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PRIVATE INVESTMENT IN HOSPITALS

A comparison of three healthcare systems and possible implications for real estate strategies

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ABSTRACT

Objectives This paper aims to explore lessons to be learned from three different healthcare systems and possible implications for the management of healthcare real estate, in particular in connection to the Dutch system. It discusses similarities and dissimilarities of the different systems, in search for possible consequences for costs, finance and design innovation.

Background To keep healthcare affordable in the future, the Dutch government is currently in a process of changing legislation in order to move from a centrally directed system into a so-called regulated market system. Deregulation of real estate investment that comes with the new healthcare delivery system gives healthcare organizations new opportunities, but also more responsibility and a higher risk on return on investments. As a consequence, healthcare organizations have to find new ways of financing. Private investment is one of the options.

Methods Based on a literature review and analysis of documents three healthcare systems have been analyzed and schematized to show similarities and dissimilarities with regard to private investment in hospitals. Reflections have been based on a selection of recently published articles on private sector financing and its implications on healthcare real estate decision making in the Netherlands, UK and Germany.

Results The analysis of three healthcare systems with a different proportion between private and public investment in hospitals has been used to explore strengths and weaknesses. Research showed a gap between aimed effects and actual effects with regard to quality and costs. Costly private finance does not necessarily lead to value for money. Transferring real estate decisions to private investors decreases the influence of the healthcare organization on future costs and quality.

Conclusions The three healthcare systems show large differences between public and private responsibilities. Less governmental involvement evoke both opportunities and risks for hospitals. Private investment may lead to innovation, improved efficiency and cost reduction, provided that the costs and benefits of decisions are not separated between different stakeholders; a missing link between infrastructure provision and healthcare delivery may impede design innovation and optimal adaptation to business processes and could lead to an inefficient allocation of risks and benefits.

Keywords: Healthcare system; Hospitals; Integrated costs; Private investment; Real estate strategy

1. INTRODUCTION

Dutch hospitals have always been private not-for-profit organizations subject to strict government rules on quality and investment costs of health care real estate. The guarantees on real estate investments by the government made it possible to borrow the necessary capital from the private sector at favorable rates. But the position of real estate in Dutch healthcare organizations is currently changing due to the deregulation of real estate investment decisions and the introduction of a regulated market system. Since the introduction of the new system Dutch healthcare organizations have been looking for different ways of raising private investment in real estate.

Other countries in Europe have different healthcare delivery systems with a different ratio between public and private responsibility. Probably much can be learnt from public and private investment in hospitals in other European countries. The present paper reflects on the changes taking place in the Netherlands; brings together a selection of recently published articles on private sector financing and management models operating in the UK; and looks at the system in

Germany and specifically at recent reports on a successful for profit operator in the German system. There is a lot of money in circulation in this area. In 2007 the total yearly real estate related costs of the 87 general hospitals in the Netherlands were €1.5 billion (circa \$2 billion) (Prismant, 2008). The UK is spending more than £25 billion (circa \$ 41 billion) on new hospitals and other facilities. Estimates suggest that Germany may need to spend €30-50 billion (\$40-70 billion) to modernize its hospitals. (Barlow & Wheelock, 2009). So the issue is quite important.

The present paper aims to analyze experiences and lessons learned from the three settings and to explore implications for the management of healthcare real estate, in particular in connection to the Dutch system. It discusses similarities and dissimilarities of the different systems, in search for possible consequences for costs, finance and design innovation. Firstly, financing and planning of Dutch hospital real estate and changing legislation in the Netherlands will be described, followed by a discussion about private investment in healthcare in the Netherlands and examples from practice. Secondly, the financing and planning of UK hospital real estate will be discussed, followed by an evaluation based on recent research findings. The National Health Service (NHS) in the UK uses Private Finance Initiative (PFI) with private investors playing a dominant role in design, finance, build and operate hospital buildings (DFBO). Thirdly, the financing and planning of German hospital real estate will be discussed, with some special attention to the position of the Rhön Klinikum group and its overall real estate strategy. The Rhön Klinikum Group is an example of a private-for-profit hospital, quoted on the stock exchange, that fits within the German public healthcare system. This organization is expanding its operation by buying and rebuilding under-performing hospitals.

2. FINANCING AND PLANNING OF DUTCH HOSPITAL REAL ESTATE

Healthcare system in the Netherlands

In the Netherlands, healthcare is provided by private not-for-profit hospitals. Costs of individual healthcare are met by obligatory private insurance funds. On 8 March 2005, the Dutch Minister of Health, Welfare and Sports announced far-reaching changes in the real estate budgetary system and introduced a regulated market system in the healthcare sector (Hoogervorst, 2005). The centrally steered real estate budget system with governmental ex ante testing of building plans and investment proposals is being changed into a performance-based and output driven finance system. Private not-for-profit initiatives will continue to be the driving

force behind hospital healthcare capacity, but in contrast to the old situation hospitals become completely responsible for the return on real estate investments. The main objective of the new system is to keep healthcare affordable by stimulating competition and reducing healthcare costs. Until the introduction of deregulation, the funding of capital investment for hospitals relied almost entirely (usually 80-90%) on loans from the private sector (Thompson & McKee, 2004). Since January 2008, providers in the medical sector are required to finance real estate investments and capital costs with the income from healthcare products and services. The increased risk of return on investment due to the deregulation of real estate investments goes hand in hand with more freedom in briefing, designing and managing hospital buildings. So hospital organizations have to think more carefully than ever before what will be the consequences of real estate decisions on utility value, investment costs and running costs.

Figure 1 shows the old and new healthcare delivery system in the Netherlands and the position of real estate. Real estate investment decisions are usually initiated by the hospital board. In the old system these decisions had to be approved by the government with regard to quality (match with governmental functional standards) and investment costs (match with a cost per square meter norm). After governmental approval the government gave a 100% guarantee to investors in healthcare real estate. Real estate capital costs were paid by insurance companies to healthcare providers. Deregulation of building activities for hospitals means the disappearance of both the 100% guarantee by the government on real estate investments and the guaranteed income from insurance companies for paying real estate related costs. The changing context forces hospitals to rethink their real estate strategies and how to finance real estate.

Since the announcement of the introduction of a regulated market in 2006, private investment in healthcare and healthcare real estate are more and more coming up in the Netherlands (see box 1).

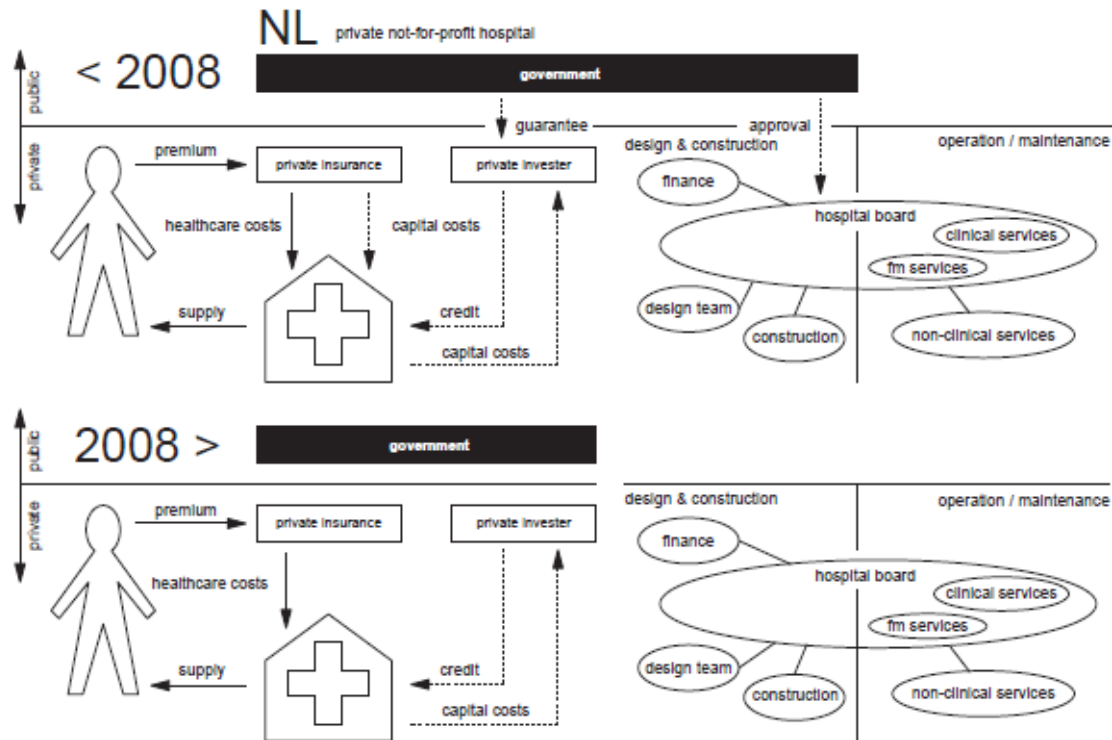


Figure 1: Old (above) and new (below) position of real estate in the Dutch healthcare system

Private investment in Dutch healthcare

The subject of healthcare finance and the role of private investors is a hot political issue (Verhagen & Room, (2008). Investors want a return on investment and expect a profit. Because the real estate of hospitals can consist hidden reserves, which could leak away to private investors, it is important to base decisions on the current value of real estate at the moment participation of a private investor takes place. In such a case, real estate value creation can be used to benefit healthcare delivery (Verhagen & Room, 2008).

In a comparison of the American and Dutch healthcare delivery system, Tromp & Baalman (2008) conclude that healthcare insurance companies in the Netherlands have a strong influence on the quality of healthcare delivery. In the Netherlands, insurance companies have a quite central role in the healthcare system and feel to have an obligation to meet the demands of patients. In America, healthcare insurance companies act as an external case manager for the patient. Probably Dutch healthcare insurance companies will move to this position in the future (Tromp & Baalman, 2008).

Box 1: recent examples of private investment in Dutch hospitals

Delay of the opening of a new hospital near Rotterdam - due to a construction failure - resulted in a debt for the hospital of €30 million (\$43 million). To overcome this debt the hospital was taken over by a not-for-profit consortium including a regional healthcare insurance company (40% ownership), medical staff and regional general practitioners. This is the first example in the Netherlands of a health insurance company that has become involved in the healthcare delivery services of a hospital. This take-over fits with a trend of hospitals seeking external finance and insurance companies who want to become involved in healthcare facility operation (Hoepel, Visser, & Vries, 2008).

A joint venture between a medical group and an industrial partner was initiated to create a '21st Century Hospital' in the south of the Netherlands. Knowledge of ICT, medical equipment, facility management and electronic technology was brought to this project by the industrial partner. In this project ICT innovation, resulting in a paperless hospital was expected to improve the efficiency of the clinical services. The relatively high investment in real estate (€370 million (\$528 million) for 425 beds and 100.000 m²) should make it possible to save on operational costs and to deliver better healthcare (quantitatively and qualitatively) for lower costs. The estimated savings of these innovations on staff people are 200 f.t.e. (Siemens, 2009).

In 2008 it became obvious that a medical group consisting of two hospitals was heading for bankruptcy soon after the operating theatres were closed on the advice of the Inspectorate of health facilities. An independent advisor concluded that the hospital had serious managerial and organizational problems. The financial and managerial participation of an investor was necessary to avoid bankruptcy and to improve the organization's financial and functional performance. The adviser recommended cooperation with another hospital as a preferred partner and closing of the smallest hospital (Lodewick, 2008). In November 2008, a private investor was found who was willing to invest €5 million (\$7 million) in the hospital. Retaining the hospitals in both locations is part of this investment. The government has supported the reorganization and both the bank and the insurance company have agreed to postpone the repayment of debts for two years. (Tweede Kamer der Staten-Generaal, 2009)

In the third quarter of 2006 a hospital in Amsterdam was taken over by a private investor and saved from bankruptcy. As part of the takeover, the hospital was transformed into a company in June 2007. The new CEO and co-investor expected to make a profit within one and a half year but this was already achieved in the first quarter of 2007 (Erbudak, Brandjes, & Beijnen, 2008). Under Dutch legislation, a hospital is not allowed to pay any profits to the shareholders, so the profit is added to the budget of the hospital. This success is due to a central management model in which the CEO controls all expenditure, resulting in savings of €3.9 million (\$5,6 million) in 2007 compared to 2006 on a balance of approximately €100 million (\$140 million). Rental contracts with third parties within the hospital building were evaluated, which led to the termination of some contracts. The available space will be used for the hospital's own expansion of activities. In 2007 the out-sourced cleaning company was taken over by the hospital (Erbudak, Brandjes, & Beijnen, 2008).

Under the former system, risk analyses of banks were connected to government approval and guarantee on investment; low risks made financing in healthcare real estate relatively straight forward (Jong, 2008). But the new regulated market system without any guarantees will lead to more difficult decisions in real estate investment. In the new system private investment in hospital real estate by banks is not evident anymore. It remains to be seen whether hospitals will be capable of paying for the interest and depreciation of real estate investments in the future. Key issues are the connection between economic life-cycle and finance construction, and the organization's balance position and interest rates. Healthcare organizations' relationship with banks as private investors will change from borrower and lender to business partners (Jong, 2008). Alternative finance constructions are coming up such as sale and lease-back or establishing a consortium to design and build a hospital by or with private partners. Sale and lease-back financing enforces the organization's financial balance. A disadvantage is that healthcare organizations have to make long-term commitments with private real estate investors, decreasing their autonomy in real estate interventions.

3. FINANCING AND PLANNING OF UK HOSPITAL REAL ESTATE

Healthcare system in the UK

In the UK, health care is provided by the National Health Service (NHS). Health care is financed mainly through direct taxation and free at the point of delivery (figure 2). Different bodies (the primary care and hospital trusts, and the strategic health authority) are responsible for commissioning and providing services and for regulation and performance management (Eskrine, Dowdeswell, & Watson, 2006).

Since 1992, part of capital investments comes from Private Finance Initiative (PFI) that allows private consortia to finance, build and operate a hospital for a minimum period of 25 years. During this period the building is leased back to the NHS. For the government, the rationale for the introduction of PFI into hospital procurement was threefold. First, it was seen as a way of exploiting the financial strength of the private sector and renewing healthcare buildings faster than would be the case under conventional public funding models. Second, PFI was felt to be a good way of maintaining facilities during the contract lifetime. Third the government thought PFI to be a way of taking advantage of the private sector's 'experience and skills in order to bring innovative solutions to the needs of the health service' (Barlow & Koberle-Gaiser,

2008). The NHS commissions the work and provides clinical care; the private sector designs and builds the new facilities, and leases the premises to the NHS. In hospital development, a PFI arrangement typically involves finance, design, construction, facilities management and sometimes 'soft facilities management' (non-core services such as cleaning and catering), for which fees have to be paid along the duration of the contract. The hospital trust maintains sole responsibility for all clinical services (Barlow & Koberle-Gaiser, 2008).

The cost of the planned investments is the key factor to determine which level of approval must be sought. Projects over £30 million (\$49 million) must be assessed by a central capital prioritization advisory group (CPAG) in the early stages of their development, and be formally approved at a later date. Below this cost threshold, strategic health authorities have the freedom to approve projects (Thompson & McKee, 2004).

The strategic health authorities have an annual capital allocation available for distribution to individual projects; the trusts get an operational capital allowance to maintain assets; and some funds are available at national level for specific objectives (e.g. IT infrastructure) (Eskrine et al., 2006).

Figure 2 shows the connections between the healthcare delivery system in the UK and decisions on design, construction, operation and maintenance of hospital buildings. The government is responsible for the delivery of clinical services, executed by the NHS. The PFI consortium is responsible for the design, construction, operation and maintenance of the building. This consortium decides on the layout of the hospital and future alterations, based on the Design-Build-Finance-Maintenance-Operate (DBFMO) contract with the clinical services of the NHS trust.

Private investment in the UK health care system

As a consequence of PFI significant amounts of extra capital investment have entered the healthcare arena. On the other hand, PFI received much criticism for failing to provide clinical or architectural innovation, and for the high costs to the NHS of occupying the new premises (Eskrine et al., 2006). Two recent ex post studies of early examples of PFI hospitals show that the PFI-projects did not fulfill the government's original rationale in terms of quality and costs.

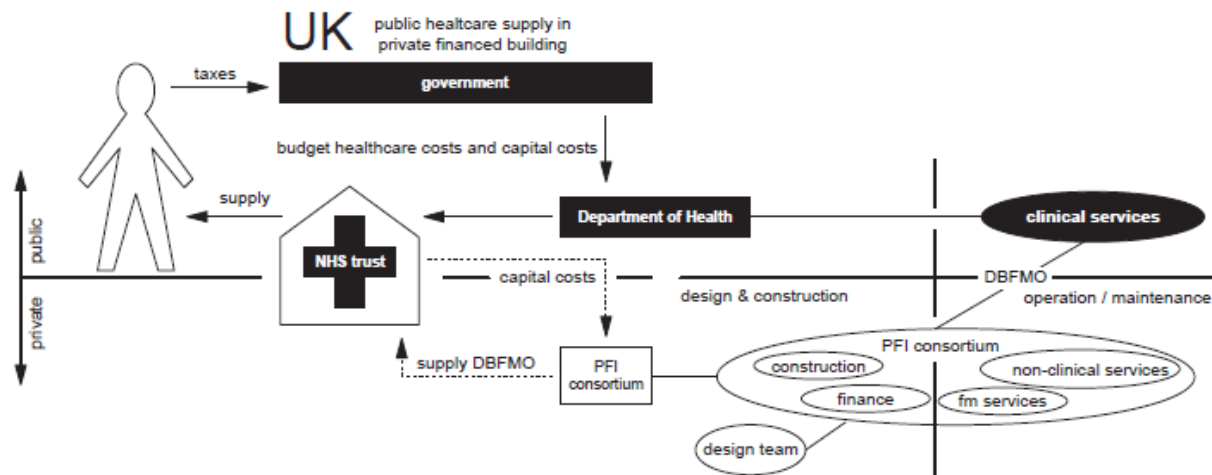


Figure 2: Position of real estate in the healthcare system in The UK

Qualitative research of Barlow & Köberle-Gaiser (2008) of the project delivery system and the relations between funding parties, contractors and public sector client suggest that the missing link between infrastructure provision and care delivery in the PFI process has impeded innovative solutions for accommodating future changing healthcare needs through adaptable hospital infrastructure in two significant ways. First the research confirmed that inefficient allocation of risks hindered innovation. The PFI consortium bears the risk on the real estate investment, and the NHS Trust bears the risk on the production of clinical services. Alterations in real estate for greater efficiency in healthcare delivery benefits the NHS trust but the investment has to be paid by the PFI consortium. Second, innovation has been impeded by the increased complexity of the interfaces between the various components of the hospital project–operational system (Barlow & Koberle-Gaiser, 2008). In a newer “smart PFI” scheme, the design stage and tendering process are separated but this will not tackle the fundamental barrier of embedding an interest in long-term performance in public-private partnership for healthcare infrastructure design and construction innovation needed to support this. Until a model is developed that incorporates a coordinating and integrating function and includes clinical operations, the separation between project supply/facilities management and clinical operations will remain (Barlow & Koberle-Gaiser, 2009).

The second recent research examined the cost of using private finance to build, finance and operate the first 12 PFI hospitals in the UK (Shaoul, Stafford, & Stapleton, 2008). Shaoul et al (2008) used publicly available information, including trusts' annual reports and accounts up to 2004-05. They concluded that PFI charges were higher than expected in a number of cases. Also the total cost of the projects over a 30-year lifetime was higher. The PFI contracts provide numerous ways of increasing the charges under conditions where the trusts are locked into a monopoly supplier. The PFI Consortiums typically pay little tax, whereas the government assumed that PFI would provide a 22% return to the Treasury. The extra cost of private finance of the first 12 PFI projects was estimated at £5 million (\$8 million) per year, which is £480 million (\$780 million) a year if this estimate is generalized to the whole PFI program in the UK. Although the government recognizes that private finance is more costly, it believes that this £5 million (\$8 million) annual cost for each hospital is 'Value For Money'. It is far from clear how the expected savings made from transferring risk are to be measured in practice (Shaoul et al., 2008). Barlow & Köberle-Gaiser (2008) showed that the value for money was not to be found in design innovation. After 2008, the new funding regime with funds following patients on the basis of average prices will create financial pressure for trusts that are locked into PFI contracts. PFI CREATES BUDGET INFLEXIBILITIES. PFI creates budget inflexibilities that increase the pressure on the NHS to cut their largest cost: staff salaries and facilitating effective and efficient working conditions, and as such evokes a risk of decreased access to high quality healthcare services. In other words, PFI heralds an emerging conflict between real estate capital costs and cost of human resources in healthcare (Shaoul et al., 2008).

Hospital PFI arrangements should consider the risks of fluctuations in demand for healthcare. The hospital facility could become outdated and the hospital organization could become locked-in to a long-term contract with one private investor. Therefore flexibility in hospital PFI is considered essential (Blanken, 2009). The "payment by result" system – with hospitals being paid a fixed tariff for treatment provided – is said to be creating affordability problems and making hospital income more unpredictable. Since hospitals under PFI hold all risks for future demand changes, hospital trusts may become more circumspect in committing to large long-term strategic investment in the future under a PFI model (Barlow & Koberle-Gaiser, 2009).

Lessons learned

One of the lessons that can be learned from the NHS's PFI scheme for hospitals is that capital costs are ultimately higher compared to the situation that the NHS had borrowed the money and built and operated the hospitals itself. Hospital buildings under the UK PFI scheme appear to be less innovative and less flexible. To adapt real estate for more efficient healthcare delivery is extremely difficult, due to the conflict of interests between the hospital organization (which benefits from higher efficiency in delivering clinical services) and the PFI-consortium, which has to finance alterations in real estate and bears the risk of these new investments).

4. FINANCING AND PLANNING OF GERMAN HOSPITAL REAL ESTATE

Healthcare system in Germany

The German health system operates as a form of public private partnership (PPP). The state supplies the legal framework, public institutions contribute to financing, and private partners provide the healthcare (figure 3).

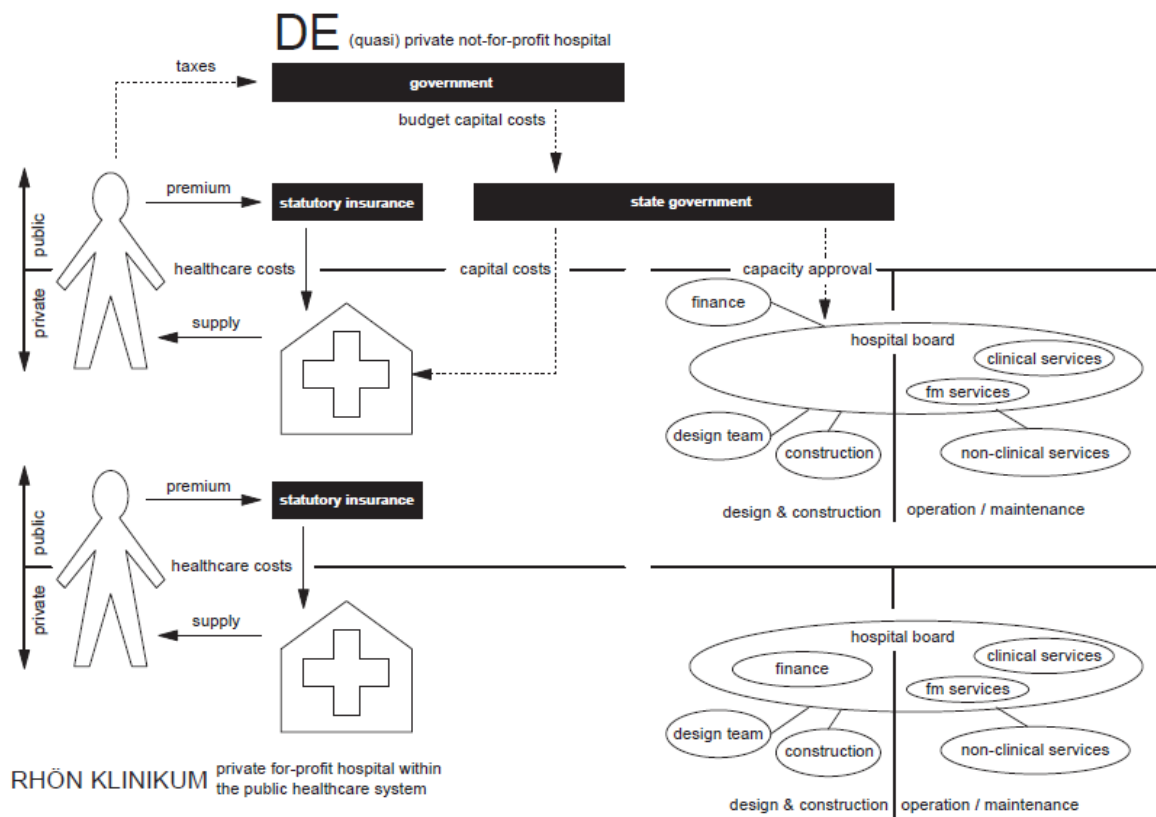


Figure 3: Position of real estate in the German healthcare system (above), and the position of the Rhön Klinikum Group in this system as a private for profit healthcare provider (below)

The costs of individual healthcare are met by the statutory insurance fund. Under Germany's Federal system, states have the responsibility for supplying hospital services and for developing guidelines for the structure of regional healthcare. The funding of capital investment for hospitals comes from the states, in line with the regional Krankenhaus plan (hospital plan). Any request for capital investment has to undergo a thorough and fairly lengthy approval process, which includes submission of evidence on patient need, development of a detailed functional and architectural plan, and consideration of the project on the urban fabric of the region. If approved, capital financing is released in staged payments (Eskrine et al., 2006). Any hospital, whether publicly owned or private for-profit or not-for-profit, can apply for public funds from the state in which it is situated. Hospitals are allowed to borrow funds directly from the private sector, but this way of funding is subject to approval by the state government. Decisions are made on basis of healthcare need ('Krankenhaus plan') and whether the cost of private funding is less expensive than using public funds (Thompson & McKee, 2004).

Figure 3 shows the German healthcare system and the position of real estate in this system. The German system is similar to the former Dutch system (figure 2 above) in the sense that a private not-for-profit hospital organization is responsible for healthcare delivery but real estate investments are paid for by separate revenue, based on approval of the investment in advance. The German system differs from the Dutch system with regard to the financing of real estate: real estate investments are not financed by insurance premiums, but by taxes paid to the central government.

Private investment in Germany

Under the German healthcare delivery system private for-profit hospitals can operate as well. Rhön Klinikum is an example of this. The Rhön Klinikum Group is a private for-profit hospital group, listed on the stock-market that operates under German healthcare legislation. Its position within the German healthcare system is illustrated in figure 3. Healthcare costs are paid by statutory insurance companies, but Rhön Klinikum does not primarily make use of the separate revenue for real estate investments, which makes them independent from the government with regard to decision-making on real estate investment.

In its annual report of 2007, the Rhön Klinikum Group identifies itself as a leading private hospital service provider committed to the highest standards of patient-oriented care by combining the very best quality of service with good value for everyone at all times (Pfähler, 2008). Achieving this aim requires a long-term approach to all of its activities, rather than a short-term approach. Initial investment on acquisitions as a prerequisite for establishing the quality of acquired facilities are generally written off over at least ten years and have to be supported by sustained and reliable operator concepts oriented to the needs of patients.

The long-term investment strategy is based on the acquisition of inefficient hospitals fitting within the overall location criteria of the Rhön Klinikum Group; there should be a Rhön Klinikum hospital within a one-hour drive from all points in the country. In 2007, the national public hospital construction program was cut back but in the same year Rhön Klinikum invested €260 million (\$370 million) (including €180 million (\$256 million) of its own funds) on construction projects to redesign hospitals taken-over in 2004.

Decisions about real estate investments are made at the highest level within the organization. The Investment Committee is the largest committee in the organization and is chaired by the chairman of the Supervisory Board who is also the biggest shareholder. The Investment Committee is responsible for discussing and agreeing the overall strategy of the Board of Management concerning the development of the company into which the specific investment project and financing measures have to fit. At each meeting, the Board of Management routinely submits an acquisition report, which, along with an overview of the national health market, also serves as a basis of discussion on planned and ongoing acquisitions. Past acquisitions are reviewed and restructuring is assessed as part of re-calculation (Pfähler, 2008).

What appears particularly effective is the combination of favorable physical conditions and adequate organizational measures. At the Rhön-Klinikum, the remuneration of all staff on the payroll includes a substantial performance-related component. Great emphasis is placed on efficient patient logistics, with a subdivision in four levels of care: intensive care, intermediate care, normal care and low care. This ensures that medical staffing levels are properly geared to the demand for care, but the consequence is that patients are moved to another level of care if their health condition changes. According to the Chairman of the Board of Directors, this hospital has achieved above-average productivity by combining intelligent layout (reduced

walking distances by clustering the departments around a central patient hall; all facilities available in the departments themselves), efficient patient logistics, an appropriate business culture, and 25% fewer staff required for support functions.

The level of capital investment of the Rhön-Klinikum Group is nearly three times higher than in traditional German Hospitals. Despite this high level of capital investment, Rhön-Klinikum is able to make profit, by combining three important principles: (1) integrated capital and revenue profiling; (2) work process systematization; and (3) a compact and adaptable building concept.

Lessons learned

An important lesson to be learnt from this strategy is the benefit of a good fit between the building and the primary process. Much attention is paid to functional relationships with short distances between related functions, in order to reduce nursing costs. As a result, Rhön-Klinikum has abolished nursing departments according to medical disciplines (Bjorberg & Verweij, 2009).

The advantage of an integral responsibility for both real estate investment and the delivery of clinical services is another important lesson to be learned from the Rhön-Klinikum Group. Real estate is used as a resource for production. The real estate strategy is part of the organization's growth strategy. Investments proposals and alterations in real estate are decisions made at the highest level of the organization. Investments have to be profitable within a period of 10 years. Innovation and alterations that benefit a more efficient delivery of clinical services are implemented throughout the company. As a consequence, the Rhön Klinikum Group can increase their profit by delivering healthcare at lower cost in comparison to public hospitals in Germany.

5. COMPARISSON OF THE THREE HEALTHCARE SYSTEMS

Table 1 summarizes some main characteristics of supply, costs and finance of healthcare delivery and real estate in the Netherlands, UK and Germany. The table makes the different responsibilities transparent of public (black) and private (white) organizations in these systems.

Table 1: Different responsibilities of public and private sector in three healthcare systems

	policy maker business perspective quality / profit	user process perspective useability	controller financial perspective costs / finance / profit	real estate manager future perspective flexibility / risk
	innovation in real estate to improve overall corporate performance	alteration real estate to improve primary process	cost control and possibility to make a profit	flexibility and risk management of real estate portfolio
NL < 2008	governmental approval on capacity, square metres and costs can impede innovation	large alterations have to be approved by the government, are paid by insurance companies to benefit the hospital performance	profit payment to shareholders is forbidden	government bears the risk on real estate investments and capacity, flexibility can benefit the hospital performance
NL 2008 >	hospitalboard can decide for higher capital investment to improve overall corporate performance	hospitalboard can decide and implement real estate alterations to improve primary process	profit payment to shareholders is forbidden, but maybe possible in the future	hospitalboard bears the risk of real estate investments, flexibility can benefit the hospital performance
UK	risk reduction of PFI consortium impede innovations	NHS Trust would benefit but the PFI Consortium has to approve and implement the alteration in real estate	PFI consortium is allowed to pay a profit of the real estate investment to the shareholders	PFI consortium bears risk of real estate investments, PFI consortium is not eager to invest in flexibility
DE	governmental approval on capacity and costs can impede innovation	large alterations have to be approved and paid by the government to benefit the hospital performance	no profit payment to shareholders	state government bears risk of real estate investments, flexibility can benefit the hospital performance
DE - Rhön	innovations that improve corporate performance are implemented throughout the company	real estate alterations that reduce human resources are implemented throughout the company	quoted on the stock exchange, profit of overall corporate performance is paid to shareholders and employees	hospitalboard bears the risk of real estate investments, flexibility can benefit the hospital performance

Some first conclusions come up:

- The three health care systems show large differences between public and private responsibilities.
- Only the new Dutch system is making the private sector responsible for the capacity planning of healthcare; the government just remains a role as market superintendent. Leaving the capacity planning to the private sector bears the risk of a mismatch between supply and demand and bankruptcy of hospitals due to bad planning and poor competition with other hospitals.
- Only in the UK healthcare cost regulation and capacity planning is steered by one - public - organization (NHS), whereas healthcare supply (public NHS Trust) and real estate supply (private PFI consortium) are delivered by two different organizations. Separate responsibilities of healthcare supply and real estate supply bears the risk of contradicting interests, e.g. between trying to reduce real estate investment costs and running costs versus optimizing the building in order to improve facilitating the primary process and to reduce costs of human resources.

- Approval of the brief, design or investment and running costs by a public organization may lead to time-consuming procedures with regard to real estate decisions and may hinder innovations. Critical comments on this issue were quite common in the old Dutch system and in the German system for private-not-for-profit hospitals. On the other hand, leaving ex ante quality control to the market might lead to problems with regard to usability, health and safety.
- The risk of being forced to borrow money from private banks to be able to invest in health care real estate can be that banks don't want to finance health care real estate because of its particular function and limited future value to other functions, or that banks make high demands with regard to interest and guarantee to be paid back. In the old Dutch system the government guaranteed that the money was paid back in time.

This risk of a distant bank became even more obvious in the credit-crisis since summer 2008. In the Dutch situation where payment to shareholders is forbidden this crisis led to fewer investments in healthcare real estate. But at the same time the Rhön Klinikum group raised €430 million for new investments by a share-transmission. It seems to be clear that in the new Dutch system searching for business partners who want to invest to gain a profit will be more common and parties that are willing to finance healthcare real estate will become more important in real estate decision making.

Another way to compare the three health care systems is to look at the perspectives of different stakeholders and the effects on real estate decision-making (table 2). In the literature of Corporate Real Estate Management (CREM) four primary stakeholders are being distinguished (Jonge et al, 2008): (1) policy makers, with a business perspective and a focus on long term strategies, and steering on a balance between quality and costs, profit and optimal overall performance of the organization; (2) users (staff, patients, visitors), with a process perspective and a focus on usability i.e. effectiveness, efficiency and satisfaction; (3) controllers, with a financial perspective and a focus on integrated costs, finance and the ability to make a profit; (4) real estate managers, with a future perspective and a focus on flexibility and risk of real estate.

In table 2 the business perspective is connected to how innovations in real estate can be used to improve overall corporate performance; the process perspective deals with the alteration of real estate to improve the primary process; cost control of real estate investments and the ability to make a profit can be seen as the financial perspective of real estate decision-making and; risk management of the real estate portfolio and the role of flexibility is the future perspective of the real estate manager.

Table 2: Responsibilities of different stakeholders in three different healthcare systems.

	HEALTHCARE			REAL ESTATE			
	costs	capacity	supply	supply	investment	finance	capital costs
NL < 2008	private insurance companies	governmental approval on capacity	private not-for-profit initiatives are the driving force behind healthcare supply	governmental approval on square metres and cost regulation	private banks with governmental guarantee, favorable rates	private insurance companies pay separate sum for capital costs	
NL 2008 >	private insurance companies, real estate costs integrated	private not-for-profit initiatives are the driving force behind healthcare supply, hospitals decide about investment and healthcare capacity			relationship with banks will change from lender to business partner	no separate sum for capital costs, integrated with healthcare costs	
UK	public, raised by taxes, free at point of delivery; capacity planning by NHS	public NHS Trusts are responsible supply of clinical services	Private Finance Initiative (PFI) consortium, Design-Build-Finance-Maintenance-Operate the hospital facility for a minimum period of 25 years		lease paid by public NHS Trust to PFI consortium		
DE	public by insurance funds	governmental approval on capacity by Krankenhausplan	semi private not-for-profit and private for profit hospitals		governmental approval by state government; public financing by state government or approval is needed for private sector loan; capital costs are paid by state government		
DE - Rhön			private for profit hospital quoted on stock exchange, hospital decide about investments in real estate, financing by shareholders.			no separate sum for capital costs, integrated with healthcare costs	

public	private
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Based on Table 2 and the descriptions of the healthcare systems in connection to private investments in real estate again some conclusions come up about the effects of the healthcare system on real estate decision-making on the scale of the healthcare organizations.

- Innovation is stimulated if the responsibility for innovation is in the hands of the same organization that will gain the benefits of innovation. If the hospital board can decide on innovation without approval of another party, then innovations that are profitable are implemented quicker.
- Real estate interventions that benefit the primary process will be implemented easier when hospitals gain the benefits of that alteration and can decide more autonomously without approval of another organization.

- Profit payment to shareholders as a result of improved overall performance of a hospital may be a driver to improve the efficiency of healthcare delivery; this stimulates to investing in real estate in order to reduce costs of other resources such as human resources.
- Separation of profit payment to shareholders due to return on investment in real estate and due to benefits from health care delivery might raise a conflict between the interests of the investors in real estate (reducing risks and costs of real estate) and investors in healthcare delivery services that benefit from cost reduction in the primary process.
- Hospitals can benefit from flexible real estate that can be adapted to new requirements. If another organization bears the risk of the required real estate investment then reducing investment costs may become more important than flexibility.

A general conclusion is that deregulation and less involvement of the government evoke both opportunities and risks. Hospitals may benefit from the involvement of private investors by making use of their expertise and finance capacities, which may lead to innovation and improved solvability. At the same time, separate responsibilities with regard to the production of clinical services and real estate value creation may hinder design innovation and adaptation to business processes. Transferring real estate decisions to private investors decreases the influence of the healthcare organization on future costs and quality. PFI projects in the UK showed that PFI charges were higher than expected in a number of cases, and also the total costs over a 30-year lifetime were higher than when the NHS had borrowed the money and build and operate the hospital itself. The final impact on cost and quality on the long run is rather ambivalent.

6. CONCLUDING REMARKS AND FURTHER RESEARCH

Since the introduction of the regulated market system in the Netherlands, several private investors have entered the Dutch healthcare system. The present paper showed a number of implications of the changing system in the Netherlands and two other health care systems on costs and finance (controller) of healthcare real estate, flexibility and risk (facility manager/real estate manager), strategic decisions on cost, quality and innovations (policy maker) and supporting the primary process (users). It also discussed the possible effects of different responsibilities with respect to health care supply and health care real estate and alternative financing options on health care facilities (design, build, management, lifespan, and

effectiveness). As such it informs the present debate in the Netherlands and many other countries which are also considering changes to capital financing in healthcare real estate, such as the Scandinavian countries, Australia, New Zealand and the United States.

Limitations of the present research

The research findings are discussed on a general level and not yet in relation to patient outcomes or clinical services. Decisions made by different stakeholders in different phases of the design-construction-operate-maintenance-cycle have not yet been fully analyzed. Actual financial comparators were not available and so far real estate investment and performance indicators could not be compared in order to get a proportionate understanding of the investments and savings of the three healthcare systems. An alternative model for researching this topic would be a meta-analysis of the national developments in different countries.

Follow-up

Further research is needed to be able to develop a conceptual framework of different types of private/public partnership in investing in hospital real estate in different phases of its life cycle (initiative, design, build, use and management) and tools to support decision making in real estate strategies. The perspectives of different stakeholders in healthcare real estate decision-making are being studied in an ongoing research into *Better hospitals for lower costs* in the research group Corporate Real Estate Management (CREM) at the Faculty of Architecture of the University of Technology Delft. The present findings will be used as input to in-depth case studies of private investment in hospitals on meso and micro level (network organisations, particular hospital organizations, units) and its impact on quality and costs, profitability and competitive advantage.

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