Will PPP Help to Meet the Infrastructural Needs of the Higher Education and Research Sector?

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I. Introduction

The education sector is of great importance to the economic development of each country. Investments in the higher education sector are not restricted to human resources but include infrastructure investments. In Germany, an increasing investment demand in the higher education sector has recently occurred. This is due to the increasing number of students. The number of students is forecast to increase from today's 1.97m students to 2.7m in 2012/14.[1] Moreover, the research sector is becoming more important as a competitive advantage in different countries. Therefore, many European countries have set up new research activities, including Germany, establishing a new research excellence initiative. Other reasons for the growing investment need on university premises are to be found in a maintenance backlog. This can be traced back to the fact that the rebuilding of infrastructure for higher education follows certain cycles. Many university buildings were built between 1965 and 1985. The lifecycle of this infrastructure is coming to the phase of rebuilding. Moreover, the restoration of higher education premises has been systematically neglected due to economic restrictions. Some of Germany's bigger universities have an investment need of up to € 500m.

II. Characteristics of Higher Education Facilities

University infrastructure is very special in terms of its usage. Facilities for higher education usually consist of a broad variety of building types such as auditoriums, seminar rooms, cafeterias, student accommodations, but also laboratories or halls. Some of the buildings have a high level of technical installations as in the case of laboratories or afford a high level of service standards such as IT facilities.

The portfolio of buildings can be divided into general types of buildings and buildings built for specific purposes. Whereas general buildings can usually be rented, leased or bought on the free market, buildings which are built for a specific purpose need to be separately dealt with. For buildings which are built for a specific purpose, the demand needs to be well known, in particular against the background of reusing it for other purposes which may hinder renting, leasing or selling of those buildings.

See figure 1 next page.

As distinctive features between the estates and therefore between the PPP projects can be chosen the level of technology (from low to high), the type of PPP project (construction or reconstruction), the project's scope (single building or portfolio) and finally the property location.

See figure 2 next page.

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1 See Kultusministerkonferenz (2005): Prognose der Studienanfänger, Studierenden und Hochschulabsolventen bis 2020; Statistische Veröffentlichungen der Kultusministerkonferenz, Dokumentation Nr. 176, Bonn, Oktober 2005.
Statistisches Bundesamt (2007): Bildung und Kultur, Studierende an Hochschulen – Vorbericht – Wintersemester 2006/2002; Fachserie 11, Reihe 4.1; Statistisches Bundesamt, Wiesbaden 2007.

Figure 1: Real Estate Portfolio of higher education and research facilities

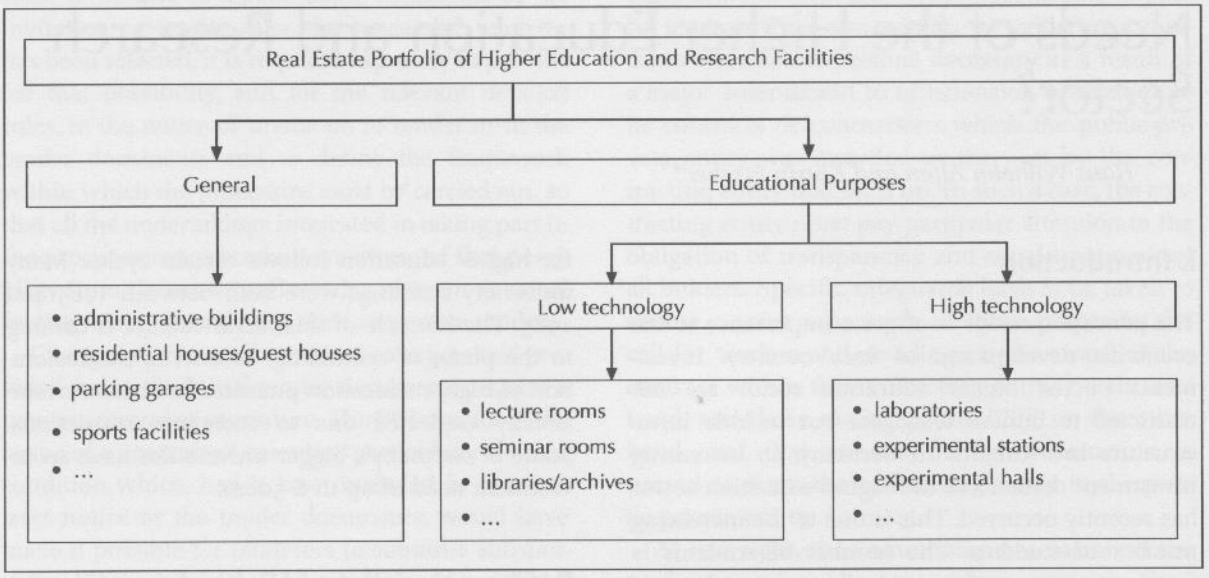

Figure 2: Clustering

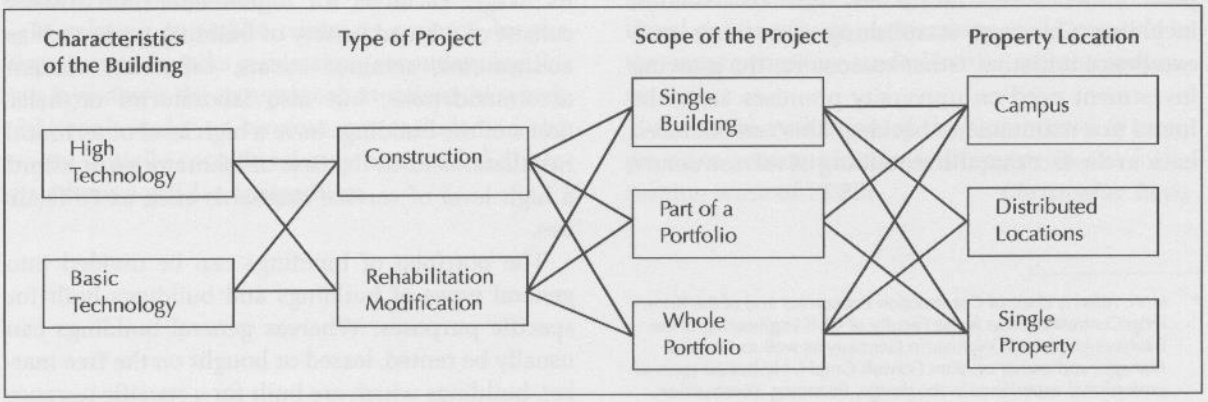

Figure 3: Distribution Estate Management Models within Federal States

Model	Estate Management	Planning & Construction	Maintenance	Operation	Distribution Federal States*
1	State Company	State Company	State Company	State Company	1
2	State Company	State Company	State Company	University	6
3	State Company	State Company	State Company	University	2
4	University	State Company	State Company	University	6
5	University	State Company	University	University	2
6	University	University	University	University	4

* Total of federal states more than 16, due to parallel estate management systems within on state

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. In addition, organisational models and responsibilities in public real estate management differ widely. The property is managed by the university itself at only a small number of universities. In most cases, the federal state or a state company has the main responsibilities including construction and financing of new infrastructure or sale of property. Only the facility management is generally done by the universities.

At the moment, universities are aiming 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.

See figure 3 left page.

As is presented in the table, in parallel to the conventional/classic organisational model where the federal state owns and funds and the universities and colleges operate the higher education buildings, deviant organisational models exist. However, merely four federal states have allowed higher education institutions full autonomy over their estates' life cycle. But even in these, partly time-restricted, pilot schemes, the institutions remain dependent on state funding. Furthermore, they are obliged to obtain approval by the state department whenever they want to take out a loan or sell their estates. Still, these more autonomous universities and colleges are assumed to be more eligible to apply alternative procurement processes than the conventionally organised ones. The passing of the PPP acceleration law (ÖPP-Beschleunigungsgesetz) in 2005 and the PPP simplification law (PPP-Vereinfachungsgesetz) which is under way generally ought to ease the decision for PPP in all sectors.

In recent years, the new procurement route PPP has been established worldwide and is increasingly being used in the higher education sector. According to studies[2], 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 PPPs 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.

Notwithstanding and in consequence of the continuing financial dependency, most German higher education institutions do not – or more precisely are not able – to pursuit PPP with priority for new construction or reconstruction tasks. In the near future, the universities' financial setting may change with the generation of optional funding from student fees, fundraising etc. So far, user financed higher education estates are solely found in the student unions' field of activity, e.g. student accommodation or cafeterias.

III. Procured PPP Projects

Internationally, the PPP in the sector of higher education has previously been applied in many countries.[3] 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.

See figure 4 next page.

IV. Specifics of PPP in Higher Education in Germany

In Germany, PPP has already been applied in many sectors. The education sector has been the dominant part, but not involving the higher education sector at this point[4].

2 Akintoye Akintola and Beck Matthias and Hardcastle Cliff (2003) Public-Private Partnerships: Managing risk and opportunities; Oxford: Blackwell Science, 2003.
Alfen Hans Wilhelm and Fischer Katrin (2006), „Der PPP-Beschaffungsprozess", in: Weber Martin, Schäfer Michael, Hausmann Friedrich Ludwig, Praxishandbuch Public Private Partnership, Verlag C.H. Beck München, 2006, S.1-84.

3 Kaganova, Olga/McKellar, James (2006) Managing Government Property Assets- International Experiences, Washington D.C., 2006.

4 Alfen Hans Wilhelm and Vollrath Susann (2007) Overview of the PPP Public real Estate Market in Germany, in: European Public Private Partnership Law, 2/2007.

Figure 4: Examples of international PPP-projects (contracts signed)

Country	City, Region	Name of the project	Size of the project / amount of actions	Part of the contract	Contract period [years]	Estimated Volume of the project	Commissioning date
Australia	"Brisbane, Queensland"	"Southbank EPIcentre (Education Precinct International)"	entire campus, new buildings/rehabilitations and modifications	design, build, finance, operate	30	€ 381,5 m	2005 (part of the campus), whole project not finished yet
Austria	Vienna	Vienna Biocenter 2	single buildings for laboratories and offices, part of the portfolio	design, build, finance, operate		€ 11,63 m	2004
Ireland	"Ringaskiddy, Cork Habour"	National Maritime College	new college	design, build, finance, facility management	25	€ 40 m	2004
United Arab Emirates	Al Ain, Abu Dhabi	United Arab Emirates University	entirly new campus	build, own, operate, transfer	28	€ 310 m	2004
United Kingdom	"Hatfield Hertfordshire"	University of Herfordshire, Havilland Campus	new dormitory and sports and leisure facilities	design, build, finance, operate	30	€ 255 m	2003
United Kingdom	Manchester	The Royal Nothern College of Music (RNCM)	new dormitory with subterranean garage	design, build, finance, operate	30	€ 8 m	2001
United Kingdom	Manchester, Metropolitain County Greater Manchester	Wright Robinson Sports College Manchester	entirly new campus	design, build, finance, operate	25	€ 170 m	2007
United Kingdom	Teddington, Middlesex	National Physical Laboratory	whole complex of buildings, new buildings / rehabilitations and modifications	design, build, finance, operate	25	€ 128 m	1987
United Kingdom	Shrivenham, Oxfordshire	Joint Services Command and Staff College (JSCSC)	entirly new campus	design, build, finance, operate	30	€ 259 m	1988

*1 EURO = 1,4415 US-Dollar (01/22/2008), **1 EURO = 0,746 (01/22/2008)

Figure 5: Project Pipeline of international PPP-projects (contracts not signed yet)

Country	City, Region	Name of the project	Size of the project / amount of actions	Part of the contract	Contract period [years]	Estimated Volume of the project	Commissioning date
Canada	Montréal, Québec	McGill University Health Centre (MUHC)	new medical campus (part of the portfolio)	design, build, finance,operate	/	€ "1,095 bn*"	2010/2011
Czech Republic	Usti nad Labem, Bohemia	Campus Jan Evangelista Purkyne University	new whole campus	design, build, finance, operate	25	€ 83,3 m	2009 (start of construction)
Germany	Hamburg	"Hafen City University"	entirely new campus	(design), build, finance, operate	25	€ 37 m	2008
Germany	Münster-Hiltrup, North Rhine-Westphalia	deutsche Hochschule der Polizei	campus, rehabilitations of the buildings	design, rebuild, finance, operate	/	€ 11 m	/
Germany	Hamburg	Biozentrum Hamburg	relocation of the Zoological Institut of Hamburg	service agreement	/		2008
Germany	Bochum	Seminarraum-zentrum West	new campus	design, build, finance, operate	/	€ 66 m	2008
Singapore	Singapore	University Town at Warren Campus, National University of Singapore	new whole campus, part of the portfolio	design, build, finance, operate	25	€ 429 m**	2010
Singapore	Singapore	New Institute of Technology Education (ITE) College West	new whole campus	design, build, finance, operate	25	€ 450 m	/

*1 EURO = 1,4415 US-Dollar (01/22/2008), **1 EURO = 0,746 (01/22/2008)

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 a system of tuition has 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.

It can be stated that only bigger universities have enough human resources to manage complex construction projects. Smaller universities depend even more on public entities on the 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 portion in this portfolio, the university managers perceive that they do not really understand the needs of the users. It is evident that the traditional procurement process takes very long as a result of the organisational structures in the provision of higher education buildings – 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 becomes obvious that there is a higher rate of change concerning the room allocation and operation than in other sectors. Teaching ranges from lectures to project work in smaller groups. As a consequence the provided premises need to be adequate in regard to their size.

Other causes are to be found in the high technology areas of laboratories. Here, the demand of spaces can vary widely in terms of time and space. University managers are of the opinion 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 too high to get it financed all 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 it still remains a political decision to invest in good educational infrastructure.

V. Future market developments

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

See figure 5 previous page.

The analysis has shown that there is a need to improve the regulations and organisational structures in the higher education sector. Universities themselves should have to decide on their spending and allocate their financial resources according to their needs. The universities compete against each other to attract the best students and research projects. If this competition is desired 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. Although there are few pilot projects at the moment in this sector in Germany, there is a certain resistance against this new procurement method; this is because of uncertainties.

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

In summary, as experience grows in this sector, PPP could be become a very powerful instrument and useful procurement alternative.

The whole life cycle approach of PPP has only recently been 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 manage the complexity of such projects. Restructuring 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 closely related in the education sector.