiddy, Cork Habour	National Maritime College	new college	design, build, finance, facility management	25	40 Mio. €	2004
United Arab Emirates	Al Ain, Abu Dhabi	United Arab Emirates University	new whole campus	build, own, operate, transfer	28	310 Mio. €	as of 2008
United Kingdom	Hatfield, Hertfordshire	University of Hertfordshire, Havilland Campus	new dormitory and sports and leisure facilities	design, build, finance, operate	30	£190 Mio.	2003
United Kingdom	Manchester	The Royal Northern College of Music (RNCM)	new dormitory with subterranean garage	design, build, finance, operate	30	£6 Mio.	2001
United Kingdom	Manchester, Metropolitain County Greater Manchester	Wright Robinson Sports College Manchester	new whole campus	design, build, finance, operate	25	170 Mio. €	2007
United Kingdom	Teddington, Middlesex	National Physical Laboratory	whole complex of buildings, new buildings / rehabilitations and modifications	design, build, finance, operate	25	£96 Mio.	1988
United Kingdom	Shrivenham, Oxfordshire	Joint Services Command and Staff College (JSCSC)	new whole campus	design, build, finance, operate	30	£193 Mio.	2000

Figure 5: Examples of international PPP-projects (contracts signed)

Countries such as Singapore and Germany have an upcoming project pipeline which could further enhance the acceptance of PPP in universities and research centres worldwide.

country	city, region	name of the project	size of the project / amount of actions	part of the contract	con-tract period [years]	volume of the project	commis-sioning date
Canada	Montréal, Québec	McGill University Health Centre (MUHC)	new medical campus (part of the portfolio)	design, build, finance, infrastructure (cafeteria, laundry)		$1,579 Billion	2010/2011
Czech Republic	Usti nad Labem, Bohemia	Campus Jan Evangelista Purkyne University	new whole campus	design, build, finance, operate	25	83,3 Mio. €	2009 (start of construction)
Germany	Hamburg	Hafen City University	new whole campus	design, build, finance, operate	25	37,4 Mio. €	
Germany	Münster-Hiltrup, Nordrhein-Westfalen	Deutsche Hochschule der Polizei	whole campus, rehabilitations the buildings and modification of the organizational model	design, build, finance, operate		11 Mio. €	
Singapore	Singapore	University Town at Warren Campus, National University of Singapore	new whole campus, part of the portfolio	design, build, finance, operate	25	S$ 900 Mio.	2010
Singapore	Singapore	New Institute of Technology Education (ITE) College West	new whole campus	design, build, finance, operate	25	450 Mio. €	

Figure 6: Examples of international PPP-projects (contract not signed yet)

In Germany, PPP has been applied already in many sectors. The education sector has been the dominant part, but not involving the higher education sector by now (Alfen and Vollrath, 2007).

Looking at laws and regulations in the higher education sector in Germany it is very difficult for the universities to initiate a PPP project by themselves because they are often not the owner of the land and the premises. Moreover, the university's budget does not include investments in buildings. If they need new buildings, they have to apply to the Federal State. In effect, universities can not act and decide autonomously.

Up until now, students used to study for free. Meanwhile, in some federal states study fees have been set up and could also be used to improve the infrastructure. In these cases, universities themselves have the right to decide about this money and can allocate it to building investments, too.

The investigation has also shown that only bigger universities have enough personal resources to manage complex construction projects. Smaller universities depend even more on public entities on Federal State level such as administrations or public property companies. These public entities not only manage university buildings but also other public

buildings such as police stations. Although universities take the biggest proportion in this portfolio, it is perceived by university managers that they do not really understand the needs of the users. Resulting from the organisational structures in the provision of higher education buildings, it was evident that the traditional procurement process takes very long, because decisions are made subsequently. In modern project management many decisions processes take place in parallel.

By analysing the project specifics of the higher education sector it occurred that there is a higher change rate of functional areas and services than in other sectors. One reason is that teaching moves from lectures on to project work in smaller groups. As a consequence rooms need to fit.

Other causes are to be found in high technology areas of laboratories. Here the demand of areas can vary widely in terms of time and space. Interviewees stated that it could be difficult to define this demand 20 years in advance. Although the investment need is very high at universities, the amount of money is to high to get it financed at once. This could be an advantage for PPP, because in this case the private partner will finance the investment and the public partner has to pay it back over time. But still, it remains a political decision to invest in good educational infrastructure.

DISCUSSION

The analysis has shown that there is a need to improve the regulations and organisational structures in the higher education sector. Universities itself should have to decide on their spending and allocate it according to their needs. The universities compete against each other to get the best students and research projects. If this competition is wanted by politicians, universities should also decide themselves how they can reach the best outcome for their university. Universities need to have the right to decide about the allocation of their financial resources. Thereby, the financial resources have to reach a reasonable amount compared to the expectations to be achieved.

Another fact is that there are no pilot projects at moment in this sector in Germany, so that there is a certain resistance against this new procurement route, because of uncertainties.

Generally, PPP in the higher education sector are feasible and provide value for money, but there is still a lack of information about the functioning of the PPP procurement route.

In summary, the questionnaire has been a very useful tool to evaluate the characteristics of the projects. The questionnaire needs to be amended only in a very few aspects and shall be developed further as a guidance tool. As experience grows in this sector PPP can be become a very powerful instrument and useful procurement alternative.

CONCLUSIONS

The whole life cycle approach of PPP is only recently used in the delivery of public real estate in Germany. The PPP approach offers the highest added value through best risk allocation opportunities and the management of interfaces between the different building life cycle phases: planning, construction, operation and the interfaces between building related services and the educational core processes. The life cycle approach in the education sector requires value chain integration and innovative thinking to command the complexity of such projects. To restructure the planning process into an output-oriented thinking process allows for more innovation and better risk management. In the end, improved building services will have a significant impact on the added value for universities, because core processes and support processes such as Facility Management are strongly related in the education sector.

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