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Internet revolution and new economy

e-Real Estate

The Real Estate Sector in the Internet Age

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Summary

The Internet Age has now also dawned in the real estate industry. Key to the spread of electronic commerce is internet penetration. The number of links will surge in Germany from roughly 11 million (1999) to more than 20 million in 2003. Despite its positive infrastructure, Germany therefore still lags well behind the United States.

Companies generate the bulk of their internet sales in the B2B (business-to-business) sector. In B2C (business-to-consumer) business greater use is already being made of the WorldWideWeb as a source of information for home-seekers. This applies even more so to commercial properties as a result of widespread use of the internet at the workplace. Indirectly, the real estate market should be buoyed by the positive effects of an acceleration in overall economic growth through information and communications technology (ICT).

The internet is revolutionising business processes throughout the real estate and construction industry. It is creating possibilities for cutting process costs at companies, creating greater market transparency, speed and customer service. Settlement process networking is still marginal, but for commercial property, too, the integration of back-office processes into sales-oriented internet platforms is set to become more important in future.

Property exchanges depend on listing as many properties as possible; it is only through their high transaction frequency that the marketplace is "liquid" at all. Since there is a limit to the number of properties available, in the long run only a restricted number of big suppliers will achieve the critical mass enabling them to absorb the high marketing costs and survive in the market. The internet offers realtors new possibilities by visualising the property and its surroundings and enabling prospective buyers to make "virtual tours of inspection".

Legal constraints and product individuality impose restrictions on the web-based sale of real estate finance. Doubts also exist on the business viability of the "virtual internet finance broker" business model. We therefore expect to see web-based construction financing being integrated into a multi-channel strategy combining personal consultancy and virtual transaction initiation. Face-to-face consultancy will still be important. Already, the internet is squeezing construction financing margins.

The construction industry and project developers will also take greater recourse to internet applications in future, such as procurement, project management and bidding platforms. But bottlenecks result from system interruptions between the internet and paper-based processes.

The real estate sector has potential for Application Service Provider (ASP) models, because the know-how and development – including hardware and software administration – is hosted by the provider and clients can use the applications specific to their real estate business as they require them. These can consist of project management software or software for the financial and technical analysis of real estate inventories or for facility management.

In the medium to long term online commerce is likely to have a significant impact on retail space. So far, e-commerce turnover in the relevant B2C sector is expanding from a very low level (approx. EUR 1 bn in 1999). Although the clientele and hence the range of products available through the internet have widened considerably, most internet users are still treating the medium mainly as a source of information. In the long range, about a tenth of German turnover is expected to be

Internet penetration in Germany rising to more than 20 million

Cost-cutting potential for companies and higher market transparency

Internet construction financing as part of a multi-channel strategy

Procurement, project management and bidding platforms on the rise

B2C turnover reaching EUR 100 bn by 2010

transacted online. With growth remaining only moderate in the German retail sector as a whole, B2C turnover should have topped the EUR 100 bn level by 2010.

Some sectors of the stationary retail trade, which are important customers on the retail property market, will lose appreciable turnover to e-commerce in the medium to long term. This could have negative repercussions on demand for properties for retail use. Shops in 1 b locations and in smaller towns will probably be hit hardest. But attractive downtown locations and shopping centres, as venues for "fun shopping", will be less susceptible. Under no circumstances do we expect the internet to replace retail shops entirely; it should be perceived instead as an enhancement to traditional outlets.

The development in e-commerce is already giving the logistics sector a lift. Logistics services form an essential part of e-commerce transactions and are crucial to their success. It is the transport function which guarantees the success of web-based business processes. In the course of this, logistics firms are facing a widening range of assignments. Besides such conventional activities as delivery and warehousing, the e-logistics expert will take on other business processes, such as tracking and tracing dispatches, taking receipt of orders or settling financial transactions.

Strong growth in the logistics sector is pushing up demand for spacious logistics centres. Whereas in the past most logistics properties were constructed as own investments, rapid expansion is now calling for other financing concepts such as properties for rent or leasing. Besides excellent transport connections, proximity to production plants or commercial facilities is another vital factor for logistics properties. Also important are good EDP systems for warehousing and distribution processes.

In future, teleworking should have a significant impact on demand for office space. In terms of the total number of employed persons, Germany ranks somewhere in the middle by international standards, at 6%. The proportion of teleworkers employed entirely or partly at home and therefore of relevance to demand for office space is projected to edge up from around 1.5% in 1999 to upwards of 4% by 2005. We have calculated that these approximately one million extra homeworkers will lead to savings of roughly 5% in the stock of space in Germany, which the market could absorb with no difficulty.

As telework spreads, locational decisions are becoming less important. Very few jobs require a presence in prime inner-city locations. In the longer term this should tend to upgrade peripheral residential locations, smaller centres and, indeed, rural areas with a higher quality of life.

The New Economy is influencing the office property on offer. Companies growing dynamically – not only in the IT sector – make high demands of flexible office use, preferring properties giving them room for expansion and with shorter leases. Pivotal is access to state-of-the-art data networks. Alongside the technical infrastructure, the service component is also gaining in importance (e.g. IT maintenance, facility management). As a result, office property life cycles are becoming ever shorter. In the light of this, business centres which can be rented for flexible periods look set to establish themselves as a new office form.

Stationary retail trade will lose appreciable turnover to e-commerce

Logistics sector a big winner in e-commerce

Expanding demand for logistics centres

Marked growth in the importance of telework ...

... drooping demand for office space

Ever shorter office property life cycles

1. Internet economy on the advance

The world in which we live and work is coming under the increasing sway of information and communications technology (ICT). The internet in particular is emerging more and more as the motor of fundamental structural economic change. Its uses range from internet shopping for private households to reorganisation of the entire value chain in and between companies (supply chain management). Already, the internet has radically altered relations within and between companies and households. As the technology is further refined – in terms of the speed of data transmission, system stability, security and easy handling, for instance – this trend is set to continue.

Strong growth in internet penetration

Crucial to the spread of e-commerce is internet penetration. In 2000 Germany is estimated to have had 13.5 million internet links (+24%). User figures are considerably higher. The number of online customers will continue to surge in the years ahead. Although already-strong penetration means that growth rates will not match those of the past, with an anticipated average spurt in internet hook-ups of 16% p.a. the 20 million mark would be passed in 2003.

On an international comparison the United States still leads the field – in terms of the incidence of PCs, online access, internet use and as regards per capita spending on ICT in general. The proportion of internet subscribers in the total population has reached almost 30% stateside, compared with not even one-seventh in Germany. Within Europe, too, Germany occupies only a middle position, behind Scandinavia and Switzerland. But western Europe has begun to catch up, and the process will be reflected in higher growth rates than in the US. However, it will presumably be years before Germany has attained America's present level of equipment with PCs.

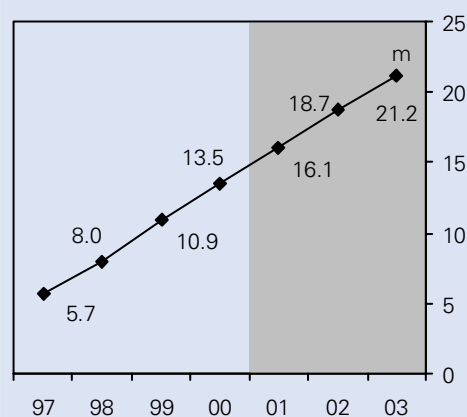
Positive infrastructure scenario in Germany

But at least Germany need not fear international comparison in terms of its network infrastructure. The telecommunications networks are already fully digitalised. ISDN lines guarantee swift transmission of large quantities of data, and the fibre-optic network is well developed. This shows that comparatively low use of the internet so far is at least not due to inadequacies in the infrastructure.

Essentially, it is high telecommunications costs that are causing Germany to lag behind. It is true that in the wake of deregulation prices for telephone services have fallen by about one-fifth in all since 1996. But the cost of local calls is important for internet use, and these have even nudged up a tick. Throughout the EU, dialling into the local network is still far more expensive than in the US. The EU Commission's call for full liberalisation down to the "last mile" should bring an improvement here. Still comparatively high access and user charges are also expected to be downscaled, as signalled by recent new flat rate offers enabling frequent users to surf the net at a fixed monthly charge without time and cost pressures.

The online range has already widened considerably in Germany. Initially products such as computers and software, books and CDs were to the fore, but meanwhile companies from a wide variety of branches are to be found in the World Wide Web. They are spearheaded by internet banking, which is increasingly enhancing conventional branch banking with around 10 million online accounts. Given the complexity of real estate products, the internet has made a comparatively late appearance in this sector.

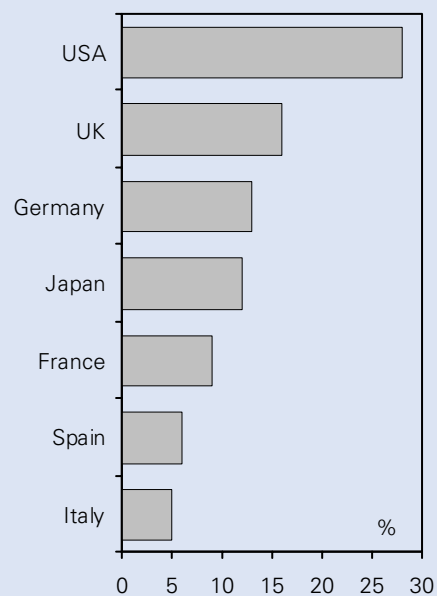
Internet penetration in Germany



Source: EITO

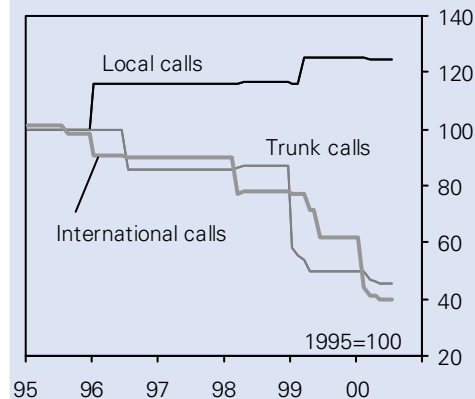
Internet/online subscribers

Proportion of the population in 1999



Sources: BITKOM, EITO

Telephone rates in the German fixed network



Source: Federal Statistical Office

Age structure of online users versus real estate customers

As younger people, for whom use of the new media is natural, grow up, so the number of potential online customers is mounting. But more and more older people are also becoming interested in the internet, to which they are introduced by their children or jobs. Nonetheless, the age structure of internet users in Germany still shows a strong preponderance of younger people.

More than half of 30 year-olds already use the internet. This proportion declines steadily among older sections of the population. On average, German homeowners are in their late thirties. In the age group of 30 to 40 year-olds, an important one for the real estate industry, the internet has a penetration rate of not quite 40%. But in the course of time more people with experience of the worldwide web should grow into this category. Younger people, chiefly in search of rented accommodation, are already making greater use of the internet as a source of information when seeking new properties. The same applies to customers interested in commercial property, because use of the medium is more widespread at their workplace anyway. An estimated half of online connections is for business use.

E-commerce: B2B, B2C and m-commerce

Most online turnover is generated between companies in the B2B (business-to-business) market. In contrast, sales of products and services to private end-users (business-to-consumer, B2C) account for only just over one-tenth of total e-commerce. In the public domain at least, there is less awareness of the more important B2B market, since transactions there frequently take place on websites with registered user access only. But this is where the huge corporate cost-savings potential lies – also for companies in the real estate sector.

Still very insignificant is m-commerce, i.e. electronic commerce with internet access through mobile telephones. At present offers are confined to providing information, e.g. timetable and telephone inquiries or financial market data. Although the areas of application are generally more limited than with PC (and in future digital television) access, in the medium run technically more sophisticated m-commerce could also emerge as an interesting enhancement to e-commerce for real estate customers.

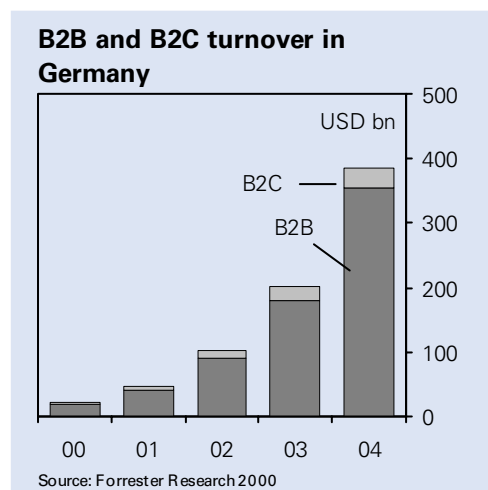
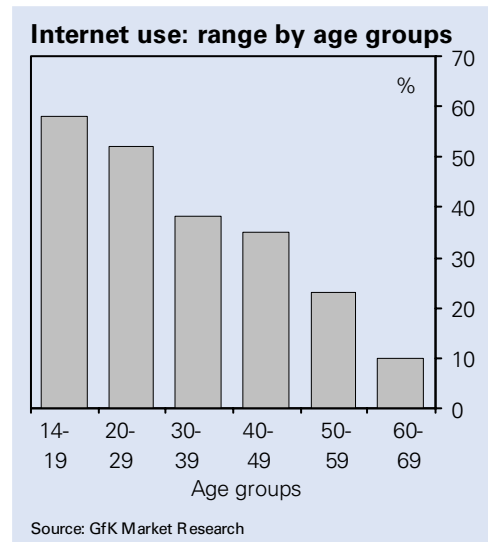
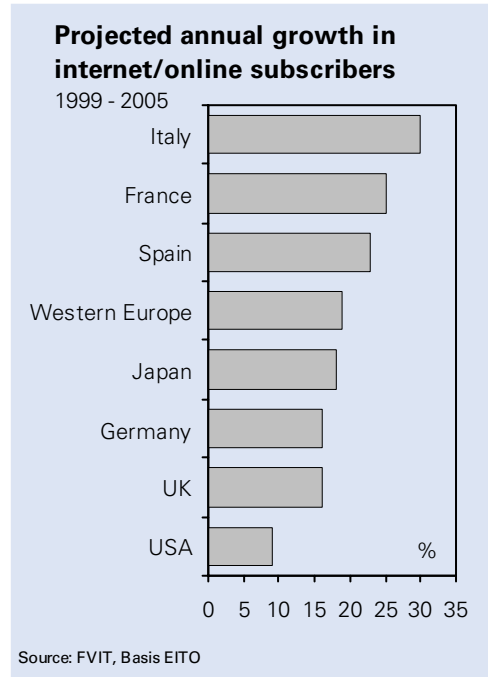
2. Repercussions on real estate transactions

New business models for the real estate sector

A traditional feature of real estate business is the lack of transparent information. Consequently market players possessing specific know-how – in a certain regional property market, for instance, or with regard to certain types of property – enjoy a competitive lead. The internet is opening up new avenues for heightened information transparency and the organisation of market relationships. This is calling into question the established business processes in the real estate sector as a whole. The process revolution touches on both the organisation of brokerage and the initiation and settlement of financing as well as further segments of real estate business.

Initiation and settlement of real estate transactions

The number of property exchange-platforms bringing together suppliers of real estate and their prospective customers – launched on the German market in latter years runs into double digits. Most of these “marketplaces” specialise in private customers, while a considerably



lower number offer commercial property. In addition, a burgeoning number of real estate brokers have begun building up their own websites to showcase properties on offer. Both distribution channels are frequently used in complement rather than as substitutes for one another.

These overarching property exchanges and broker-specific websites consequently serve mainly as marketing instruments and less to handle actual purchase transactions. As a rule, integration of the settlement process is confined to “structured contact forms” with which the prospective buyer or tenant can get in touch with the supplier by e-mail. There is normally a standardised description of the properties for sale or rent, but not always pictures. With the aid of search functions users can enter their wishes according to various criteria, such as region, part of town, purchase price or rent, number of rooms etc. Supplementary information – for instance property market reports, legal tips as well as regional maps – is an added benefit for visitors to these websites. The big realtor associations have set up their own platforms, some with restricted user groups. Pre-configured software designed to help brokers easily install their own internet platform for property offers is already available in the market. Meanwhile the big software houses can also provide solutions for the creation of extensive online marketplaces. All customers need do is adapt details of these pre-configured real estate exchanges, and after a comparatively brief fine-tuning period they can initiate business through this web-based platform under their own brand names.

The internet has specific advantages for property marketing, provided these are properly exploited by suppliers. Ongoing maintenance means that offers are up-to-the-minute. What is more, the internet works with images. Access to the supply platform is possible round the clock, and customers can initially remain anonymous.

As yet unclear is the extent to which the properties placed on offer in internet property exchanges are subject to a process of “negative quality selection”. Brokers could, for example, concentrate on entering slow-moving properties, given that high-quality real estate can be sold by traditional methods anyway. But this problem should become irrelevant in the medium term, once the internet has finally gained acceptance as a distribution channel in its own right.

A specific feature of German property exchanges, particularly in comparison to the United States, is that the precise location of the property is often not disclosed. The regulatory framework governing brokerage and the structure of the German commission system make many realtors still reluctant to divulge the exact address of the property. To a certain extent this restricts the information provided.

Consolidation ahead for real estate exchanges

We already expect to see a process of consolidation among German online property exchanges in the next few years. Many providers will either drop out of the market entirely or be taken over by more powerful competitors.

- The marketing costs involved in setting up property exchanges on the Internet are extremely high. Consequently, only a small proportion of providers will succeed in establishing business models that also turn in a profit. Probably only the biggest providers will successfully capture sustained attention by buyers as brand names in the long run. Those who have already built up a label of which customers are aware and which they associate with quality in conventional real estate brokerage will clearly have the edge here.

Large number of supply platforms for private property

Internet mainly as a marketing instrument

Pre-configured software available for brokers and property marketplaces

Only inferior property in the internet?

Not all providers are going concerns

- Already, real estate exchanges are competing for an adequate number of property offers. In many cases the range of properties available on the internet platforms is not sufficiently broad, deep or up-to-date, disappointing a lot of first-time visitors. A property exchange constitutes a liquid marketplace only if it has a large number of properties on offer (industry professionals quote critical mass at up to 100,000 properties). Customers take a negative view of out-of-date or regionally very confined offers. It is, moreover, doubtful whether the number of properties some suppliers claim to be holding on offer are in fact available on their platforms.
- Consequently, the strategic advantages enjoyed by established media groups, who possess access to the property exchanges' content through classified ads in their high-circulation, regional and supraregional dailies, are not to be denied. Here, too, both avenues can be meaningfully combined. It is not therefore surprising that individual media groups are already active in the "property exchange business" through shareholdings or partnerships.

The advance of new technical capabilities on these online property platforms will depend on the development in communications bandwidth and how quickly the technologies spread in private households. For example, a very specific picture of a property and its surroundings can be communicated through the visualisation of entire houses and building complexes, which prospective buyers can also "tour virtually" to view the interiors. Technology has already reached a stage at which configuring interior decoration onscreen for individual rooms presents no problem. Initially we expect greater use to be made of these expanded possibilities for big commercial properties and standardised residential property. At present the (still) considerable cost of programming graphics-intensive visualisation software is worthwhile only for large areas or units in large quantities. We perceive considerable potential for visualisation systems, particularly for marketing big commercial properties, because they enable prospective tenants or buyers to make a thorough inspection even before the cornerstone is laid. Indeed, in the long run these technologies should enable property construction and marketing in parallel, with the result that the future client can have a greater say in the design – interior walls, for example – while construction is still underway.

But in future, too, personal consultancy will still be very important. As a rule, the purchase of his own home is the biggest investment of a buyer's life. Because of the emotional component involved, face-to-face talks will always play a large part in shaping the purchase decision. And on the commercial property market clients automatically expect personal advice and viewing. However, online offers could help with initial structuring of the properties under consideration.

Platforms for commercial property on the advance

Internet platforms are also set to play an important role in the commercial property market. Three of the world's biggest commercial property agents have announced a joint venture to operate a commercial property portal under the working name "Pathway", which will also aim to set standards for commercial properties in the internet. Development costs for the first two years have been budgeted at around EUR 30 m. High capital input and greater difficulty with the standardisation of data flows are two main features of web-based commercial property exchanges. In the longer term we therefore expect to see a far lower number of suppliers than in the case of real estate exchanges for

Real estate exchanges suffering from shortage of properties

Media groups play important strategic content role

Future for three-dimensional property visualisation

Visualisation backs up simultaneous construction and marketing

Personal consultancy will remain important

Commercial property exchanges feature complex processes

privately-used property. Market models, such as PropertyFirst.com, have been launched in the United States attempting to establish real estate exchanges for the commercial property segment.

The internet enables a cross-selling approach combining complementary offers on one platform. It is not therefore surprising to find property exchanges enhancing their offers with financing facilities or insurances. But in many cases these are still offered through separate online platforms.

3. Real estate finance at the crossroads

Real estate finance is increasingly being offered through the internet, so far primarily for private housing. To begin with, all-purpose banks and mortgage banks, building societies and other financial services providers started placing offers onto the internet. Then, in a second phase, overarching providers began marketing offers by more than one building finance provider, acting as "virtual finance arrangers" (lending marketplaces, aggregators or brokers). As a rule these kind of platforms feature input masks into which clients enter their personal particulars, property and loan information and are then shown the "most favourable" provider from the list of companies cooperating with that specific platform.

Normally clients can input their loan request, including personal details and specifications of the property, into an "internet form" and will then receive a reply from the provider or a provisional undertaking. The market for building finance in Germany is highly fragmented, being shared among a large number of competitors – all-purpose (so-called "universal") banks, mortgage banks, building societies, savings banks and insurance companies. Internet offers have therefore further intensified price competition.

As a rule only standardised building finance up to 60% or 80% of the collateral value of the property is offered online. Complex projects, such as financing multi-family dwellings as tax-advantaged and yield-focused investments, or indeed commercial property, are generally still handled exclusively through branch-based distribution outlets. In these cases the internet serves merely as a starting point to establish contact between clients and advisers. Typically the platforms also contain calculation tools enabling customers to make an independent preliminary calculation of their real estate finance.

Outlook for real estate finance business

For legal reasons the entire real estate financing transaction cannot yet be handled through the internet. In many cases regulatory requirements stipulate personal inspection of the property. The contracts still have to be drawn up in written form, signed by the provider and customer and forwarded by letter post. Additional difficulties could ensue from implementation of the EU Distance Selling Directive for financial services and from consumer protection legislation. For example, the rights of cancellation granted to consumers make pricing more difficult for providers of finance, particularly since mortgage banks fund their lendings at matching maturities.

Experience with the market thus far already casts doubt on whether online real estate finance brokerage is a viable business model at all. The prominent US provider "MORTGAGE.COM" set up in 1994 and employing a payroll of 600 was obliged to suspend new closures in the autumn of 2000, placing a question mark over the profitability of singular web-based real estate finance distribution. We are of the

Virtual supplier-linked loan brokerage

Internet increasing pressure on building finance margins

Online distribution of standardised building finance basically possible

Settlement process for construction financing not yet entirely online

Doubtful profitability of virtual loan brokers

opinion that financial services suppliers will as a rule integrate online selling into a multi-channel distribution strategy – if, indeed, they have not already done so. This strategy will involve their offering building finance in parallel in the internet, through their branch networks and via call centres. Customers will use the distribution outlet of their personal preference and will also be able to switch between distribution channels. Providers can vary their terms, creating pricing incentives for standardised building finance which is easier to initiate through the internet.

Advantages of the internet for loan processing

But in the long term the real evolution in real estate finance business will take place, not in distribution, but in the organisational change in the banks' back-office processes (loan processing and management). Digital files and full integration of the dataflow could create an integrated process chain in which the data and building finance are input only once and then processed largely in "paperless" form by EDP systems. The potential back-office process cost savings are high, and much of this has yet to be exploited. These savings could also come into play in commercial property finance, where the extremely varied nature of the individual business transactions makes settlement processes far more complex than for private construction finance. "Factory-like" organisation of loan processing may bring significant administrative cost savings. Through the targeted management of customer portfolio data and cross-connection to customer services (Customer Relationship Management) existing customers can be bonded to specific providers, for instance to achieve high prolongation rates.

According to a study by FORIT, the volume of building loans to private customers in Germany which have been initiated through the internet is expected to reach just under EUR 250 m in 2000. But for 2004 the total is projected at almost EUR 18 bn, which would represent 15 percent of the sum of all private building loans. We see enormous complications with market forecasts on real estate finance. In many cases it is not clear whether the new business involved really has been handled mainly online or whether it refers to closures in which the internet serves merely to set up the first encounter with the customer. If, for example, a customer first sends an e-mail but subsequent counselling takes place in a branch, that no more constitutes genuine "online construction finance" than a customer's opening telephone call would turn the transaction into "over-the-phone building finance".

4. Integrating real estate business processes

Besides acting merely as a distribution channel for real estate business, in the long run internet technology will also help make work processes more efficient and network tasks more closely in the real estate sector. On the US, European and German markets, providers are already coordinating and handling work processes for construction projects online with the aid of new software tools. These include tender platforms in the internet, collaboration tools for project management organisation and purchasing platforms.

Tender platforms define standardised web-based forms and processes for putting sub-contracts for a construction project out to tender. Project management collaboration tools give all the parties involved in a construction project (e.g. architects, craftsmen and construction firms) decentralised yet joint access, through internet browsers, to databases in which constantly updated information on the construction project, such as building plans and the current state of execution, is held

The future lies with multi-channel distribution

Process cost savings through internet

Market volumes of online building finance difficult to forecast

E-commerce also more important in construction and project management

available. Purchasing platforms bundle demand and supply for construction work, craftsmen’s services and building materials by functioning as virtual marketplaces.

The prime objective in converting previously paper-based work processes into web-based systems is to cut transaction and process costs in the construction and real estate industry. It remains to be seen whether the complexity of tasking organisation so far can be transposed onto IT-based platforms without interruptions to the system. We expect higher corporate penetration by these internet applications to be achieved only if “quasi” market standards can be enforced for the web-based organisation of part-functions in the real estate sector, such as project management, buying and portfolio management. For individual companies, adjusting their own processes to the capabilities and limits of IT systems is comparatively complicated, since in many cases the way in which they organise their own work must be altered, while at the same time interfaces have to be set up to in-house IT systems. Users are therefore primarily interested in subscribing to platforms as “standard” applications, which hold out the prospect of high long-term continuity in work processes. But where available, integrated system solutions create interesting application potential, since all the data – such as financial and technical information on the property portfolio, construction progress with development projects, analyses on rental levels at fund properties, benchmarking data – can be retrieved at any time through decentralised internet access.

Chances for ASP models

Application Service Provider (ASP) models also look set to gain in importance for the real estate sector. The term refers to new software and hardware solutions with which customers no longer purchase their own software and hardware for implementation in their organisation. Instead, ASPs provide subscribers with software tools through the internet, i.e. the software and hardware is the property of the provider. Clients use only the modules and applications they really require at that moment, while providers are responsible for administration and further development of the tools. In the same way as telecommunications companies provide telephone services without users having to own and operate the telephone exchanges and networks, so ASPs host software tools against payment.

The real estate sector could use tools such as project management software and software for financial and technical analysis of property inventories or for facility management. The advantages of ASP solutions are obvious, as programming and administration expenditure is spread among more than one customer. With this IT cost sharing method, the EDP costs per customer are lower than if they had implemented the systems in their own companies. Since ASP entails very extensive outsourcing of a company’s operative EDP functions, an extremely high degree of reliability and efficiency is called for on the part of the ASP provider. The years ahead will show whether ASP systems meet with wider acceptance in the internet economy in general and the real estate sector in particular.

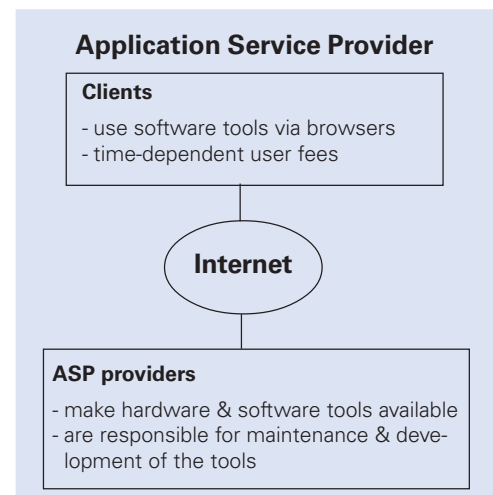
5. Implications for various types of property

5.1. Significant impact on retail property

In the medium to long term e-commerce through the internet is expected to have appreciable repercussions on the stationary retail trade. Germany, with a highly sophisticated network infrastructure by international standards, is well positioned for this new business channel.

Purchasing platforms bundle supply and demand

Still many system interruptions in workflows between internet front-end and back office



Economic benefits argue in favour of ASPs ...

... but broad acceptance still uncertain

Positive environment in Germany

But so far online turnover in the relevant B2C segment is growing from a very low level. Last year a mere 0.5% of all nominal turnover in the classical retail trade (excluding automobiles, fuels and pharmacies) is believed to have been generated through the internet; that is an estimated approx. EUR 2 bn. Even in the United States, which is far ahead in terms of e-commerce, the proportion of electronically induced retail turnover was still below 1%.

Online shopping on the advance

The central German retail association HDE expects roughly one-tenth of German sales to take place online in ten years' time. But this is a conservative estimate tending to define the lower limit of possible trends. With overall growth in the German retail sector remaining moderate, turnover in B2C e-commerce should have topped the EUR 100 bn mark by 2010. The clientele, and hence the product range in the internet, have already broadened appreciably. Two years ago computers and software were still to the fore, in demand chiefly by technology enthusiasts. Several trends signal strong growth in e-commerce. For one, experience in the US shows mounting average sales per user and, second, the majority of turnover there stems from new customers. The number of potential online customers is rising as younger generations grow up. In Germany, however, regular use of e-commerce is scant so far relative to the country's high internet penetration. Most internet surfers use the medium – at least so far – only to obtain information before purchasing through conventional stationary retail trade outlets or ordering by telephone.

Most internet surfers use the internet only to obtain information

Problems less important

We do not share fears that technical problems will check the spread of e-commerce. Security concerns, such as misgivings about data misuse and credit card fraud, are preventing fewer and fewer internet surfers from shopping in the WorldWideWeb. For one thing, online customers can pay by conventional means (cash on delivery, delivery on account) and for another, newly developed safety standards with special encoding techniques are significantly reducing the risks of electronic payment. Capacity constraints frequently overload the network, resulting in very long waiting times in some cases. But work is in intense progress on faster transmission paths, improved software and higher storage capacity the world over, so that these problems too should soon be a thing of the past.

New safety standards reducing risk

One advantage of online shopping for working people in particular is that restrictive shop closing hours no longer make a difference. Consumers, especially in remote regions and with restricted mobility, may increasingly come to appreciate travel-free shopping. Supplementary shopping aids such as electronic search agents and the interactive nature of the medium, help find the most economical and suitable offer for the individual shopper. Already there are agents that automatically compare online offers by price or customised criteria. And in future the complete automation of many shopping procedures is conceivable. Suppliers' agents come together with agents for customers and close deals through auction processes, for instance. The internet is making purchase prices and terms far more transparent, turning up the pressure on prices as a result.

But not all products are equally suitable for online sale. Digital or digitalisable goods can easily be distributed through the internet (e.g. computer software, electronic texts, airline tickets). Basically, this outlet is suitable for products with readily comparable prices, whose quality

the buyer does not necessarily need to examine physically, such as books or music CDs. E-commerce with products which customers who prefer “fun shopping and impulsive buying” wish to examine at first hand will be less suitable. Complex goods will not be traded so frequently online, although the internet can at least exercise important search functions, bringing together sellers and buyers looking for the out-of-the-ordinary in particular.

Traditional shopping has the edge

The internet is hardly likely to oust conventional shops selling food, drinks and goods for everyday use. But it does offer local traders the possibility of enhancing their range of services. Working people or elderly consumers might be interested in ordering goods online and having them delivered free of charge. Both distribution channels are therefore poised to exist side by side in future.

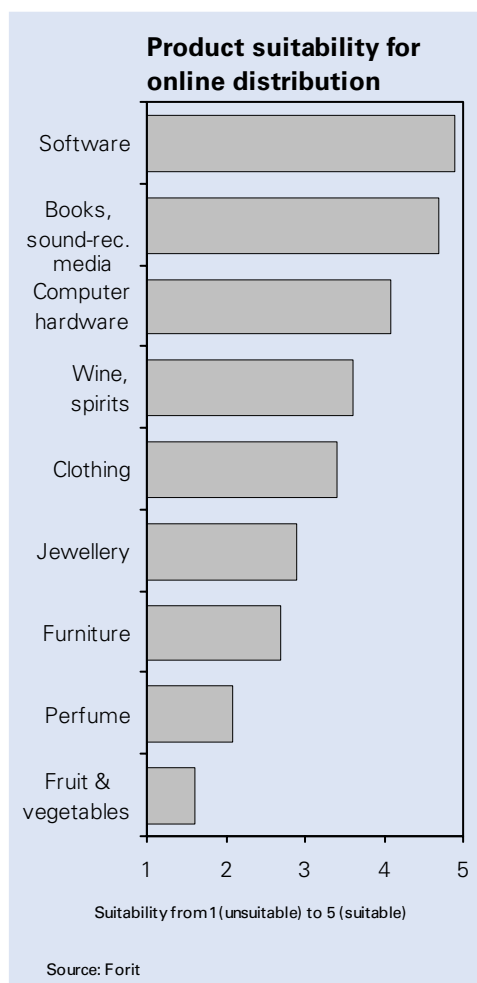
Parts of the stationary retail trade, and hence important customers for the retail property market, will have to cope with appreciable losses of turnover to e-commerce in the medium to long term. This could have negative repercussions on demand for retail property. The situation is expected to differ by location, operating form and retail segment. Hardest hit will probably be shops in 1b locations and smaller towns, while attractive city-centre locations and shopping centres – for which customers in search of “shopping-for-fun” head – are less vulnerable. Conventional shopping has advantages that the internet cannot offer, enabling consumers to experience and test their purchases physically.

In individual segments facing exceptional growth in internet sales (e.g. bookshops and music stores or travel agents) the number of shops could slip sharply in the longer run. But for all the optimism over the prospects for e-commerce, in the foreseeable future most consumers will still prefer shopping as a leisure activity to trawling information on their PC at home. The complete substitution of retail shops by the internet is not therefore likely; instead, e-commerce should be seen as an enhancement to previous distribution channels.

5.2. E-commerce encouraging growth of logistics properties

The logistics sector is already being spurred by the development of online commerce. Since the mid-1990s the headlong expansion of the internet has been placing business procedures on a new – technological – basis. Through e-commerce, existing processes are being segmented into their individual parts or entirely new processes emerging. Ordering, payment and delivery take place at different times and places. Logistics services are consequently an essential part of e-commerce transactions and crucial to their success. Transport is the guarantee of success for an electronically based business process.

The internet makes it easy for a company to network with its environment. Through the integration of suppliers and customers e-commerce applications enable holistic management of the value chain across companies – from ordering through production to delivery to the end-user. Instead of simply handling transportation from one place to another, on the one hand e-logistics companies take over the strictly distribution services which inventory management and delivery entail. Added to their traditional duties are further business processes such as dealing with goods returned, repeated delivery attempts and tracking and tracing dispatches. On the other hand, e-logistics providers also offer additional features such as taking receipt of orders, for instance through call centres, or financial transactions.



Logistics already being spurred

	1980/90	1991/99	2000/10
Road transport	4.2	3.9	3.0
Railway	-0.3	-1.1	1.3
Inland shipping	0.6	1.6	1.0
Total goods traffic	2.0	2.3	2.4

^{*)} Transport volume, billion tkm

Sources: DIW, ifo Institute, own estimates

Deutsche Bank Research

All in all, the logistics sector is not only being buoyed by the development in e-commerce alone. Its strong growth continues to be fuelled by the progressive globalisation of business and the sustained corporate trend towards outsourcing.

Fragmentation of goods flows

Internet shopping is revolutionising goods flows and their distribution channels. Whereas, for example, goods used to be delivered to department stores in batches, online orders require individual delivery to the end user. This is driving up the number of individual consignments and delivery addresses dramatically. To minimise costs, e-logistics providers have to organise fragmented goods flows (small lots). At the same time, the internet is making distance less important to purchasers. Offers are global and prices can be compared conveniently from their desks. Consignment handling represents extra derivative business for logistics firms. The biggest e-winners are the segments contract logistics, that is suppliers of full service packages, and courier, express and parcel services.

Customers have great expectations of the internet's speed and economy, demanding delivery within 24 or 48 hours. But the carriage of small lots is comparatively expensive. Nonetheless, the product must not cost more than through another distribution channel. This means that the transport must be covered out of the product's contribution margin. Demands of speed and flexibility and the shift from accumulated transports to small lots call for generally higher expenditure – which must not, however, be allowed to push up product costs. This tension between added costs and more service poses an enormous challenge for e-logistics. Only companies offering optimum solutions are likely to survive in the long term. Even in the United States, many internet companies have not yet managed to solve the problem, as their negative earnings show.

Increasing demand for logistics centres

Current growth in the logistics sector is pushing up demand for spacious logistics centres as distribution hubs in many countries. E-commerce should continue to drive this trend in the coming years. Whereas in the past most logistics properties were constructed as own investments, rapid expansion is now calling for other financing concepts. Particularly when building up their businesses, providers of logistics services are not able to raise the generally high investment costs. Consequently attention is increasingly focusing on rented or leased properties. Investors are setting greater store by properties that can also be put to other uses.

The location is crucial to logistics properties or goods transport centres – like other types of property too. They require excellent feeder connections to different lines of communication, such as motorways, railways, airports or inland ports. A further asset is proximity to production plants or commercial facilities. In addition to the choice of location, good data processing systems are also key to warehousing and distribution processes.

5.3 Implications for the office property market

Telework has spread noticeably in recent years and is likely to affect demand for office space significantly in future. In its broader definition it encompasses any activity carried out with the aid of ICT technology wholly or partly at a place of work outside the central business premises.

Courier, express and parcel services feeling the benefit

Tension between extra expense and more service

Attention focusing on rented or leased property

Good EDP systems decisive

It breaks down into various distinct categories. Teleworking at home is spreading mainly in alternating form. 4:1 or 3:2 systems seem most sensible, with employees spending three or four days a week as teleworkers and one or two days at a desk in the company. This is of immediate relevance to office space, because it enables companies to reduce the number of workplaces. Alternating telework realises the key advantages of the system (personal time management, productivity gains and cost savings) while in the main avoiding disadvantages such as partial social isolation and lack of control. We see freelance teleworkers – many of whom already work at home some or all of the time – having less impact on the market for office property. Nor does mobile telework generally bring any savings in office space; it is nothing more than a modern form of fieldwork. Occasional teleworkers spending an average of less than one day a week at home do not initially result in falling per capita office space either. But many such supplementary teleworkers who have already gained experience with the new way of working, can be expected to switch to regular telework in future. All four kinds of telework are roughly equally prevalent in Germany at present.

Definition of telework is crucial

According to the internationally comparative study ECATT (Electronic Commerce and Telework Trends), in 1999 Germany took the lead in Europe with an absolute total of just over two million teleworkers, slightly ahead of the United Kingdom and the Netherlands. But consideration of the proportion relative to the total workforce is more revealing. With a share of 6% Germany holds only a middle position, behind Scandinavia, the Netherlands and the UK (see p. 15). More meaningful for analysis of the repercussions on the office property market is a narrow definition encompassing only (payroll) teleworkers operating from home all the time or on an alternating basis. In the next five years their share of the total workforce is expected to treble from roughly 1.5% in 1999 to upwards of 4%. That would represent an absolute increase of approx. one million.

So far no discernible drop in per capita office space has taken place as a result of the increase in telework. In purely arithmetical terms we calculate that one million extra teleworkers by 2005 will lead to savings of around 5% in the stock of space in Germany, on the simplified assumption that employment, the office employment ratio and per capita office space in companies remain constant. But by the end of this decade that effect should be more than twice as great. This presupposes that in most cases two teleworkers share one office desk, so that only part of the office space will be eliminated.

Limited impact of demand for office space

The market would have no difficulty absorbing a negative impact on demand for office space of this dimension, particularly since we anticipate perceptible growth in the number of office workers in the years ahead due to the generally positive trend on the German labour market and ongoing structural change.

A more severe check could ensue from a general downshift in per capita office space as companies seek to cut costs. In the long run Germany will very probably downsize to appreciably lower international standards. A reduction from just an average of approx. 24 m² to 22 m² would make a much deeper dent in the consumption of space.

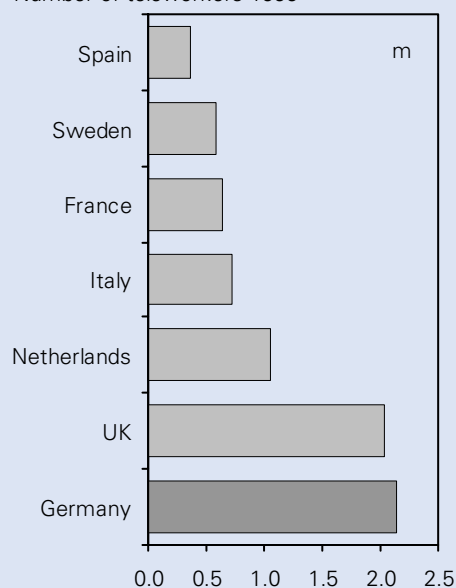
Teleworkers in Germany 1999

At home	540,000
Self-employed in SOHO (small office/home office)	540,000
Mobile	520,000
Supplementary	570,000
Total*)	2,130,000

*) adjusted for double counts
Source: ECATT - empirica

Telework

Number of teleworkers 1999



Source: ECATT - empirica

Savings of office space

Regional business implications

All in all, the faster and more economical the transmission of information as a key resource, the less important location decisions and distances will become for many companies. Within agglomerations this holds true when deciding between downtown and peripheral locations. Basically, a large proportion of office workplaces do not require a presence in prime inner-city locations. Face-to-face contacts are indispensable only for the upper echelons at head office and for a number of representative functions. Here, preference will still clearly be given to downtown locations. But this hardly applies to back offices, which take up by far the greater majority of office space.

A relative upgrading of smaller centres and rural areas vis-à-vis agglomerations is also conceivable. When alternating telework means only one or two trips a week to the office, the average commuting distance can be longer. Travelling times of well over an hour are then tolerated. But experience shows that most teleworkers tend to live in the region where they work or in neighbouring areas.

Impetus for the housing market

Because teleworkers need more room, living space looks set to rise in the medium term. When planning a home, allowance should therefore be made for the space needed and the technical teleworking environment. Less time spent in the company could also lead to a shift in locational preferences for residential property. Affordable owner-occupied homes on the edge of town, where property prices are lower, and in more distant regions with a high leisure value will probably become more attractive. Telework should therefore intensify the trend in many conurbations to living in the surrounding areas.

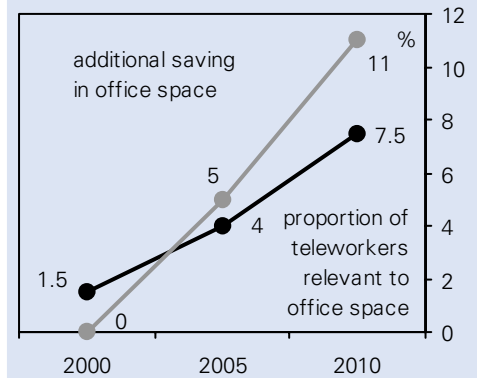
Telework gives qualified labour in structurally weak regions a chance and checks its migration. And it offers companies the possibility of exploiting different regional wage structures. This is particularly interesting where constraints exist on the labour market – an aspect of even global dimension, as illustrated by the flourishing development of software in India. Planning for future property needs must take this into account.

Robust demand for office space in the ICT sector

Telecommunications, software and internet companies are among the motors of economic upswing. Various agglomerations, such as Munich, are emerging as centres of the New Economy in Germany. A classic example of sectoral agglomeration is the US computer industry in Silicon Valley. The powerful momentum of these cutting-edge industries has positive repercussions on regional economic growth, the respective labour market and hence the local property market, leading to change in the structure of demand for space. In 1999 the ICT sector was already an important taker of office space in all major western German cities. In Munich and Düsseldorf it was even the leading branch of industry.

The New Economy is having a clear impact on the supply of office property and the content of lease agreements. Dynamically expanding companies make high demands in terms of the flexibility of office use. Given surging payroll numbers, they are reluctant to tie themselves too long to properties offering no room for expansion. One upshot is a tendency to shorter lease periods. Another is strong interest in properties with the possibility of leasing additional space at a later date, thus avoiding costly removals. But the costs of holding space available in this manner are not insubstantial.

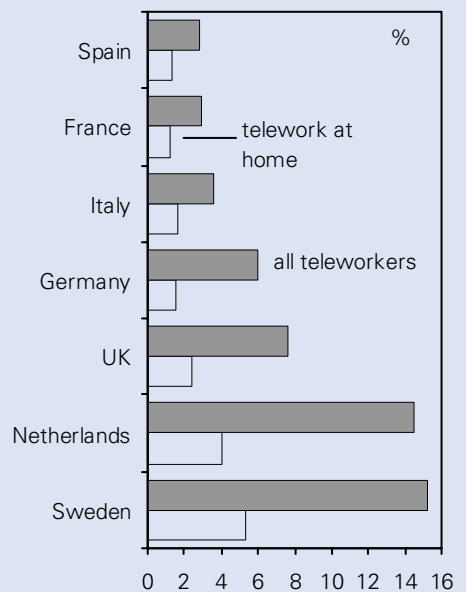
Office space saved through telework



Source: own calculation

Telework

Proportion of total labour force 1999



Source: ECATT - empirica

Opportunity for workers in structurally weak areas

As a rule fledgling IT firms make comparatively low demands of the quality of their office space, focusing instead on technical prerequisites. These are to the fore at technology parks, for instance. As these companies mature, so their expectations of locational quality and property features usually rise. Companies from creative fields (e.g. internet design) frequently prefer an environment in keeping with their image – unusual properties, say, and “in” districts with attractive shopping and leisure amenities.

More and more companies – not only those in the IT sector – are finding direct access to state-of-the-art (high-speed) data networks indispensable. In addition to the technical infrastructure of the properties for rent, the service component is also becoming more important. This includes ICT maintenance contracts and other service features as part of comprehensive facility management. Considerable progress has already been made down the road to the “intelligent” property in which all technical in-house systems (e.g. air-conditioning, lighting, security, keyless entry) are networked, controlled and optimised. This is creating sizeable cost-cutting potential for both tenants and operators.

Generally speaking, the rapidly changing demands of IT technology are constantly shortening office property life cycles. Pre-installed cabling for PCs, internet, telephones etc. have long since become the norm. Space not meeting these standards can now scarcely be let and is therefore increasingly standing vacant.

Business centres as the new office form

Business centres operating with hotel concepts are a modern office form in which each workplace is fully equipped with the latest ICT technology. Customers can rent sizeable office spaces through to single workplaces for just a few hours (e.g. at special airport lounges for business travellers) or up to several months. The employees’ working materials and personal belongings are rolled to a vacant workplace in containers. The premises are enhanced by a raft of services (e.g. reception desk, canteen, economics travel agency and car-hire services). These new types of office accommodate the growing demands many users are now making of flexibility. But employees are still rather reserved about them, which suggests that business centres will position themselves only as a niche market in the next few years, with the conventional office as the predominant form. But in the medium term office solutions of this kind are set to gain considerable ground.

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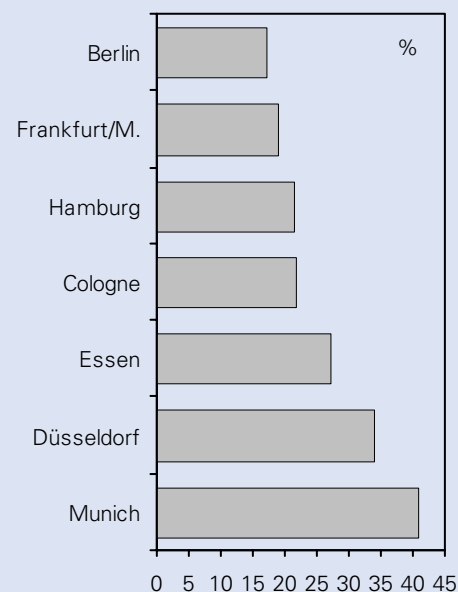
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Take-up of space by ICT companies

Proportion of rented office space 1999



Source: Müller International

Cost benefits and high flexibility ...

... but employees still have reservations