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A Form Full of Function: The Aesthetic of Efficiency and the Planning of German Outpatient Treatment Centers

Abstract | **Article**

A number of clichés are associated with Germany. However, an aesthetic of efficiency—namely one that combines function and high technology in a sleek design—is not only an aspect incorporated in the work of German companies such as BMW but is also an idea our healthcare planning firm is using in its development of German outpatient treatment centers.

This article gives a brief introduction to the German healthcare system and describes in some detail the reforms in outpatient care that are forcing hospitals and independent physician practices to work together to develop outpatient facilities. In a short case study, we show how our design team went beyond the usual role of the healthcare architect and played a crucial role as project champions in the realization of the project. The article concludes by showing that the trends in German healthcare point to a general convergence in the delivery of healthcare in western industrialized nations and that healthcare architects need to place their services and view their roles in the larger project context.

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When Americans consider Germany, some general associations probably come to mind. Architects may think of the Bauhaus style they learned about during their university days. Many Americans will probably think of the three B's: Bavaria, beer, and bratwurst. Those who think back to the first Clinton term, when healthcare reform was a priority, may remember that for a brief period the Clinton administration looked at the German system but ended up being out spun by opponents who heaped the German system onto the pile of "socialized medicine"—shorthand for a system with long waiting lists and second-rate care that is somehow also anti-capitalist.

What many people do not realize, however, is that Germany is the world's third-largest economy¹ and second-leading exporter of goods.² If one is going to use clichés about Germany, more accurate ones about the German economy might be found in companies such as BMW, Siemens, and Adidas. These companies offer products based on an efficient aesthetic in which function, high technology, and sleek design all play an important role.

Though perhaps at first difficult to believe, this marriage of high technology, function, and aesthetic can also be found in recent German healthcare developments. Recent legislative changes in Germany are strongly encouraging the development of outpatient treatment centers both on and off medical campuses throughout the country. This paper presents a description of these centers and, with the use of a case study, shows how the efficient aesthetic is playing a role in the changing German healthcare system.

General Overview of German Healthcare

The German healthcare system, like all other modern healthcare systems, is a complex mix of both state and national regulations, labyrinthine reimbursements systems, large institutions, and a highly educated workforce. Due to limited space, the following is merely a rough depiction of the essential elements:

- ***SGB V. The cornerstones of the German healthcare system have been legislated and can be found in a collection of laws called the "Sozialgesetzbuch V" (SGB V). This work is the fifth chapter of the national law concerning the social security system, of which***

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healthcare is a part. The SGB V sets the service spectrum of social insurers and lays out the relationship between the insurers, hospitals, physicians, and such organizations as the national- and state-level hospital associations.

- **Financing. The system has two financial sources, one for funding the day-to-day operations of healthcare and the other for funding capital investments.**

o Day-to-day operations. This part of the system is financed by premium payments made to state health insurance agencies. These state insurance agencies are in some ways comparable to Medicare fiscal intermediaries that make payments and provide controls for the Medicare system. Premiums are split by the employer and the employee and consist of about 13 percent of an employee's gross salary (meaning the employer and the employee each pay about 6.5 percent). If employees' salaries go above a certain threshold, they can opt out of the public system and choose to obtain private insurance. People who are unemployed or receive public assistance receive the same healthcare insurance as all other members of the public system. Under this system, Germany has about 95 percent insurance coverage, with 86 percent of the population in the public system and the remaining 9 percent having private insurance.³

o Capital investments. The construction of new buildings or the purchase of large equipment (typical architecturally significant equipment) has been traditionally financed by the state governments in the form of grants. To receive such grants, the hospital has to be a part of that state's hospital plan—a plan that a state ministry of health updates every three to five years and that describes the hospitals and the number and type of beds a region needs. In some ways, it can be considered a more stringent form of certificate of need. This aspect of the healthcare system is changing the most significantly, as the section on recent reforms in the German system will show.

- **Physicians. German hospitals employ their own doctors, who provide inpatient care. The head of a hospital department can provide outpatient care as well, and many of these doctors have a private practice within the hospital, as well as private patient beds, that runs parallel to hospital operations.**

Most areas in Germany also have an expansive network of independent general practitioners and specialists who work outside the hospital in much the same way most doctors and specialists work in America. The primary difference is that once a patient from one of these physicians is admitted to a hospital, the hospital physician then takes over as the patient's primary caregiver. This system has led, therefore, to a strict division of roles in which hospitals and their employee physicians provide inpatient care and independent practitioners provide outpatient care.

- **Public and nonprofit hospitals and for-profit hospitals. Up**

Access and Beyond

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HOSPITALity: Surgery Center Design for People, Not Procedures

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until about 15 years ago, there were no significant for-profit hospitals in Germany. To this day, public and nonprofits dominate the market when seen from a national perspective (54 percent and 37 percent of all occupied beds, respectively). However, when viewed at a state level, one sees that, especially in the formerly communist East Germany, for-profit hospitals—and one hospital chain in particular—play a significant role in the delivery of healthcare (up to 20 percent of occupied beds).⁴

- *Hospital reimbursement. This function is perhaps the most difficult part of the system for Americans to understand. Hospitals are paid according to a global budget. This budget is computed at the beginning of each year and is based on the hospital's previous performance and on targets set by the hospital and the insurers in that region. At the beginning of each year, then, the hospital knows, within a given range, how many patients it needs to treat that year, and the insurers know how much money they are to pay to each hospital. This money is not given to the hospital at the beginning of the year but instead is reimbursed against the invoices that the hospital sends regularly to the insurers for patient care.*

German Healthcare Reform

Even in this relatively short overview, one can see some areas in which the German system could be improved in order to operate more efficiently. The German government has been in a constant state of slow reform over the past 15 years. However, changes that have occurred in the past five years have begun to accelerate. This last round of changes can be briefly summarized as follows:

- *Diagnosis-related groups (DRGs). Germany began the process of introducing DRGs in 2002 and the national government has legislated that the transition to this system lasts until 2009. In the first phase, the DRG will merely be a different way of distributing the global budgets described above. However, as the system develops, insurers and hospitals will have an opportunity to compare inpatient costs and services with each other. Budgets will therefore be based much more on how hospitals operate in a region rather than on individual hospitals. With this new information, hospitals will compete with each other in order to remain in the hospital plan, as almost all experts agree that Germany has excess inpatient capacity (about 60 beds per 10,000, in contrast to the U.S., with 30 per 10,000).⁵*
- *Integrating inpatient and outpatient care. German policymakers have realized that the division between inpatient and outpatient care that currently exists in the system is inefficient. It is difficult to coordinate pre- and postoperative care between the hospital physicians and the independent practitioners. The tendency to duplicate diagnostic procedures is too high. So in 2004, the government introduced a series of initiatives that encourages hospitals and independent doctors to work together. More important, any capital improvements that may be necessary for this cooperative effort must be*

privately financed, as opposed to the grant system in place for hospitals, so a hospital wishing to build an outpatient treatment center must do so out of its own pocket.

The main idea behind the legislation is a program called "Integrated Care" (Integrierte Versorgung), which allows hospitals to work with other healthcare providers to deliver a package of care for certain diagnoses, covering service from preadmission care to the end of any postacute treatment. The price for this care is not covered by a DRG but instead is negotiated separately with the health insurance organizations (similar to a managed-care carve-out).

Hospital-Based Outpatient Centers

Stand-alone medical office buildings have existed in Germany for years, as have smaller specialty clinics. The difference today is that hospitals have a real interest in being involved in the development process. Under the Integrated Care program, a hospital can work with other healthcare providers to build a network of care. For many hospitals, the construction of an outpatient center with area doctors is seen as an opportunity to gain advantage in the DRG-based system. Hospital decision makers believe that by bringing area physicians into a building on campus, they will gain more inpatient referrals, as patients will see the hospital campus as a more convenient way to access healthcare. An interdisciplinary center offers a one-stop shop, so patients do not have to travel throughout the area, from specialist to specialist.

Outpatient centers also offer an additional income source for hospitals. This income can take a number of forms. First, the hospital earns income from participation in the Integrated Care program. Second, depending on the organizational form, the hospital can earn rental income from physicians and other renters, such as a pharmacy, if it owns the building. If the hospital decides to work with the physicians as a partner in a company, the hospital receives a share of the center's profits, as these centers will also provide all forms of outpatient treatment and not merely those services required for a specific integrated-care program.

German outpatient centers are relatively straightforward. Although the idea just entered the marketplace in 2004, our company, top consult köln, has had the opportunity to work on a number of centers from the very beginning. We are seeing the centers being docked onto hospitals instead of being developed as stand-alone centers. This direct connection with the hospital requires the client (the hospital itself or a joint venture between the hospital and the participating physicians) to sit with the health-planning team to determine how this connection can be optimized to bring the most value to the organization. The challenge for the healthcare architect is integrating the two structures in a way that complements the business strategy of the organizations (i.e., both the hospital and the outpatient center). In our work to this point, we have found a number of criteria that inform our design process:

- *The outpatient center is more than a collection of physician offices. Even if one of the main sources of*

income for the hospital is to be rent from the doctors, a strategy must be developed for the organization to make the most of recent legislative changes.

- *The physician mix must be correct. Obviously, the doctors who work in the outpatient center need to complement one another instead of competing with one another. Two kinds of outpatient centers will do well in Germany: the general medical center and the specialized center:*

o The general medical center comprises a general practitioner, a gastroenterologist, an orthopedist, an obstetrician/gynecologist, a pediatrician, and—if the number of patients supports it—an otolaryngologist (ENT), an ophthalmologist, and a dentist. In the case of a center that is connected to a hospital, ambulatory surgical space and procedure rooms are also added.

o The specialized medical center is organized around the treatment of a specific disease complex. A good example would be a diabetes treatment center. In this case, the medical services would include a specialist in diabetes, a nephrologist, a vascular surgeon, and a dietician. In the case of dialysis, most places exist already in hospitals and so sharing the space with the partner hospital makes sense.⁶

- *Nonphysician tenants need to match the center's goals. Most centers will include a pharmacy and a medical-goods store in their building. Other options could include a physical therapy center or a holistic medicine practitioner (in Germany, holistic medicine is nearly as well established as conventional medicine).*
- *The center must be designed to ensure high patient throughput. Especially if the center is to offer outpatient surgery, it must be designed to ensure there are no bottlenecks that could lead to significant downtime in the theaters.*
- *The center needs a single information system that can interface with the hospital system. If patient care is to work effectively and efficiently across specialties and organizations, the providers must have access to a single patient record.*
- *The center needs to convey a sense of having the most modern medicine available. As in most of Europe, patients are gaining more and more choice in the physicians they see and the hospitals they visit. The building needs an aesthetic that shows that high-quality medicine occurs in the building and it needs an attractive ambience. This atmosphere is also important for the people who work in the building. Obviously, the doctors want to show with the building that they are serious about medicine, and employees want to work in a pleasing atmosphere.*

The Forchheim Healthcare Center

Perhaps the best way to discuss the design process is through a case study of a medical care center designed by our firm last year, the Forchheim Healthcare Center (FHC). The state government of Bavaria had recently approved the development of a hospital for the area; during the

development phase, hospital management saw the trends developing in outpatient care and decided to add on an outpatient center. Obviously, it would have been cleaner to integrate the outpatient center into the initial design, but as most healthcare architects know, real life is messy. Much of our work consists of developing ideas as a response to new technologies or changed strategic directives.

The first step in developing the outpatient center was to work with the hospital to determine the degree of interest that area doctors had in the concept. Doctors in the former West Germany have a long tradition of working as single providers in their own offices, and as in the U.S., independent practitioners and specialists are among the top income earners in German society. Many doctors have long-term rental agreements with their buildings' owners, and the cost of exiting these contracts can be significant. In addition, moving a physician's office requires quite a bit of time and effort, and the physicians do not want to lose much time during the move when they could be earning income. So convincing doctors to be part of an outpatient center is not always easy.⁷

The German government is trying to convince doctors by making the reimbursement for care in these centers more attractive and at the same time limiting payments to independent physicians. So despite resistance, the system is changing and doctors in certain areas must now decide whether they will be able to compete with a hospital-based outpatient center.

A further factor working against the development of the center was that although the hospital was in talks with a number of investors, no final investor had been found. The doctors, on the other hand, wanted to be sure that if they committed to the center, it was going to be built. We found ourselves in a classic Catch-22 situation: Investors were reluctant to invest if the doctors would not commit, and the doctors would not commit without a guarantee that the building would be finished by a certain time.

Our team worked with a consultant group to help analyze the financial numbers, but we knew that although the numbers may convince the investors, the city council and the potential doctor tenants would need something visual.

In our experience, about 70 percent to 80 percent of the members of the decision-making bodies we encounter cannot interpret architectural drawings. We needed to ask ourselves, then, how we could activate the plan. After doing some initial groundwork with the business consultants and having some one-on-one meetings with members of the city council, it became clear that an animated visualization of the building was needed. Not only was this medium needed, but so too was a specific manner in which we carried it out.

Good Performance

Our architects had to become project champions. Our presentation not only had to look professional, but it

also needed to convey our own confidence in the success of the project. We needed to put on a good performance. Our strategy was to develop a form of groupthink in which those decision makers who were not certain would follow the cues of decision makers who were.

It is sometimes difficult as architects to convince ourselves that we need to package or market our ideas to get them implemented. We will always hold to the Platonic ideal that the client should be convinced by the idea itself. However, every architect also has the anecdote in his or her repertoire in which the bad idea with the better show was chosen over a good solution that was poorly presented. Ideally, one has to present the best idea within an entertaining medium. We, therefore, chose to use 3-D animation software to render our plans and perspective drawings into a virtual fly-around of the building. Although the building did not yet exist, we found that the virtual tour made the option more real to the decision makers and helped us to gain their feedback and to push the project forward.



Main entrance, Forchheim Health Center
(Credit: top consult köln)

The hospital invited the physician community to a symposium at which we presented our computer-animated 3-D model. The development of this model was difficult, of course, because it was uncertain which doctors would join the center.

Another Definition of Performance

A good performance is nothing if the team has not developed an implementable, profitable concept (that is, if the team has not performed). Of course, the language of function and design in German healthcare architecture is heavily influenced by laws, guidelines, and regulations. The convergence of these regulations requires discipline and years of experience in the planning of healthcare facilities.

Too often, a healthcare architect will see during the planning process how the appearance and aesthetic of a building is reduced by healthcare authorities and consultants schooled in financial-ratio analysis. Especially in the case of outpatient centers, in which the appearance and atmosphere of the building will be a deciding competitive factor, the architect must seek to balance these needs, understanding that, for example, circulation and general areas must be held to a certain ratio if the building is to be an attractive investment.

In the case of the Forchheim Healthcare Center, hospital management chose the general medical center option. This option is the quickest to implement, as the disease-specific center requires also the development of treatment pathways among providers and other organizational aspects.

The overall task was to develop an outpatient surgery center to be rented to area physicians. The building was to be docked onto a hospital that was currently being constructed. The center had to be able to access the hospital's operating suites and imaging department quickly. We worked with the client to develop a two-phased build, which had two advantages. The first advantage was that it took some of the pressure off the hospital in signing up doctors. The second was that the financiers were able to spread the risk across the phases. The risk for the hospital was that the second phase may never get built, so it was important to the design that the first phase could stand on its own, both functionally and aesthetically. A number of footprints were tried before the client settled on two quadratric cubes, each with an inner courtyard and set askew to the stairway that they share in the entry hall. Linking the two modules together is a large steel and glass atrium.



Site layout of center and hospital
(Credit: top consult köln)



Perspective West Phase 1 Building
(Credit: top consult köln)

Instead of the traditional mantra of "form follows function," an aesthetic of efficiency requires a "form full of function." With a combined gross construction area of 7,605 square meters (about 81,374 square feet), the two buildings were designed so

that the corridors and functional rooms gain the full benefit from the natural light from the inner courtyards. The natural light not only contributes to a positive atmosphere, but also helps to save energy costs by reducing the amount of artificial light needed. Rooms were kept as multifunctional as possible to deal with the uncertainty surrounding which specialists were going to be the first tenants. The exact positioning of the building was determined by the need for short connections between the ground floor and the hospital imaging department and the second floor and the connection with the central sterile supplies department (CSSD) and operating suites. The efficient connection to the CSSD allows the center to use the expected excess capacity of this unit for its outpatient surgical service.



Bird's-eye perspective
(Credit: top consult köln)

The functional divisions of the building are as follows:

Ground floor

- ***Phase 1: Reception foyer, pharmacy, cafeteria, physical therapy***
- ***Phase 2: Hearing-aid consultant/audiologist, podiatrist, optician, dialysis center***

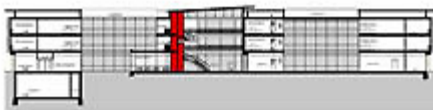
First floor

- ***Phase 1: OB/Gyn, pediatrician, outpatient surgery, urology***
- ***Phase 2: Internal medicine, ophthalmology, rheumatology, dermatology***

Second floor

- ***Phase 1: Otolaryngologist (ENT), dentist, neurology, psychiatry, psychology***
- ***Phase 2: Cardiology, pneumology, gastroenterology, orthopedics***

The center's basement contains the building's technical plant and is connected with the hospital's basement, which also contains the technical plant. This level also houses the supply stores for the physicians and pharmacy.



Cross-section of Forchheim Healthcare Center
(Credit: top consult köln)

The roofs of the buildings have been structurally engineered to accommodate the addition of a doctor's penthouse, should that prove attractive to any of the area physicians.

Lessons Learned

The Forchheim Healthcare Center is well on its way to becoming a success story. Our team worked with other project champions so convincingly that the city itself is stepping in as the primary project investor.

We believe that our experience in Germany can provide insights to healthcare architects internationally. It shows that healthcare in western industrialized nations is converging. The Forchheim Healthcare Center is a relatively straightforward medical office building. The most important aspect of this project for our team is that this project is a "raumgewordene businessplan." A literal translation of this term is almost impossible, but it means our team was able to embody the business of the organization in the building itself. We did this by combining high technology and function in a lean design—in short by working with an aesthetic of efficiency.

Endnotes

¹ Based on comparisons of gross domestic product, Source:

OECD, Main Economic Indicators, April 2005, p. 259.

² *OECD Economic Outlook 76 database,*
www.oecd.org/dataoecd/5/46/2483884.xls.

³ *Verband der privaten Krankenversicherung e.V. 2003 Die private Krankenversicherung 2002/2003 (Private Health Insurance 2002/2003). Bayenthalgürtel 26 50968 Köln.*

⁴ *Based on authors' analysis of statistics provided by Gesundheitsberichtserstattung des Bundes ("Healthcare Reporting of the German Government"),* www.gbe-bund.de/pls/gbe/isgbe.prc_isgbe?p_uid=&p_aid=&p_sprache=d.

⁵ *Based on calculations using the following sources: Health, United States, 2003, Chartbook on Trends in the Health of Americans, table 106 Center for Disease Control,* www.cdc.gov/nchs/products/pubs/pubd/hus/trendtables.htm ; *United States Census Data from* www.census.gov/poptest/archives/national/nation2/intfile2-1.txt.

⁶ *Rohpeter, S. Almeling, Dr. M, "Ein Medizinisches Versorgungszentrum macht auch in der Kleinstadt Sinn," F&W, führen und wirtschaften im Krankenhaus, Nr.2 March/April 2005, pp. 146-151.*

⁷ *Our experience has shown that in the former East Germany, doctors are much more enthusiastic about joining an outpatient center with a hospital. We believe this is so because the outpatient center is similar to the polyclinic concept that was a common form in the communist healthcare system and also because doctors in this part of the country still do not earn as much as their western counterparts (primarily because there are virtually no privately insured patients).*

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